IBM System Storage DS8000

Service Guide

Version 1 Release 2

GC26-7912-01

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Note
Before using this information and the product it supports, read the information in "Notices" on page 2231.

Second edition (November 2006)

This edition replaces GC26-7912-00.

Technical changes to the text are indicated by a vertical line to the left of the text.

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Notices and publication information

This section contains information about safety notices that are used in this guide, environmental notices for this product, publication information, and information about sending your comments to IBM.

Safety notices

Complete this task to find information about safety notices.

To find the translated text for a danger or caution notice:

1. Look for the identification number at the end of each danger notice or each caution notice. In the following examples, the numbers **1000** and **1001** are the identification numbers.

   DANGER

   A danger notice indicates the presence of a hazard that has the potential of causing death or serious personal injury.

   1000

   CAUTION:
   A caution notice indicates the presence of a hazard that has the potential of causing moderate or minor personal injury.

   1001

2. Find the number that matches in the *IBM System Storage™ Solutions Safety Notices for IBM Versatile Storage Server and IBM System Storage Enterprise Storage Server*, GC26-7229.

Environmental notices

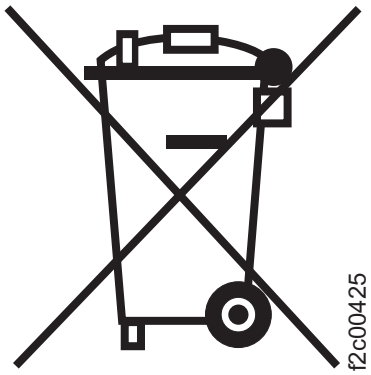
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Appliances are labeled in accordance with European Directive 2002/96/EC concerning waste electrical and electronic equipment (WEEE). The Directive determines the framework for the return and recycling of used appliances as applicable throughout the European Union. This label is applied to various products to indicate that the product is not to be thrown away, but rather reclaimed upon end of life per this Directive.

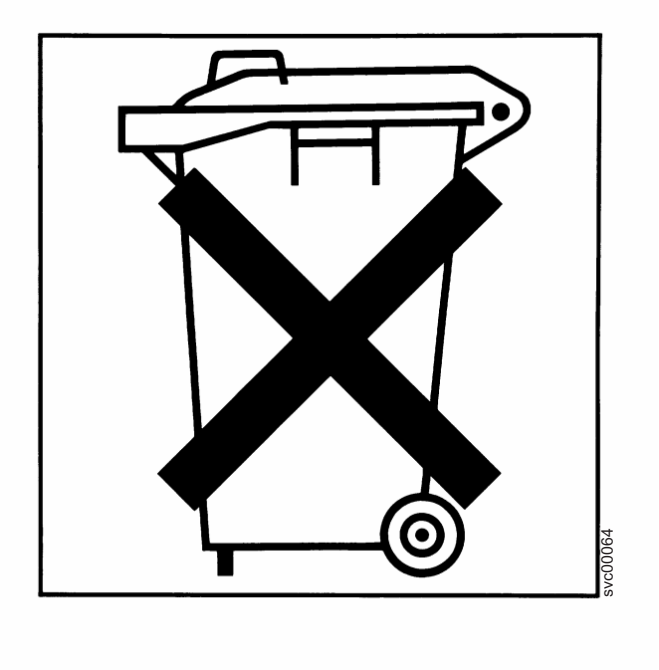
In accordance with the European WEEE Directive, electrical and electronic equipment (EEE) is to be collected separately and to be reused, recycled, or recovered at end of life. Users of EEE with the WEEE marking per Annex IV of the WEEE Directive, as shown above, must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to customers for the return, recycling and recovery of WEEE. Customer participation is important to minimize any potential effects of EEE on the environment and human health due to the potential presence of hazardous substances in EEE. For proper collection and treatment, contact your local IBM representative.

Battery return program

This product may contain sealed lead acid, nickel cadmium, nickel metal hydride, lithium, or lithium ion battery. Consult your user manual or service manual for specific battery information. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area. For information on disposal of batteries outside the United States, go to http://www.ibm.com/ibm/environment/products/batteryrecycle.shtml or contact your local waste disposal facility.

In the United States, IBM has established a return process for reuse, recycling, or proper disposal of used IBM sealed lead acid, nickel cadmium, nickel metal hydride, and other battery packs from IBM Equipment. For information on proper disposal of these batteries, contact IBM at 1-800-426-4333. Please have the IBM part number listed on the battery available prior to your call.

In the Netherlands the following applies:



For Taiwan:



Please recycle batteries.

廢電池請回收

Conventions used in this guide

The following typefaces are used to show emphasis:

boldface
Text in **boldface** represents menu items and lowercase or mixed-case command names.

italics Text in *italics* is used to emphasize a word. In command syntax, it is used for variables for which you supply actual values.

`monospace`
Text in `monospace` identifies the data or commands that you type, samples of command output, or examples of program code or messages from the system.

Related information

The tables in this section list and describe the following publications:

- The publications that make up the IBM® System Storage™ DS8000™ series library
- Other IBM publications that relate to the DS8000 series
- Non-IBM publications that relate to the DS8000 series

See "Ordering IBM publications" on page xxvii for information about how to order publications in the IBM System Storage DS8000 series publication library. See "How to send your comments" on page xxviii for information about how to send comments about the publications.

DS8000 series library

These customer publications make up the DS8000 series library.

Unless otherwise noted, these publications are available in Adobe portable document format (PDF) on a compact disc (CD) that comes with the storage unit. If you need additional copies of this CD, the order number is SK2T-8825. These publications are also available as PDF files by clicking on the **Documentation link** on the following Web site:

http://www-1.ibm.com/servers/storage/support/disk

See "Ordering IBM publications" on page xxvii for information about ordering these and other IBM publications.

Title	Description	Order Number
IBM System Storage DS: Command-Line Interface User's Guide	This guide describes the commands that you can use from the command-line interface (CLI) for managing your DS8000 configuration and Copy Services relationships. The CLI application provides a set of commands that you can use to write customized scripts for a host system. The scripts initiate predefined tasks in a Copy Services server application. You can use the CLI commands to indirectly control Remote Mirror and Copy and FlashCopy® configuration tasks within a Copy Services server group.	SC26-7625 (See Note.)
IBM System Storage DS8000: Host Systems Attachment Guide	This guide provides guidelines for attaching the DS8000 to your host system and for migrating to fibre-channel attachment from a small computer system interface.	SC26-7628 (See Note.)
IBM System Storage DS8000: Introduction and Planning Guide	This guide introduces the DS8000 product and lists the features you can order. It also provides guidelines for planning the installation and configuration of the storage unit.	GC35-0495
IBM System Storage Multipath Subsystem Device Driver User's Guide	This publication describes how to use the IBM Subsystem Device Driver (SDD) on open-systems hosts to enhance performance and availability on the DS8000. SDD creates single devices (vpaths) that consolidate redundant paths for logical unit numbers. SDD permits applications to run without interruption when path errors occur. It balances the workload across paths, and it transparently integrates with applications.	SC30-4096
IBM System Storage DS8000: User's Guide	This guide provides instructions for setting up and operating the DS8000 and for analyzing problems.	SC26-7623 (See Note.)
IBM System Storage DS Application Programming Interface Reference	This publication provides reference information for the IBM System Storage DS application programming interface (API) and provides instructions for installing the Common Information Model Agent, which implements the API.	GC35-0493

Title	Description	Order Number
IBM System Storage DS8000 Messages Reference	This publication provides explanations of error, information, and warning messages that are issued from the DS8000 user interfaces.	GC26-7659
Note: No hardcopy book is produced for this publication. However, a PDF file is available from the following Web site: http://www-1.ibm.com/servers/storage/support/disk		

Other IBM publications

Other IBM publications contain additional information that is related to the DS product library.

The following list is divided into categories to help you find publications that are related to specific topics. Some of the publications are listed under more than one category. See "Ordering IBM publications" on page xxvii for information about ordering these and other IBM publications.

Title	Description	Order Number
Data-copy services		
z/OS DFSMS Advanced Copy Services	This publication helps you understand and use IBM Advanced Copy Services functions. It describes three dynamic copy functions and several point-in-time copy functions. These functions provide backup and recovery of data if a disaster occurs to your data center. The dynamic copy functions are peer-to-peer remote copy, extended remote copy, and coupled extended remote copy. Collectively, these functions are known as remote copy. FlashCopy, SnapShot, and concurrent copy are the point-in-time copy functions.	SC35-0428
IBM Enterprise Storage Server	This publication, from the IBM International Technical Support Organization, introduces the Enterprise Storage Server and provides an understanding of its benefits. It also describes in detail the architecture, hardware, and functions, including the advanced copy functions, of the Enterprise Storage Server.	SG24-5465
Implementing Copy Services 0n S/390	This publication, from the IBM International Technical Support Organization, tells you how to install, customize, and configure Copy Services on an Enterprise Storage Server that is attached to an S/390 or zSeries host system. Copy Services functions include peer-to-peer remote copy (PPRC), extended remote copy (XRC), FlashCopy®, and concurrent copy. This publication describes the functions, prerequisites, and corequisites and describes how to implement each function into your environment.	SG24-5680
IBM TotalStorage ESS Implementing Copy Services in an Open Environment	This publication, from the IBM International Technical Support Organization, tells you how to install, customize, and configure Copy Services on UNIX, Windows NT®, Windows 2000, Sun Solaris, HP-UX, Tru64, OpenVMS, and iSeries host systems. The Copy Services functions that are described include peer-to-peer remote copy (PPRC) and FlashCopy. This publication describes the functions and shows you how to implement them into your environment. It also shows you how to implement these functions in a high-availability cluster multiprocessing environment.	SG24-5757
Fibre channel		

Title	Description	Order Number
Fibre Channel Connection (FICON) I/O Interface: Physical Layer	This publication provides information about the fibre-channel I/O interface. This book is also available as a PDF file from the following Web site: http://www.ibm.com/servers/resourcelink/	SA24-7172
Fibre Transport Services (FTS): Physical and Configuration Planning Guide	This publication provides information about fibre-optic and ESCON-trunking systems.	GA22-7234
IBM SAN Fibre Channel Switch: 2109 Model S08 Installation and Service Guide	This guide describes how to install and maintain the IBM SAN Fibre Channel Switch 2109 Model S08.	SC26-7350
IBM SAN Fibre Channel Switch: 2109 Model S08 User's Guide	This guide describes the IBM SAN Fibre Channel Switch and the IBM TotalStorage ESS Specialist. It provides information about the commands and how to manage the switch with Telnet and the Simple Network Management Protocol.	SC26-7349
IBM SAN Fibre Channel Switch: 2109 Model S16 Installation and Service Guide	This publication describes how to install and maintain the IBM SAN Fibre Channel Switch 2109 Model S16. It is intended for trained service representatives and service providers.	SC26-7352
IBM SAN Fibre Channel Switch: 2109 Model S16 User's Guide	This guide introduces the IBM SAN Fibre Channel Switch 2109 Model S16 and tells you how to manage and monitor the switch using zoning and how to manage the switch remotely.	SC26-7351
Implementing Fibre Channel Attachment on the ESS	This publication, from the IBM International Technical Support Organization, helps you install, tailor, and configure fibre-channel attachment of open-systems hosts to the Enterprise Storage Server. It provides you with a broad understanding of the procedures that are involved and describes the prerequisites and requirements. It also shows you how to implement fibre-channel attachment.	SG24-6113
Open-systems hosts		
ESS Solutions for Open Systems Storage: Compaq AlphaServer, HP, and Sun	This publication, from the IBM International Technical Support Organization, helps you install, tailor, and configure the Enterprise Storage Server when you attach Compaq AlphaServer (running Tru64 UNIX), HP, and Sun hosts. This book does not cover Compaq AlphaServer that is running the OpenVMS operating system. This book also focuses on the settings that are required to give optimal performance and on the settings for device driver levels. This book is for the experienced UNIX professional who has a broad understanding of storage concepts.	SG24-6119
IBM TotalStorage ESS Implementing Copy Services in an Open Environment	This publication, from the IBM International Technical Support Organization, tells you how to install, customize, and configure Copy Services on UNIX or Windows 2000 host systems. The Copy Services functions that are described include peer-to-peer remote copy and FlashCopy. This publication describes the functions and shows you how to implement them into your environment. It also shows you how to implement these functions in a high-availability cluster multiprocessing environment.	SG24-5757
Implementing Fibre Channel Attachment on the ESS	This publication, from the IBM International Technical Support Organization, helps you install, tailor, and configure fibre-channel attachment of open-systems hosts to the Enterprise Storage Server. It gives you a broad understanding of the procedures that are involved and describes the prerequisites and requirements. It also shows you how to implement fibre-channel attachment.	SG24-6113

Title	Description	Order Number
S/390 and zSeries hosts		
Device Support Facilities: User's Guide and Reference	This publication describes the IBM Device Support Facilities (ICKDSF) product that are used with IBM direct access storage device (DASD) subsystems. ICKDSF is a program that you can use to perform functions that are needed for the installation, the use, and the maintenance of IBM DASD. You can also use it to perform service functions, error detection, and media maintenance.	GC35-0033
z/OS Advanced Copy Services	This publication helps you understand and use IBM Advanced Copy Services functions. It describes three dynamic copy functions and several point-in-time copy functions. These functions provide backup and recovery of data if a disaster occurs to your data center. The dynamic copy functions are peer-to-peer remote copy, extended remote copy, and coupled extended remote copy. Collectively, these functions are known as remote copy. FlashCopy, SnapShot, and concurrent copy are the point-in-time copy functions.	SC35-0428
DFSMS/MVS V1: Remote Copy Guide and Reference	This publication provides guidelines for using remote copy functions with S/390 and zSeries hosts.	SC35-0169
Fibre Transport Services (FTS): Physical and Configuration Planning Guide	This publication provides information about fibre-optic and ESCON-trunking systems.	GA22-7234
Implementing ESS Copy Services on S/390	This publication, from the IBM International Technical Support Organization, tells you how to install, customize, and configure Copy Services on an Enterprise Storage Server that is attached to an S/390 or zSeries host system. Copy Services functions include peer-to-peer remote copy, extended remote copy, FlashCopy, and concurrent copy. This publication describes the functions, prerequisites, and corequisites and describes how to implement each function into your environment.	SG24-5680
ES/9000, ES/3090: IOCP User Guide Volume A04	This publication describes the Input/Output Configuration Program that supports the Enterprise Systems Connection (ESCON) architecture. It describes how to define, install, and configure the channels or channel paths, control units, and I/O devices on the ES/9000 processors and the IBM ES/3090 Processor Complex.	GC38-0097
IOCP User's Guide, IBM e(logo)server zSeries 800 and 900	This publication describes the Input/Output Configuration Program that supports the zSeries 800 and 900 servers. This publication is available in PDF format by accessing ResourceLink at the following Web site: www.ibm.com/servers/resourcelink/	SB10-7029
IOCP User's Guide, IBM e(logo)server zSeries	This publication describes the Input/Output Configuration Program that supports the zSeries server. This publication is available in PDF format by accessing ResourceLink at the following Web site: www.ibm.com/servers/resourcelink/	SB10-7037
S/390: Input/Output Configuration Program User's Guide and ESCON Channel-to-Channel Reference	This publication describes the Input/Output Configuration Program that supports ESCON architecture and the ESCON multiple image facility.	GC38-0401
IBM z/OS Hardware Configuration Definition User's Guide	This guide provides conceptual and procedural information to help you use the z/OS Hardware Configuration Definition (HCD) application. It also explains: • How to migrate existing IOCP/MVSCP definitions • How to use HCD to dynamically activate a new configuration • How to resolve problems in conjunction with MVS/ESA HCD	SC33-7988

Title	Description	Order Number
OS/390: Hardware Configuration Definition User's Guide	This guide provides detailed information about the input/output definition file and about how to configure parallel access volumes. This guide discusses how to use Hardware Configuration Definition for both OS/390® and z/OS V1R1.	SC28-1848
OS/390 V2R10.0: MVS System Messages Volume 1 (ABA - ASA)	This publication lists OS/390 MVS™ system messages ABA to ASA.	GC28-1784
Using IBM 3390 Direct Access Storage in a VM Environment	This publication provides device-specific information for the various models of the 3390 and describes methods you can use to manage storage efficiently using the VM operating system. It provides guidance on managing system performance, availability, and space through effective use of the direct access storage subsystem.	GG26-4575
Using IBM 3390 Direct Access Storage in a VSE Environment	This publication helps you use the 3390 in a VSE environment. It includes planning information for adding new 3390 units and instructions for installing devices, migrating data, and performing ongoing storage management activities.	GC26-4576
Using IBM 3390 Direct Access Storage in an MVS Environment	This publication helps you use the 3390 in an MVS environment. It includes device-specific information for the various models of the 3390 and illustrates techniques for more efficient storage management. It also offers guidance on managing system performance, availability, and space utilization through effective use of the direct access storage subsystem.	GC26-4574
z/Architecture Principles of Operation	This publication provides a detailed definition of the z/Architecture™. It is written as a reference for use primarily by assembler language programmers and describes each function at the level of detail needed to prepare an assembler language program that relies on a particular function. However, anyone concerned with the functional details of z/Architecture will find this publication useful.	SA22-7832
SAN		
IBM OS/390 Hardware Configuration Definition User's Guide	This guide explains how to use the Hardware Configuration Data application to perform the following tasks: • Define new hardware configurations • View and modify existing hardware configurations • Activate configurations • Query supported hardware • Maintain input/output definition files (IODFs) • Compare two IODFs or compare an IODF with an actual configuration • Print reports of configurations • Create graphical reports of a configuration • Migrate existing configuration data	SC28-1848
IBM SAN Fibre Channel Switch: 2109 Model S08 Installation and Service Guide	This guide describes how to install and maintain the IBM SAN Fibre Channel Switch 2109 Model S08.	SC26-7350
IBM SAN Fibre Channel Switch: 2109 Model S08 User's Guide	This guide describes the IBM SAN Fibre Channel Switch and the IBM TotalStorage ESS Specialist. It provides information about the commands and how to manage the switch with Telnet and the Simple Network Management Protocol (SNMP).	SC26-7349
IBM SAN Fibre Channel Switch: 2109 Model S16 Installation and Service Guide	This publication describes how to install and maintain the IBM SAN Fibre Channel Switch 2109 Model S16. It is intended for trained service representatives and service providers.	SC26-7352

Title	Description	Order Number
IBM SAN Fibre Channel Switch: 2109 Model S16 User's Guide	This guide introduces the IBM SAN Fibre Channel Switch 2109 Model S16 and tells you how to manage and monitor the switch using zoning and how to manage the switch remotely.	SC26-7351
Implementing Fibre Channel Attachment on the ESS	This publication, from the IBM International Technical Support Organization, helps you install, tailor, and configure fibre-channel attachment of open-systems hosts to the Enterprise Storage Server. It provides you with a broad understanding of the procedures that are involved and describes the prerequisites and requirements. It also shows you how to implement fibre-channel attachment.	SG24-6113
Seascape family		
IBM Enterprise Storage Server	This publication, from the IBM International Technical Support Organization, introduces the Enterprise Storage Server and provides an understanding of its benefits. It also describes in detail the architecture, hardware, and functions, including the advanced copy functions, of the Enterprise Storage Server.	SG24-5465
IBM Enterprise Storage Server Performance Monitoring and Tuning Guide	This guide, from the IBM International Technical Support Organization, provides guidance on the best way to configure, monitor, and manage your Enterprise Storage Server to ensure optimum performance.	SG24-5656
IBM Versatile Storage Server: Introduction and Planning Guide	This publication introduces the IBM Versatile Storage Server™ and lists the features you can order. It also provides planning information for both 2105 Models B09 and 100.	GC26-7223
Implementing the IBM Enterprise Storage Server in Your Environment	This publication, from the IBM International Technical Support Organization, can help you install, tailor, and configure the Enterprise Storage Server in your environment.	SG24-5420
Storage management		
Device Support Facilities: User's Guide and Reference	This publication describes the IBM Device Support Facilities (ICKDSF) product used with IBM direct access storage device (DASD) subsystems. ICKDSF is a program that you can use to perform functions that are needed for the installation, the use, and the maintenance of IBM DASD. You can also use it to perform service functions, error detection, and media maintenance.	GC35-0033
IBM TotalStorage Solutions Handbook	This handbook, from the IBM International Technical Support Organization, helps you understand what makes up enterprise storage management. The concepts include the key technologies that you must know and the IBM subsystems, software, and solutions that are available today. It also provides guidelines for implementing various enterprise storage administration tasks so that you can establish your own enterprise storage management environment.	SG24-5250

Ordering IBM publications

You can order copies of IBM publications using the IBM publications center.

IBM publications center

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The IBM publications center offers customized search functions to help you find the publications that you need. Some publications are available for you to view or download free of charge. You can also order publications. The publications center displays prices in your local currency. You can access the IBM publications center through the following Web site:

http://www.elink.ibmlink.ibm.com/public/applications/publications/cgibin/pbi.cgi

Note: Open the Web site in a new browser window by right clicking on the link and selecting ″Open in New Window.″

Web sites

The following Web sites provide information about the IBM System Storage DS8000 series and other IBM storage products.

Type of Storage Information	Web Site
Concurrent Copy for S/390 and zSeries host systems	http://www.storage.ibm.com/software/sms/sdm/
Copy Services command-line interface (CLI)	http://www-1.ibm.com/servers/storage/support/software/cscli/
DS8000 Information Center	http://publib.boulder.ibm.com/infocenter/ds8000ic/index.jsp
DS8000 series publications	http://www-1.ibm.com/servers/storage/support/disk Click **Documentation**.
FlashCopy for S/390 and zSeries host systems	http://www.storage.ibm.com/software/sms/sdm/
Host system models, operating systems, and adapters that the storage unit supports	http://www.ibm.com/servers/storage/disk/ds8000/ Click **Interoperability matrix**.
IBM Disk Storage Feature Activation (DSFA)	http://www.ibm.com/storage/dsfa
IBM storage products	http://www.storage.ibm.com/
IBM System Storage DS8000 series	http://www-1.ibm.com/servers/storage/disk/ds8000
IBM version of the Java (JRE) that is often required for IBM products	http://www-106.ibm.com/developerworks/java/jdk/
Multiple Device Manager (MDM)	http://www.ibm.com/servers/storage/support/ Click **Storage Virtualization**.
Remote Mirror and Copy (formerly PPRC) for S/390 and zSeries host systems	http://www.storage.ibm.com/software/sms/sdm/
SAN fibre channel switches	http://www.ibm.com/storage/fcswitch/
Storage Area Network Gateway and Router	http://www-1.ibm.com/servers/storage/support/san/
Subsystem Device Driver (SDD)	http://www-03.ibm.com/servers/storage/support/software/sdd
Technical notes and product tips	http://www.ibm.com/servers/storage/support/disk/ds8100/ Click **Technical notes** on the Troubleshooting tab.
z/OS Global Mirror (formerly XRC) for S/390 and zSeries host systems	http://www.storage.ibm.com/software/sms/sdm/

How to send your comments

Your feedback is important to help us provide the highest quality information. If you have any comments about this information or any other DS8000 series documentation, you can submit them in the following ways:

- e-mail

  Submit your comments electronically to the following e-mail address:

starpubs@us.ibm.com

Be sure to include the name and order number of the book and, if applicable, the specific location of the text you are commenting on, such as a page number or table number.

- Mail

  Fill out the Readers' Comments form (RCF) at the back of this book. Return it by mail or give it to an IBM representative. If the RCF has been removed, you can address your comments to:

  International Business Machines Corporation
  RCF Processing Department
  Department 61C
  9032 South Rita Road
  TUCSON AZ 85775-4401

Chapter 1. Start here

Use this section as the entry point for all service actions. Locate the task you would like to complete from the tables that follow.

These procedures are for service representatives who are trained to install and repair the IBM System Storage DS8000. Internal components of this machine are designed and certified to be serviced by trained personnel only.

Table 1. Entry for all service actions

If you are here to:	Go to:
Analyze and repair problems (DS8000 and management console)	"Analyze and repair problems" on page 2
Repair customer reported problems	"Customer reported problems" on page 4
z/OS® reported problems	"z/OS Reported problems" on page 5
Run CdaPreVerify	"MAP1214 Run CdaPreVerify" on page 487
View storage facility state (similar to 2105 End of Call)	"MAP1100 View storage facility state (end of call)" on page 446
View storage facility image (SFI) state	"MAP1260 Displaying the storage facility image (SFI) state" on page 518
View installed code and firmware levels	"MAP1212 Displaying Installed Code Levels (LIC, HMC, Storage Manager, Firmware, OS, PTF, SFI, Bundle VRMF, CDA History)" on page 484
Visual symptoms	"MAP1320 Isolating problems using visual symptoms" on page 526
View location codes listed in serviceable events	"MAP1245 Finding FRUs using location codes" on page 514
View light indicator (LED) definitions	Chapter 46, "Light indicators (LEDs)," on page 1441
View the Parts Catalog	Chapter 43, "Part numbers," on page 1323
Power Off/On the storage facility	"MAP2470 Powering off and on the storage facility from the management console" on page 628
Remove UEPO feature	"MAP22B0 Customer remote UEPO control" on page 616
Install and remove hardware	Chapter 2, "Start here for all install and remove tasks," on page 13
Perform a configuration of storage facility by Service Provider Only (CUIR)	"Storage facility configuration (service provider only)" on page 7
Perform a configuration of storage facility image logical configuration	This is a customer responsibility.
Configure management console settings	"Management console configuration" on page 9

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Table 1. Entry for all service actions (continued)

If you are here to:	Go to:
Customer cannot remotely access the management console	"MAP6730 Customer access to management console problem" on page 851
Customer cannot access CEC Ethernet port(s) for managing Flash Copy (Only if CEC enclosure PCI slot 1 or 5 has Ethernet card.)	"MAP4770 Customer problem accessing Ethernet port for Flash Copy Establish feature" on page 698
Management console login, navigation, and problems	"Management console (HMC) login, navigation, and problems" on page 7
Management console hardware, software, and problems	"Management console hardware, software, and problems" on page 7
Advanced system management interface (ASMI)	"Advanced System Management Interface (ASMI)" on page 9
Licensed internal code update and features	"Licensed internal code and features" on page 10
Test a machine function	"Test a machine function" on page 10
View reference information	"Reference information" on page 11
View DS8000 Network and Remote Support Overview	Chapter 58, "DS8000 Network and Remote Support Overview," on page 2211

Analyze and repair problems

Select one of the following:

- The customer has requested help or reported a problem, go to "Customer reported problems" on page 4.
- Management console (HMC) service tasks, go to Table 2.
- 2107/242x storage facility rack service tasks, go to Table 3 on page 3.

Table 2. Management console tasks

Service action	Go to:
Call home problems, modem	"MAP1301 Isolating Call Home/remote services failure" on page 520
Create and offload a PE package	
Display and repair a serviceable event	"MAP1210 Displaying and repairing a serviceable event" on page 477
E-mail notification problem	"MAP1310 Isolating e-mail notification problems" on page 525
E-mail reported problem	"MAP1460 Isolating e-mail report errors" on page 545
Login problem to the management console	"Management console (HMC) login, navigation, and problems" on page 7

Table 2. Management console tasks (continued)

Service action	Go to:
Management console navigation	"MAP1220 Management console GUI menu structure" on page 490
Management console problems	"MAP6000 Entry point for analyzing management console problems" on page 766
Modem call home problems	"MAP1301 Isolating Call Home/remote services failure" on page 520
Network topology tool to display private networks node status	"MAP7001 Using the network topology tool" on page 862
Prioritize serviceable events and/or visual symptoms for repair	"MAP1200 Prioritizing serviceable events and visual symptoms for repair" on page 476
Replace an MC FRU	Use the *Management Console Service Guide* on the DS8000 Service documentation CD. Some management console server FRUs have unique part numbers for DS8000 use. Refer to "X335 MC server part numbers" on page 1354 or "X336 MC server part numbers" on page 1356.
SNMP notification problem	"MAP1305 Isolating SNMP notification problems" on page 523
Visual symptoms	"MAP1320 Isolating problems using visual symptoms" on page 526

Table 3. 2107/242x tasks

Service action	Go to:
Codes (SRC, progress, diagnostic, error, etc.)	Chapter 48, "Entry table for all messages and codes," on page 1469
Codes displayed on the CEC enclosure panel	"MAP4360 Codes displayed by the CEC enclosure control panel" on page 680
Codes displayed on the primary power supply (PPS)	"MAP2340 codes on the PPS status display" on page 620
Display and repair a serviceable event	"MAP1210 Displaying and repairing a serviceable event" on page 477
E-mail notification problem	"MAP1310 Isolating e-mail notification problems" on page 525
E-mail reported problem	"MAP1460 Isolating e-mail report errors" on page 545
ESCON host or fibre host system link error	"MAP5300 ESCON or fibre channel link fault" on page 748
ESCON host system receives 'FC' status, pinned data	"MAP4560 No valid subsystem status available" on page 689
Management console problems	"MAP6000 Entry point for analyzing management console problems" on page 766
Modem call home problems	"MAP1301 Isolating Call Home/remote services failure" on page 520
Network topology tool to display private networks node status	"MAP7001 Using the network topology tool" on page 862
PE package, create and offload a	

Table 3. 2107/242x tasks (continued)

Service action	Go to:
Primary power supply fan speeds do not seem normal	"MAP1130 PPS Fan Normal and Failure Modes" on page 475
Prioritize serviceable events and/or visual symptoms for repair	"MAP1200 Prioritizing serviceable events and visual symptoms for repair" on page 476
Replace a FRU without using a serviceable event	"MAP1230 Replace a FRU without using a serviceable event" on page 501
RIO topology utility to display RIO nodes status.	"MAP4E20 RIO Topology tool" on page 742
Server and partition states displayed by HMC (example: Operating, Standby, Recovery, Power off)	"MAP66C0 Managed system states displayed by the HMC" on page 848
SNMP notification problem	"MAP1305 Isolating SNMP notification problems" on page 523
Visual symptoms	"MAP1320 Isolating problems using visual symptoms" on page 526

Customer reported problems

Table 4. Entry for customer reported problems

Service action	Go to:
Customer cannot access the 2107 management console. Customer applications that access the ESSNI server on the management console using one of the following interface protocols: • ICAT (ESS GUI) • Command line interface (CLI) • SMIS	"MAP6730 Customer access to management console problem" on page 851
Customer cannot access the management console remotely	"MAP6730 Customer access to management console problem" on page 851
Customer LAN connection problems	"MAP6580 Customer Ethernet connection problem" on page 833
Customer cannot access a SCSI LUN	Normally this is due to a logical configuration problem or other customer related problem with the SCSI based host server. This could also be the result of an offline RAID array on the 2107. This can only occur if there are multiple problems affecting the array. Use the management console to display and repair any related serviceable events. If related problems are not found, call the next level of support.
Cannot access a fibre channel LUN	"MAP5430 Host fibre channel fails to recognize DS8000 LUNs" on page 763

Table 4. Entry for customer reported problems (continued)

Service action	Go to:
Customer reports a loss of line cord input power via e-mail message	There should be a related Serviceable Event. If there is none, observe the rack operator panel line cord indicators. If both indicators are lit, and the primary power supplies are not displaying status codes, the problem is no longer occurring.
Customer is not receiving e-mail notification of serviceable events	"MAP1310 Isolating e-mail notification problems" on page 525
Customer is not receiving SNMP notification of serviceable events	"MAP1305 Isolating SNMP notification problems" on page 523
Customer reports the primary power supply (PPS) fan speeds do not seem normal	"MAP1130 PPS Fan Normal and Failure Modes" on page 475
Customer is having problems creating the logical configuration	Repair any open serviceable events related to the I/O enclosures or storage enclosures. If there are none, have the customer contact IBM support and ask for software help with the logical configuration and the GUI interface.
Customer is having problems activating the LIC feature licenses	If the customer has purchased LIC features, the customer is responsible for retrieving the keys and activating the licenses by using the procedures in the *IBM System Storage DS8000 User's Guide* (see Activating Licenses). **Note:** If the customer cannot access the keys on the DSFA Web site, the customer is instructed to open a service call. The service representative can have PFE (via the next level of support) manually generate and provide the keys to the customer.

z/OS Reported problems

Table 5. Entry for z/OS repairs

Service action:	Go to:
Changing the SIM reporting levels	"MAP1110 SIM generation and interpretation for Z-OS" on page 471
Repair using a SIM console message	"MAP1110 SIM generation and interpretation for Z-OS" on page 471
SIM Sense Reference Information SIM	"MAP1110 SIM generation and interpretation for Z-OS" on page 471
SIM media maintenance procedures	"MAP1110 SIM generation and interpretation for Z-OS" on page 471

Install hardware

Table 6. Install hardware

Service action	Action
2107 subsystem (single or multiple racks)	Chapter 4, “Installing the DS8000 Model 92X/9AX, 93X/9BX,” on page 17
Storage enclosure (for FCIC cards and DDMs)	See MES instructions for feature
Host cards (ESCON or fibre channel)	See MES instructions for feature
Storage enclosure disk drive sets	See MES instructions for feature
External system management console	Chapter 5, “Installing an external management console,” on page 105
Safety inspection	Chapter 56, “Safety inspection,” on page 2153
Connect management console to customer network	“Configuring the management console” on page 69

Remove hardware

Table 7. Remove hardware

Service Action	Action
2107 subsystem	Chapter 12, “Discontinuing a storage facility,” on page 347
Relocate 2107 subsystem	Chapter 10, “Relocating a storage facility,” on page 259
Host cards (ESCON or fibre channel)	See MES instructions for feature
2107 expansion enclosure	Removing a 2107 expansion rack from an existing 2107 subsystem requires a separate RPQ.
Storage enclosure (for FCIC cards and DDMs)	Removing a storage enclosure from an existing 2107 subsystem requires a separate RPQ.

Storage facility logical configuration (customer only)

Table 8. Storage facility logical configuration (customer only)

Service action	Action
Change logical subsystem configuration	This is a customer responsibility. Service provider does not perform this action for the 2107.

Storage facility configuration (service provider only)

Table 9. Storage facility configuration (service provider)

Service Action	Action
Enable / disable control unit initiated reconfiguration (CUIR)	Management console navigation area: **Service Applications → Service Focal Point → Service Utilities → Get Storage Facility Images → Enable/Disable Control Switches**

Management console (HMC) login, navigation, and problems

Table 10. Entry for management console (HMC) login, navigation, and problems

Service Action	Action
Management console login and login problems at the management console server	"MAP6060 Management console login and login problems at the management console server" on page 770
Shutting down, rebooting and logging off the management console	"MAP6640 Shutting down, rebooting, and logging off the management console" on page 843
Management console GUI menu structure	"MAP1220 Management console GUI menu structure" on page 490
Advanced System Management Interface (ASMI) login and other functions	"Advanced System Management Interface (ASMI)" on page 9
Viewing recent management console login activity	"MAP6690 Viewing recent management console activity" on page 847
Definitions of managed system power modes and power states	"MAP66C0 Managed system states displayed by the HMC" on page 848
Changing the locale or the locale screen that is displayed during boot	"MAP1217 HMC changing locale screen during boot (change language)" on page 489

Management console hardware, software, and problems

Table 11. Entry for management console hardware, software, and problems

Service Action	Action
Entry point for analyzing management console problems with hardware, software, network, modem, 8-character error codes	"MAP6000 Entry point for analyzing management console problems" on page 766
The customer cannot remotely access the management console	"MAP6730 Customer access to management console problem" on page 851
Diagnose problems with the 2107 private networks that are connected to the management console	"MAP7000 Entry point for DS8000 private network problems" on page 855
Display the HMC role (primary, secondary)	"MAP60A0 Display the HMC role selection" on page 775
Display the HMC MAC addresses for the customer Ethernet connection	"MAP6010 Displaying the HMC MAC address for the customer connection" on page 767
Test configuration, communications, and call home	"Testing management console communications" on page 88

Table 11. Entry for management console hardware, software, and problems (continued)

Service Action	Action
Test the management console server hardware	"MAP6530 Testing the management console" on page 820
Connect to the customer network	"Determining the management console configuration" on page 69
Manually backup the management console configuration after a change has been made	"MAP6680 Backing up HMC critical console data" on page 847
Display the power-on self-test (POST) error codes	Refer to the approrpriate management console server manual[1]. In "Chapter 3. Diagnostics," see: • "Post error logs," "Viewing error logs from the Configuration/Setup Utility program" • "Post error logs," "Viewing error logs from the diagnostic programs"
Display the system error logs	Refer to the approrpriate management console server manual[1]. In "Chapter 3. Diagnostics," see: • "Post error logs," "Viewing error logs from the Configuration/Setup Utility program" • "Post error logs," "Viewing error logs from the diagnostic programs"
Power-on beep codes for the management console server (single beep is normal and expected)	Refer to the approrpriate management console server manual[1]. In "Chapter 6. Symptom-to-FRU index," see "Beep symptoms."
Power-on no-beep symptoms for the management console server (single beep is normal and expected)	Refer to the approrpriate management console server manual[1]. In "Chapter 6. Symptom-to-FRU index," see "No-beep symptoms."
The ″System Error LED″ on the front of the management console server is lit	Refer to the approrpriate management console server manual[1]. In "Chapter 6. Symptom-to-FRU index," see "Light Path Diagnostic panel system error LED" (X335) or "Light path diagnostics errors" (X336).
Diagnostic error codes	Refer to the approrpriate management console server manual[1]. In "Chapter 6. Symptom-to-FRU index," see "Diagnostic error codes."
Power-on self-test (POST) error codes	Refer to the approrpriate management console server manual[1]. In "Chapter 6. Symptom-to-FRU index," see "POST error codes."
Format a DVD-RAM disc	"MAP65B0 Format a DVD-RAM disc for backup/restore" on page 841
Notes	
[1] - The manual is on the *IBM System Storage DS8000 series Service Documents CDROM*: • *xSeries® 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide* • *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*	

Management console configuration

Table 12. Entry for management console configuration entry

Service Action	Action
Customize customer information	From management console navigation area, select **Service Applications → Remote Support**
Customer network connection (TCP/IP)	From management console navigation area, select **HMC Management → HMC Configuration**
Determine which of the four private network address ranges is configured.	Go to "MAP7005 Determining which private network address range is selected" on page 867
Outbound calls (local modem)	From management console navigation area, select **Service Applications → Remote Support → Customize Outbound Connectivity**
Inbound calls (remote support to local modem)	From management console navigation area, select **Service Applications → Remote Support → Customize Inbound Connectivity**
Customize E-mail notification	From management console navigation area, select **Service Applications → Service Agent → Customer Notification**. Select the **Email** tab.
Customize SNMP notification	From management console navigation area, select **Service Applications → Service Agent → Customer Notification**. Select the **SNMP Trap Configuration** tab.
Call home / remote reporting options	From management console navigation area, select **Service Applications → Remote Support → Customize Outbound Connectivity**.
Enable / disable ESSNi server	From management console navigation area, select **Service Applications → Service Focal Point**. Select the storage facility. Click **Selected → Get HMCs** click **HMC**. Click **Selected → Start/Stop ESSNI**.
Change management console date and time	From management console navigation area, select **HMC Management → HMC Configuration → Customize Console Date and Time**
Using a virtual terminal session	From management console navigation area, select **Server and Partition → Server Management**. Select a server and expand it. Expand **Partitions**. Select a partition. Click **Selected → Open Terminal Window**.

Advanced System Management Interface (ASMI)

Table 13. Entry for ASMI

Service Action	Actions
ASMI login from the management console server	From the management console navigation area, select **Service Applications → Service Focal Point → Service Utilities**. Select the system. From the Selected menu, click on **Get SF systems**. Select the system processor. From the Selected menu, click on **Launch ASM menu**
ASMI login methods	"MAP6F00 Accessing the ASMI" on page 851
Problems logging in to ASMI	"MAP6F10 Accessing the ASMI using the management console" on page 852

Table 13. Entry for ASMI (continued)

Service Action	Actions
Problems logging in to ASMI	"MAP6F40 Troubleshooting accessing the ASMI using a Web browser" on page 854
Display error/event logs (general or admin login)	From the ASMI navigation area, select **System service aids → Error/event logs → Checkmark log and click details**
System dump / service processor dump (admin login only)	From the ASMI navigation area, select **System service aids**
Viewing VPD (for next level of support)	"MAP6700 Viewing vital product data" on page 850
Viewing progress indicators from previous boot	"MAP6710 Viewing progress indicator from previous boot" on page 850
Viewing progress indicator history	"MAP6720 Viewing progress indicator history" on page 850

Test a machine function

Table 14. Entry for testing a machine function

Service Action	Action
Generate a test PMH	From the management console navigation area, select **Service Applications → Service focal point → Service Utilities**. Select the system, then from the **Selected** menu select **Generate test PMH**
Outbound calls (local modem)	From the management console navigation area, select **Service Applications → Remote support → Customize outbound connectivity**
Internet VPN connection	From the management console navigation area, select **Service Applications → Remote support → Customize outbound connectivity**.
E-mail notification	From the management console navigation area, select **Service Agent → Notification of system events**
SNMP notification	From the management console navigation area, select **Service Agent → Customize API settings**
Test network connectivity (ping command)	From the management console navigation area, select **HMC management → HMC configuration → Test network connectivity**
Safety inspection	Go to Chapter 56, "Safety inspection," on page 2153.

Licensed internal code and features

Table 15. Entry for licensed internal code and features

Service Actions	Action
Install or Active LIC feature.	Use the instructions that came with the LIC code update
LIC code update did not complete successfully.	Display and repair related serviceable events. If there are none, call the next level of support.

Table 15. Entry for licensed internal code and features (continued)

Service Actions	Action
LIC code update was in progress when the controlling maintenance console HMC failed.	Can you login to the HMC? • Yes, display and repair any related serviceable events. If there is none, call the next level of support. • No, go "MAP6000 Entry point for analyzing management console problems" on page 766.
Display LIC code levels of the storage facility or maintenance console.	Go to "MAP1212 Displaying Installed Code Levels (LIC, HMC, Storage Manager, Firmware, OS, PTF, SFI, Bundle VRMF, CDA History)" on page 484

Reference information

Table 16. Entry for reference information

Service information to reference	Location
2107 overview	Refer to *IBM System Storage DS8000 User's Guide*.
Service interface	Refer to *IBM System Storage DS8000 User's Guide*.
Parts catalog	Go to Chapter 43, "Part numbers," on page 1323
LED indicators	Go to Chapter 46, "Light indicators (LEDs)," on page 1441
Determine ESD procedures	Go to Chapter 54, "ESD procedures," on page 2133
2107 maintenance agreement qualification/safety check	Go to Chapter 56, "Safety inspection," on page 2153

Chapter 2. Start here for all install and remove tasks

Table 17. Entry for install and remove procedures

If you are here to:	Go to:
Install	
Rack 1 and any expansion racks that were previously installed with it.	Chapter 4, "Installing the DS8000 Model 92X/9AX, 93X/9BX," on page 17
Expansion rack with I/O enclosures being added to an existing DS8000.	Model 92E or 9AE with I/O enclosures Chapter 6, "Installing one expansion rack with I/O enclosures to an existing storage facility," on page 121
Expansion rack without I/O enclosures being added to an existing DS8000.	Model 92E or 9AE with I/O enclosures Chapter 7, "Installing one expansion rack without I/O enclosures to an existing storage facility," on page 181
External management console	Chapter 5, "Installing an external management console," on page 105
DDMs	Use MES instructions
Device adapter cards	Use MES instructions
Host adapters	Use MES instructions
Relocated DS8000	Chapter 10, "Relocating a storage facility," on page 259
Storage enclosures	Use MES instructions
Weight reduction feature FC0200	Chapter 8, "Installing hardware removed by weight reduction feature FC 0200," on page 231
Earthquake resistance kit feature FC1906	Chapter 9, "Installing the earthquake resistance kit feature FC 1906," on page 239
Relocate	
DS8000 storage facility	Chapter 10, "Relocating a storage facility," on page 259
Remove	
Rack 1 and any attached racks	Chapter 12, "Discontinuing a storage facility," on page 347
Weight reduction feature FC0200 (remove weight so the storage facility can be removed from the customer location).	Requires the customer to have ordered FC0200 instructions and shipping materials. If this has not occurred, contact the next level of support.
DDMs	Use MES instructions
Device adapter cards	Use MES instructions
Host adapters	Use MES instructions
Storage enclosures	Use MES instructions
Discontinue	
Rack 1 and any attached racks	Chapter 12, "Discontinuing a storage facility," on page 347

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Chapter 3. Checking for the latest level of the installation instructions

These installation instructions are provided in two formats:

- **Hardcopy**: Hardcopy instructions (printed from a PDF file) are shipped with the subsystem. The PDF file is also available on the *IBM System Storage DS8000 series Service Documents CDROM* or from the DS8000 - Engineering Web site.
- **Information Center**: The Information Center is intended for online viewing. It is available on the *IBM System Storage DS8000 series Service Documents CDROM*, on the management console (HMC), or through the Intranet.

Ensure that you are using the latest version of the installation instructions.

1. If you are performing the installation using **hardcopy** instructions, the latest level of the PDF file for printing will be available on the DS8000 - Engineering Web site (https://ssgtech4.sanjose.ibm.com/PFE/Squadrons-S%20PE%20Support.nsf/WVhome) under “Related Links”.
2. If you are performing the installation using the **Information Center**, the latest version will be available on the Intranet. Use the link from the DS8000 - Engineering Web site (https://ssgtech4.sanjose.ibm.com/PFE/Squadrons-S%20PE%20Support.nsf/WVhome) under “Related Links”.

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Chapter 4. Installing the DS8000 Model 92X/9AX, 93X/9BX

These procedures are for an installation of a DS8000 Model 92X/9AX, 93X/9BX.

DANGER

HEAVY EQUIPMENT -- PERSONAL INJURY OR EQUIPMENT DAMAGE MAY RESULT IF MISHANDLED (D006)

Attention: The customer should prepare his environment to accept the new product based on the installation planning information provided, with assistance from an IBM Installation Planning Representative (IPR) or IBM authorized service provider. In anticipation of the equipment delivery, the final installation site should be prepared in advance such that professional movers/riggers can transport the equipment to the final installation site within the computer room. If for some reason, this is not possible at the time of delivery, the customer will need to make arrangements to have professional movers/riggers return to finish the transportation at a later date. Only professional movers/riggers should transport the equipment. The IBM authorized service provider will only perform minimal frame repositioning within the computer room, as needed, to perform required service actions. The customer is also responsible for using professional movers/riggers in the case of equipment relocation or disposal.

Beginning the installation of the DS8000 storage facility

Begin the installation of the storage facility by completing the tasks in the following sections.

Recording information for the installation report

Near the end of the installation process the system service representative (SSR) will be required to enter information to complete an Install Report that is automatically sent to IBM ("call home"). The required information includes the total number of hours for each phase of the installation.

- Each SSR working on installation activities must keep track of their times.
- You will be required to enter duration of time in hours and tenths of hours for the various phases of the installation.
- The time spent on problem resolution is kept separately.
- The installation instructions will remind you when to return here and enter your date and time information for each phase.

1. This step is an example of the Install Report information required for one of the installation phases.

   Example: Position, cable up, power and safety checks phase

   ```
   SSR #1 works Saturday, 9:00 AM to 10:00 AM and 12:30 PM to 1:00 PM
         (1.5 hours total)
   SSR #1 works on problem determination Saturday, 10:00 AM to 12:30 PM
         (2.5 hours total)
   ```

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```
SSR #2 works on problem determination Saturday, 11:00 AM to 12:30 PM
      (1.0 hour total)
Phase started Saturday, 9:00 AM.  Phase ended at 1:00 PM (4.0 hours elapsed)
```

Table 18. Example of install phase information for second Install Report screen

Phase	Total SSR Hours	Elapsed Hours Start to Finish	SSR Hours for Problem Resolution
Check customer prep through safety checks	5.5	4.0	3.5
Note: enter hours in format xx.y (xx = hours, y=tenths)			

Total SSR hours
Sum of hours by all IBM SSRs working on this phase. This includes problem resolution time on this phase.

Elapsed Time
Number of clock hours between the start time and finish time of this phase.

Problem Resolution Time
Sum of hours by all IBM SSRs spent doing problem resolution for this phase (does not include time spent doing problem resolution for other installation phases).

2. Complete the information in Table 19 to record the overall duration of the installation.

   Note: This does not include post installation actions and times that are recorded in Table 20.

Table 19. Install time elapsed in hours

Start and End of Install (SC20 activity)	Date and time
Start time of first IBM SSR begins the install (SC20)	
End time when last IBM SSR completes the install (SC20 complete)	
Total Elapsed Time in hours	

Example:
Install started Saturday, 8:00 AM
Install completed Sunday 10:24 AM

Total elapsed time in hours = 26.4

3. Complete the following tables as you proceed through the phase of the install, post install, and any problem determination you do.

Table 20. Install actions and start/stop times

Phase	Start Time (date and time)	Stop Time (date and time)	Number of Hours (hours & tenths)
Check customer prep through safety checks			
HMC initial configuration			

Table 20. Install actions and start/stop times (continued)

Phase	Start Time (date and time)	Stop Time (date and time)	Number of Hours (hours & tenths)
Storage Facility bring-up			
HMC customization and communication tests			
End of install and clean up			

Table 21. Post install actions and start/stop times

Phase	Start Time (date and time)	Stop Time (date and time)	Number of Hours (hours & tenths)
Monitor Certify DDM			
HMC code upgrade (SC33)			
SF code upgrade (SC33)			

Table 22. Problem resolution for any phase

Record each phase that requires problem resolution on a separate line	Start Time (date and time)	Stop Time (date and time)	Number of Hours (hours & tenths)

4. Continue with the installation.

Checking customer preparations

1. Record the *start* date and time for the *Check customer prep through safety checks* phase in Table 20 on page 18, "Recording information for the installation report" on page 17.

2. Verify that the customer has two AC power sources for each rack in the DS8000 storage facility.

   For maximum fault tolerance, use two separate AC power sources.

   Note: The DS8000 is designed for connection to an IT power distribution system. In an IT power distribution system, the neutral conductor is isolated from earth (ground) by an impedance with exposed conductive parts in the installation that is tied directly to earth.

   No service representative action is needed. Information is for compliance with International Electrotechnical Commission Standard 950 for the safety of information technology equipment and electrical business equipment.
3. Verify the customer wall circuit breaker. The customer wall circuit breaker rating that protects each line cord depends on the voltage range as follows:
   - Low-voltage, three-phase installations (200 - 240 V) require wall circuit breakers that have a rating of 50 to 60 A. Do not exceed the wire rating of the facility.
   - High-voltage, three-phase installations (380 - 480 V) require wall circuit breakers that have a rating of 30 to 35 A. Do not exceed the wire rating of the facility.
4. If the DS8000 will be installed on a raised floor:
   a. Review the weight of each rack with the customer to verify that their raised floors have adequate support. An individual rack, fully configured can weigh a maximum of 2880 pounds (1307 kilograms). For details on the DS8000 rack weights, refer to *IBM System Storage DS8000 Introduction and Planning Guide*.
   b. To correctly cool a DS8000, place two floor tiles, that have holes for air flow, directly in the front and the rear of each DS8000 rack (for a total of 4). Also provide tiles with holes, for cable entry, under the rear tailgate.
5. If the DS8000 will not be installed on a raised floor, ensure the customer will provide adequate air flow and temperature around the DS8000.

   Notes:

   a. For information about the temperature requirements of the operating environment, see the *IBM System Storage DS8000 Introduction and Planning Guide*.
   b. The DS8000 rack cooling airflow enters through the front and rear covers and exits through the top and rear covers. The bottom of the DS8000 is sealed.
6. Verify that the customer has ordered, supplied, and routed the following cables to the DS8000 being installed. Routing of the customer cables must not be billed against the installation. If the customer wants the service representative to route the cables, that activity must be coded or billed separately.
   a. ESCON host cables from the host to the DS8000 host adapters.
   b. Fibre host cables from the host to the DS8000 host adapters.
   c. An Ethernet LAN signal cable. This cable is required to connect the management console to the customer LAN.
   d. If the rear of each CEC enclosure has a two-port Ethernet card in PCI slot 1 or 5 (counted from left to right), then the customer has ordered a feature code that installs additional Ethernet cards. The cards allow faster

management of flash copy relationships. For each empty port, the customer should provide an Ethernet cable from their network to be connected.

e. A functional analog telephone line to the hardware management console (also referred to as HMC and management console) within 2.5 meters (8 feet) of the management console.

f. AC service for the service provider laptop within 2.5 meters (8 feet) of the DS8000.

g. AC service outlet for each component of an external management console.

Checking communications work sheets

Verify that the customer has provided a completed copy of the DS8000 work sheets. Refer to the *IBM System Storage DS8000 Introduction and Planning Guide*.

Checking for required microcode

1. Is the new storage facility being installed to an existing storage complex?
   - Yes, ensure the code level of the existing storage complex and management consoles are already at a compatible level or same level as the new code levels. Then go to step 2.
   - No, go to step 3.

   Note: Normally, if there are two management consoles, they both must be running the same level of code.
2. Ensure the code level of the existing storage plex and management consoles are already at a compatible level or same level as the new storage facility code levels.

   Note: Do not intermix the following bundles within a storage plex without the approval of next level of support.
   - bundle 6.1.6xx.xx or prior
   - bundle 6.2.0xx.xx or later
3. Determine if there is a required level of microcode available for your storage facility or management console. For IBM personnel, go to DS8000 - Engineering Web site (https://ssgtech4.sanjose.ibm.com/PFE/Squadrons-S%20PE%20Support.nsf/WVhome). For non-IBM personnel, follow the established process to determine the required code level.

   When the web site defines a code level as “required”, it means that the storage facility must not be transferred over to the customer without the indicated code level installed.

   When the web site defines a code level as “recommended”, it means the IBM service representative can either:
   - Give the storage facility to the customer when the installation is complete.
   - Negotiate with the customer for a more convenient time to update the microcode.

Checking RETAIN for storage facility installation tips

1. Sign on to RETAIN.
2. Select HSF.
3. Search for 2107 Install (p;2107 Install). RETAIN may have information that corrects problems that are not yet addressed by the install instructions.

Checking for RETAIN registration

If you are installing the first DS8000 storage facility in the storage complex, sign on to RETAIN and check that the DS8000 that contains the management console is registered.

1. Enter `n;z/cpu 2NNNPPSSSSS` where:

   2NNN Machine type of 2107, 2421, 2422, 2423, or 2424

   PP Plant of manufacture

   SSSSS
   The last 5 digits of the serial number. You can find the serial number label on the DS8000 Rack-1 operator panel beneath the red UEPO switch.

2. If the command output returns 'UNKNOWN CPU SPECIFIED', ask the support center to register the DS8000.

Unpacking the storage facility and verifying the ship group is complete

1. Remove the CE Unpacking Instructions from the Customer Engineer envelope taped to the front of the storage facility below the CEC enclosures. Use the CE Unpacking Instructions to unpack the storage facility frame(s) and prepare it for installation.
2. Verify that all items in the ship group were received.
   a. The ship group comes in one or more large boxes on pallets. The customer may not allow the pallet and large box in their machine room. Consequently, you may end up with a pile of parts on the floor.
   b. If an expansion rack is included, the decorative covers that go between the racks are either packed in a separate long narrow box (old version) or are packed in the large ship group box (new version).
   c. The hardcopy listing of the ship group contents is shipped loose with the other parts inside the large boxes. If it is missing, check if it was accidently discarded along with the pallets and large boxes. An additional copy of the paperwork may be included in the CE Envelope.
   d. The official ship group listing of parts is included in the ship group. Table 23 and Table 24 on page 23 are for reference only.

      Notes:

      - Version 1 part numbers are *not* eligible for use in European Union member states.
      - Version 2 part numbers are eligible for use everywhere including European Union member states.
      - Only the most recent part numbers are listed. Your DS8000 or serviceable event FRU list may contain an older part number. The parts ordering system can automatically substitute a later part number as needed.

Table 23. Service ship group part numbers (base rack)

Description	Part number	
	Version 1	Version 2
Cable, Ethernet, black, 31.0 m	22R1798	22R1798

Table 23. Service ship group part numbers (base rack) (continued)

Description	Part number	
	Version 1	**Version 2**
Cable, Ethernet, gray, 31.0 m	22R1799	22R1799
CD-ROM, Code Bundle	[1]	[1]
CD-ROM, Customer Documents	[1]	[1]
CD-ROM, Service Documents	[1]	[1]
Label, operator panel warning, translated	22R1789	22R1789
Publication, Service Provider Start Here	22R4228	22R4228
Publication, Installation Guide	[1]	[1]
Publication, Statement of Limited Warranty	22R5940	22R6401
Publication, Waste Equipment (WEEE)	22R5822	22R5822
Tag, ″Do Not Operate″	23R0280	23R0280
Tie wrap	07J6655	07J6655
Wheel chocks (set of 4)	08J5557	08J5557
Wrap plug, ESCON	05N6767	12R9312
Wrap plug, Ethernet	00G2380	03N6070
Wrap plug, Fibre Channel, copper (device adapter)	23R0856	23R0856
Wrap plug, Fibre Channel, optic (host adapter)	12R9314	12R9314
Notes: 1. The part number changes with each release. Call the next level of support.		

Table 24. Service ship group part numbers (expansion rack)

Description	Part number	
	Version 1	**Version 2**
Bolt, M8 x 20, interrack spacer	1621545	1621545
Cable, Ethernet, black, 31.0 m	22R1798	22R1798
Cable, Ethernet, gray, 31.0 m	22R1799	22R1799
CD-ROM, Code Bundle	[1]	[1]
CD-ROM, Customer Documents	[1]	[1]
CD-ROM, Service Documents	[1]	[1]
Cover, interrack decorative, side (one-piece)	22R4964	22R4964
Cover, interrack decorative, side (two-piece, hinged)[2]	23R1050[2]	23R1050[2]
Cover, interrack decorative, top	22R4962	22R4962
Drawing, interrack spacer stud	22R5481	22R5481
Label, operator panel warning, translated	22R1789	22R1789
Publication, Service Provider Start Here	22R4228	22R4228
Publication, Installation Guide	[1]	[1]
Publication, Installing an Expansion Rack	[1]	[1]
Publication, Statement of Limited Warranty	22R5940	22R6401
Publication, Waste Equipment (WEEE)	22R5822	22R5822

Table 24. Service ship group part numbers (expansion rack) (continued)

Description	Part number	
	Version 1	Version 2
Spacer stud, interrack	22R5046	22R5046
Tag, "Do Not Operate"	23R0280	23R0280
Tie wrap	07J6655	07J6655
Washer, M8, interrack spacer	84X5850	84X5850
Wheel chocks (set of 4)	08J5557	08J5557
Notes: 1. The part number changes with each release. Call the next level of support. 2. A bracket (23R2044) and two nuts (84X4841) secure the two pieces at the hinge.		

3. Place the ship group parts list in the document enclosure (front upper left of rack 1). This list can be used for future removal of the storage facility.

Inspecting for shipping damage

1. Inspect the storage facility for any damage that might have occurred during shipping.
2. If you observe shipping damage or missing items, do not install the storage facility without IBM management approval. Report all observed damage immediately, following existing procedures.

Determining if a safety inspection is required

Find the condition that applies to your storage facility:

- New storage facility from IBM. A safety inspection is not required. Continue with "Positioning and cabling the racks."
- Not a new storage facility from IBM and was maintained by IBM. A safety inspection is not required. Continue with "Positioning and cabling the racks."
- Not a new storage facility from IBM and was not maintained by IBM. A safety inspection is required. Continue with Chapter 56, "Safety inspection," on page 2153 in the Service Information Center.

Positioning and cabling the racks

Use the following sections to position Rack-1 and to install additional storage racks.

Checking for earthquake resistance kit

The earthquake resistance kit, Feature Code 1906, provides additional hardware to be installed. The kit stiffens the rack from flexing and also ties the rack directly to the concrete floor. The kit can be installed on a raised floor or non-raised floor.

- If the rack is new from IBM, the MES hardware kit for FC 1906 would be shipped with the rack.
- If the rack has been discontinued from another account, and the earthquake resistance kit was originally installed there, the kit would have been removed and shipped separately.

  The original kit included parts to tie-down the rack to a non-raised floor, a low raised floor, and a high raised floor. Parts not used at the original installation

may not have been kept and shipped. If you are installing on a different floor type than the original floor type, you may not have all the necessary parts. Call the next level of support.

Important: If FC 1906 is to be installed, the base rack and any attached expansion racks must all have FC 1906 installed.

1. Is the Earthquake Resistance Kit Feature (FC 1906) to be installed on this storage facility?
   a. Yes, go to Chapter 9, "Installing the earthquake resistance kit feature FC 1906," on page 239, then return here and continue at the next step.
   b. No, go to the next step.
2. Continue with "Positioning Rack-1."

Positioning Rack-1

If you have questions about floor loading and service clearances of the DS8000 racks, review the Site Requirements for the DS8000 section in the *IBM System Storage DS8000 Introduction and Planning Guide* which is available on the *IBM System Storage DS8000 series Service Documents CDROM*.

DANGER

HEAVY EQUIPMENT -- PERSONAL INJURY OR EQUIPMENT DAMAGE MAY RESULT IF MISHANDLED (D006)

1. Verify that the new location meets the necessary service clearances for the storage facility which include any attached racks. Refer to the installation site requirements for the DS8000 in *IBM System Storage DS8000 Introduction and Planning Guide*.
2. Do you have more than one rack to install?
   - Yes, continue at the next step.
   - No, go to step 4 on page 26.
3. You must ensure that each expansion rack is installed to the base rack (Rack-1) that it was originally configured with.

   Note: If expansion racks for two storage facilities are accidentally intermixed, a successful install will not be possible.
   - Each rack has a small label with its rack S/N under the operator panel cover. See Figure 1 on page 26.
   - Each rack has a large label with its rack number (position in the storage facility) and the S/N of the Rack-1 it must be installed to on the right of the operator panel cover. See Figure 1 on page 26.

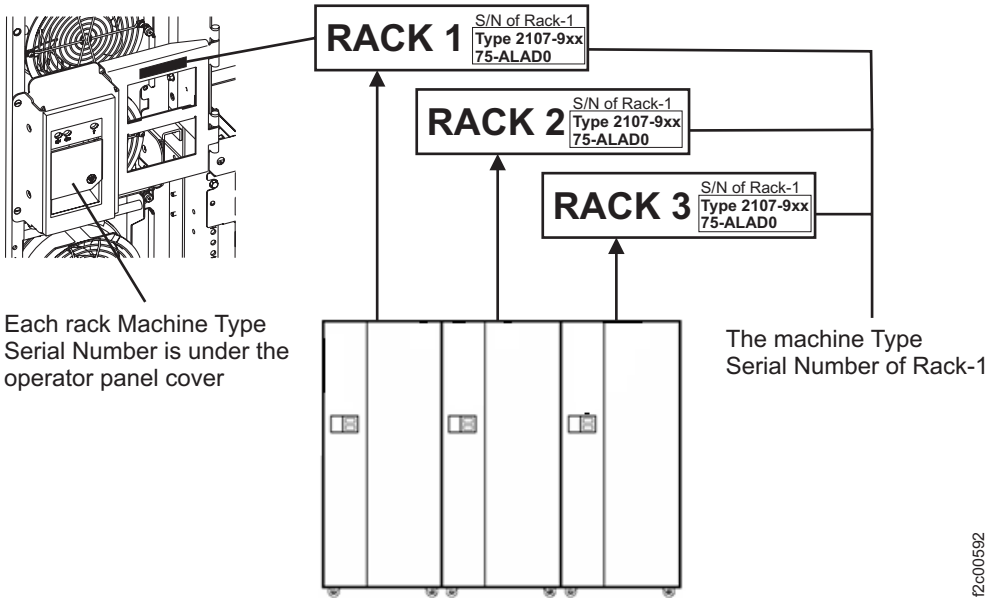


Figure 1. Rack serial number

4. Move Rack-1 to its permanent location. If installing on a raised floor, position the rack so the rear tailgate, especially the rightmost opening for the mainline power cables, is directly over the floor tile cutouts.
5. Install the wheel chocks **1** (located in the ship group) on all four casters. Refer to Figure 2.

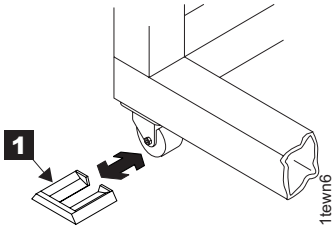


Figure 2. Wedge chocks

6. Ensure the rack operator panel UEPO switch clear access cover is present. If it is not installed, read the following note.

   Note: Some racks may be shipped with the cover removed and stored in a plastic bag in the document enclosure above the rack operator panel. The cover pivots on two small tabs at the top of the cover. To install the cover engage the left side tab **1**, push the cover gently to the right and then engage the right tab **2**. See Figure 3 on page 27.

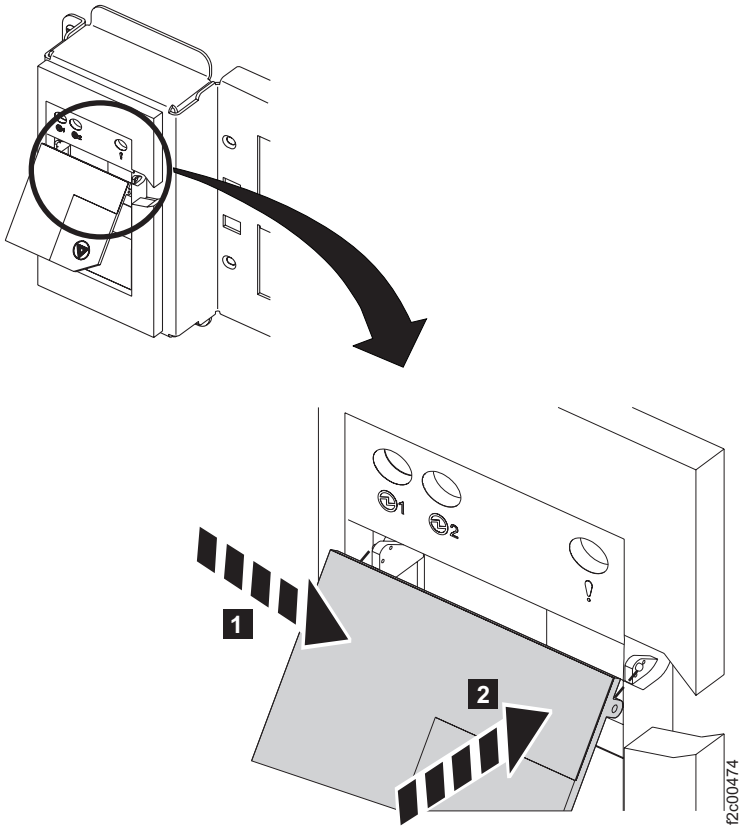


Figure 3. UEPO cover

7. Open the left rear cover (customer access area).

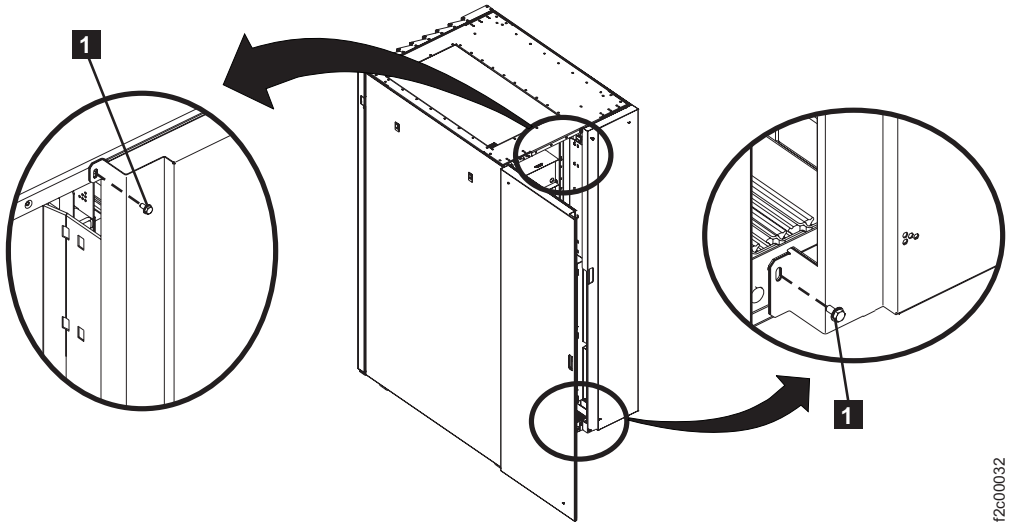


Figure 4. Removing retaining screws on right rear machine cover

8. Remove the orange shipping bracket from the rear of each CEC enclosure to prevent the CECs from overheating.
   a. Do not discard the shipping brackets, store them in the open space inside the rack beneath the lower CEC enclosure or in the document enclosure (top left at the front of the rack).

9. Open the right rear cover (trained service personnel access area only). Use a 3mm hex wrench to remove the two screws **1**. See Figure 4 on page 27.

   Note: The screws must be reinstalled when the cover is closed to prevent customer access.

10. Locate the 208VDC bus bar gate. Refer to Figure 5. Remove the two screws **1** and swing it out to the service position **3**.

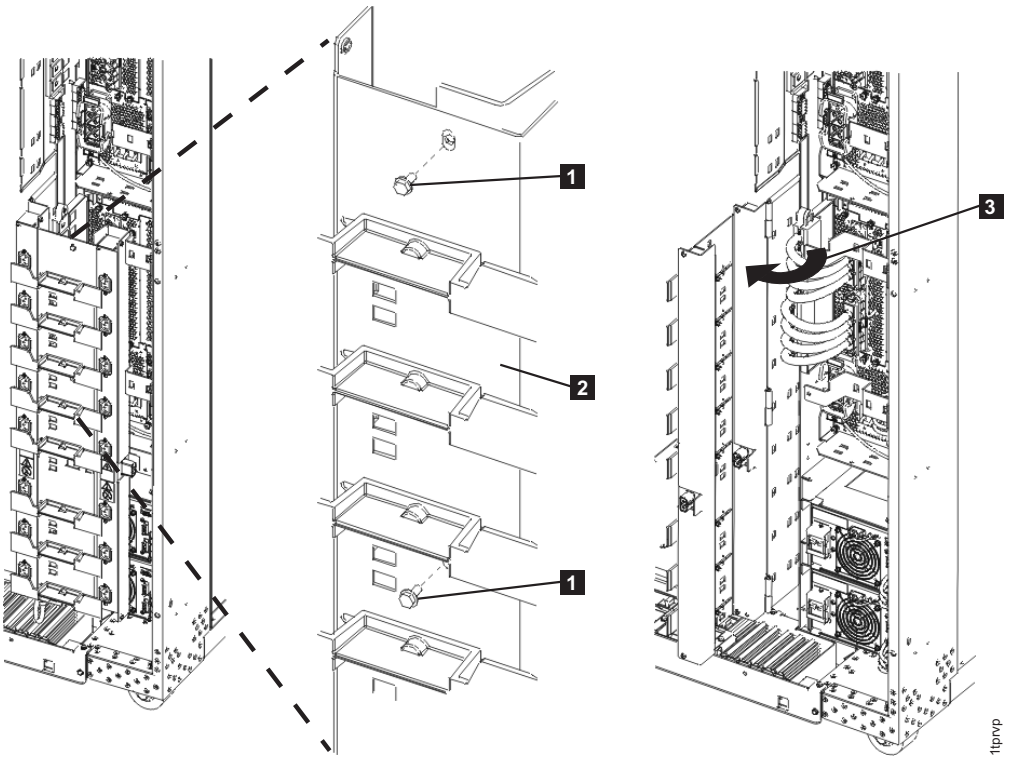


Figure 5. 208VDC bus bar gate

11. Remove the tailgate frame bracket. Remove two screws **2** as shown in Figure 6 on page 29. Loosen but do not remove the two top screws **1**. Slide the bracket out.

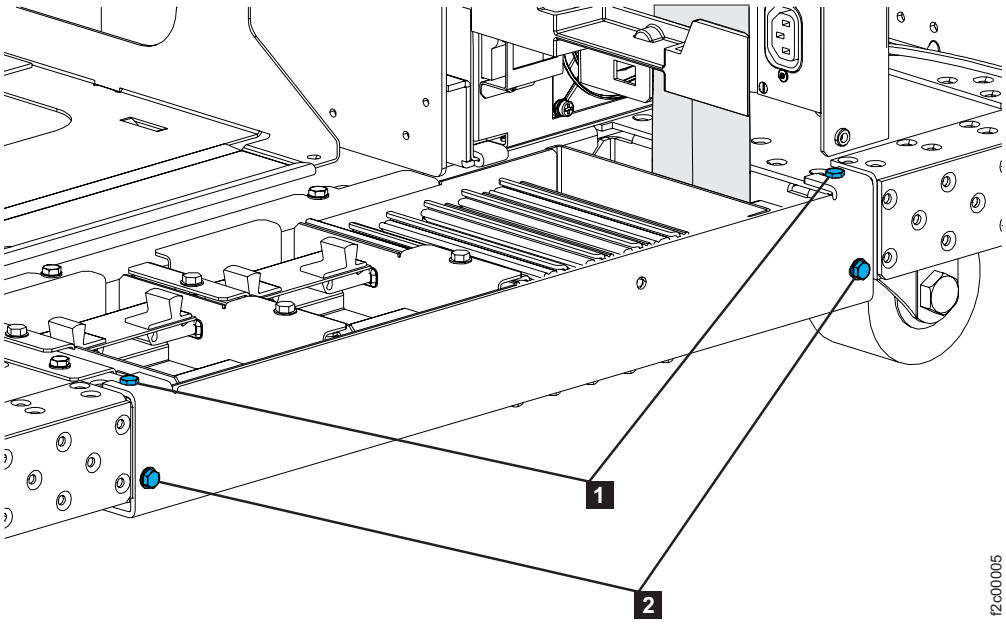


Figure 6. Tailgate frame bracket

12. Continue with the next section.

Checking for weight reduction feature

1. Does this rack have the Weight Reduction Feature (FC 0200) installed?

   Note: FC 0200 removes storage enclosures and sometimes rack battery modules to lighten the rack to meet weight limits of floors and/or elevators. The removed parts arrive on shipping pallets. If more than one rack has FC 0200 installed, it is critical that parts are not accidentally intermixed between the racks.

   - Yes, go to Chapter 8, "Installing hardware removed by weight reduction feature FC 0200," on page 231. Return here and continue when the storage enclosures have been reinstalled.
   - No, continue with the next step.
2. Continue with "Checking cables, HMCs, and expansion racks."

Checking cables, HMCs, and expansion racks

1. Check all cables to ensure they are connected and latched. Give special attention to these cables:
   - Gently push and pull on each big black RIO cable to ensure it is latched (CEC enclosures and I/O enclosures).

     Note: Loose RIO cables will cause difficult problems to repair after power up.
   - Gently push and pull on each blue FC-AL cable connector to ensure it is latched (I/O enclosures and storage enclosures).
2. Does the new storage facility contain a management console (HMC)?
   - Yes, continue with the next step.
   - No, go to step 4 on page 30.
3. Will this be the second management console in this storage complex?

- Yes, go to “Disconnecting the internal Ethernet cables to the secondary management console prior to power on.”
- No, continue with the next step.

4. Does the storage facility to be installed have one or more storage expansion racks?
   - Yes, go to “Installing additional storage racks.”
   - No, go to “Preparing to check DS8000 and customer power” on page 52.

Disconnecting the internal Ethernet cables to the secondary management console prior to power on

1. Locate the Ethernet switches in the rear of the Rack-1 that is being installed. See Figure 7.

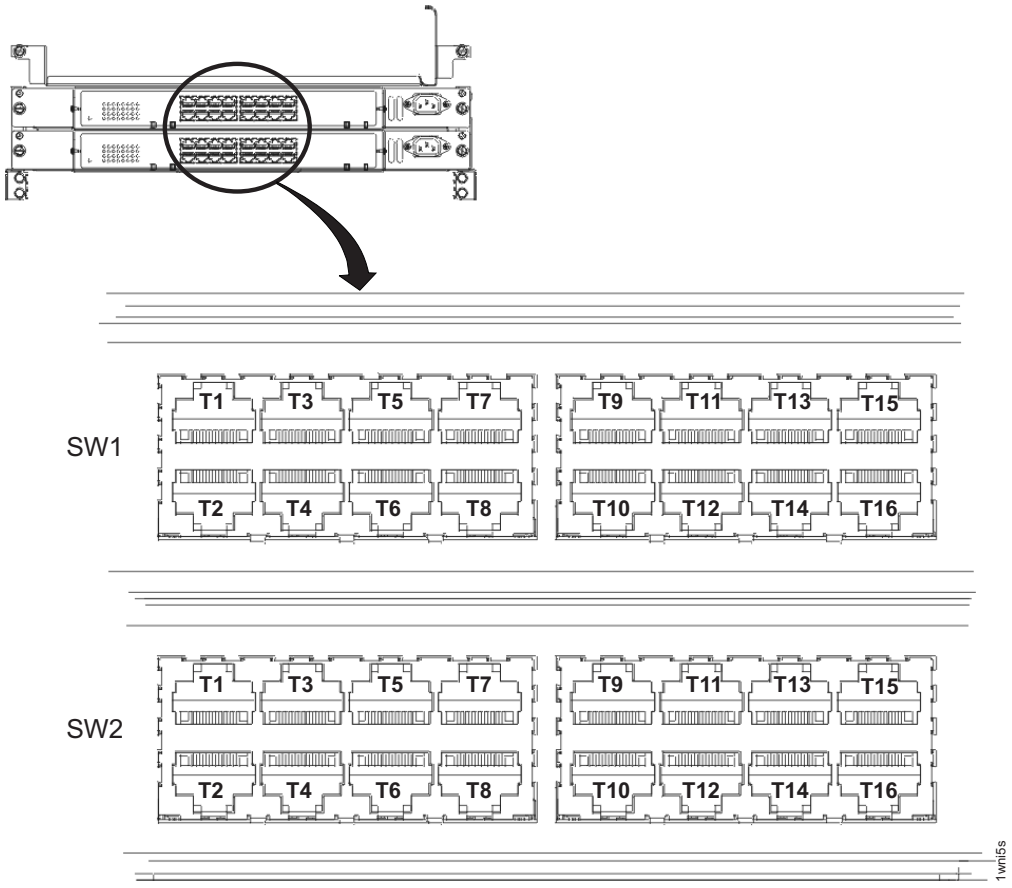


Figure 7. Ethernet switch port designations (SW1, SW2 - Tx)

2. Disconnect the management console cables that plug into SW1-T1 and SW2-T1. They will be reconnected in a later section.
3. Does the storage facility to be installed have one or more storage expansion racks?
   - Yes, go to “Installing additional storage racks.”
   - No, go to “Preparing to check DS8000 and customer power” on page 52.

Installing additional storage racks

Use the following sections to install additional storage racks.

DANGER

HEAVY EQUIPMENT -- PERSONAL INJURY OR EQUIPMENT DAMAGE MAY RESULT IF MISHANDLED (D006)

Removing right end and left rear covers from Rack-1

1. Observe the right end cover (viewed from the front) of Rack-1 to determine which version you have.
   - Older version has two cover retaining brackets as shown in Figure 8. Go to the next step.
   - Newer version does not have the two cover retaining brackets as shown in Figure 8. Go to step 3 on page 32.
2. Remove the old version of the right end cover (viewed from the front) from Rack-1.
   a. Release the two cover retaining brackets (pull them downward). See Figure 8. The cover is still secured to the frame by multiple "hook and loop" fasteners along each side of the cover.

      Note: Failure to follow the instructions in the following steps might result in a bent cover.

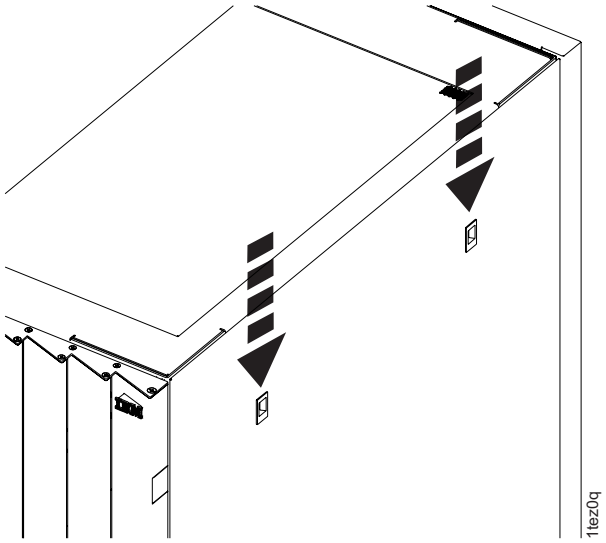


Figure 8. Disengaging the end cover

Attention: Pull lower down on each side of the cover to release it from the lower "hook and loop" fasteners. Failure to do this may bend the cover.

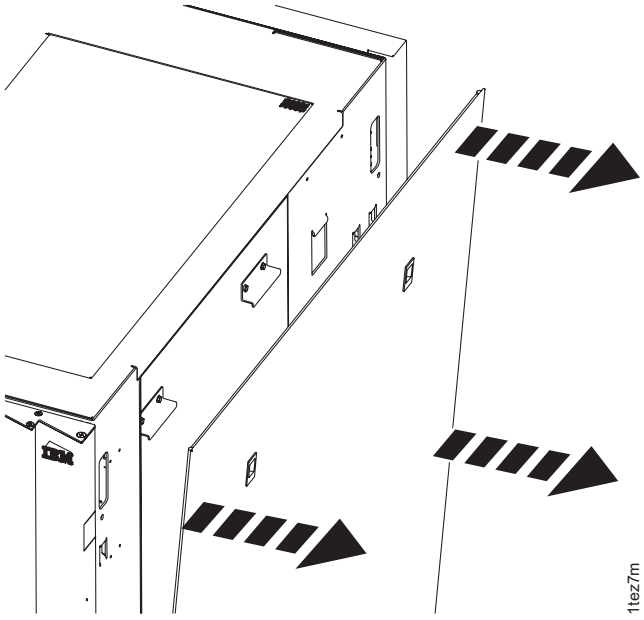


Figure 9. Removing the end cover

b. Pull the upper corners of the cover away from the rack to release the upper "hook and loop" fasteners and apply even pressure working your way down the sides. See Figure 9.

c. Further down, pull each side of the cover away from the rack to release the lower "hook and loop" fasteners and remove the cover.

d. Remove the two end cover catch brackets from the rack. They will be reinstalled on the new end rack later.

e. Go to step 4.

3. Remove the new version of the right end cover (viewed from the front) from Rack-1.

   a. Remove the two screws at the top of the end cover, they are not visible from the side of the rack. The cover is still secured to the frame by multiple "hook and loop" fasteners along each side of the cover.

      Note: Failure to follow the instructions in the following steps might result in a bent cover.

      Attention: Pull lower down on each side of the cover to release it from the lower ″hook and loop″ fasteners. Failure to do this may bend the cover.

   b. Pull the upper corners of the cover away from the rack to release the upper ″hook and loop″ fasteners and apply even pressure working your way down the sides. See Figure 9.

   c. Further down, pull each side of the cover away from the rack to release the lower ″hook and loop″ fasteners and remove the cover.

   d. Go to the next step.

4. Remove the left rear cover from Rack-1. Refer to Figure 10 on page 33.

   a. On the upper and lower door hinges, loosen the screw **1** and move the retention plate **2** that prevents the hinge pin **3** from being removed.

   b. Remove the hinge pins, remove the rear cover and place it in a safe location.

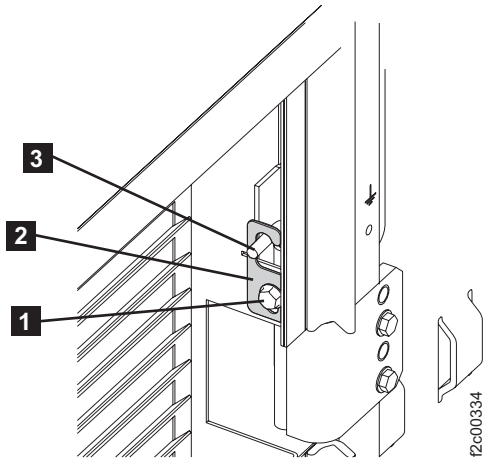


Figure 10. Removing rear left cover on Rack-1

5. Continue with "Positioning the storage expansion racks."

Positioning the storage expansion racks

If you have questions about floor loading and service clearances of the DS8000 racks, review the Site Requirements for the DS8000 section in the *IBM System Storage DS8000 Introduction and Planning Guide* which is available on the *IBM System Storage DS8000 series Service Documents CDROM*.

Perform steps 1 through 5 for each additional storage expansion rack that you install with Rack-1.

1. Each rack has a rack number label **1** . See Figure 11. The label defines the following:
   - the position of this rack in a storage facility.
   - the serial number of the Rack-1 that the rack must be re-connected to (these racks have already been partially installed together at the factory).

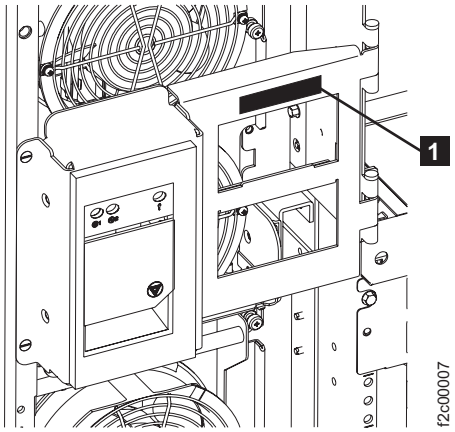


Figure 11. Rack operator panel label

2. View the rack number label **1** on the expansion rack that you are installing. See Figure 11.
   - The rack number defines the location of the expansion rack in the storage facility you are installing.

- The Rack-1 serial number defines the only Rack-1 that this expansion rack can be installed to.
- The unique serial number of each rack is found on the bar code label under the plastic UEPO switch cover on the rack operator panel.

Attention: If the Rack-1 serial numbers do not match, stop the installation and call the next level of support.

3. Facing the front of Rack-1, install all additional racks to the right. Move the storage expansion rack into position approximately 3″ (75mm) from the existing rack.
4. Locate 4 x spacer studs P/N 22R5046, 7 x spacer mounting bolts P/N 1621545 and 7 x M8 washers P/N 84X5850 located in the ship group.
5. Install the bottom spacer stud at the rear of the existing rack (Rack 1 or the storage expansion rack that is already installed).
   a. Refer to Figure 12. Install a spacer stud **3** in the lower rear left corner of the rack using a mounting bolt **1** and a washer **2**. Leave the bolt loose so that it will be easier to align the spacer stud with the bolt from the new frame.

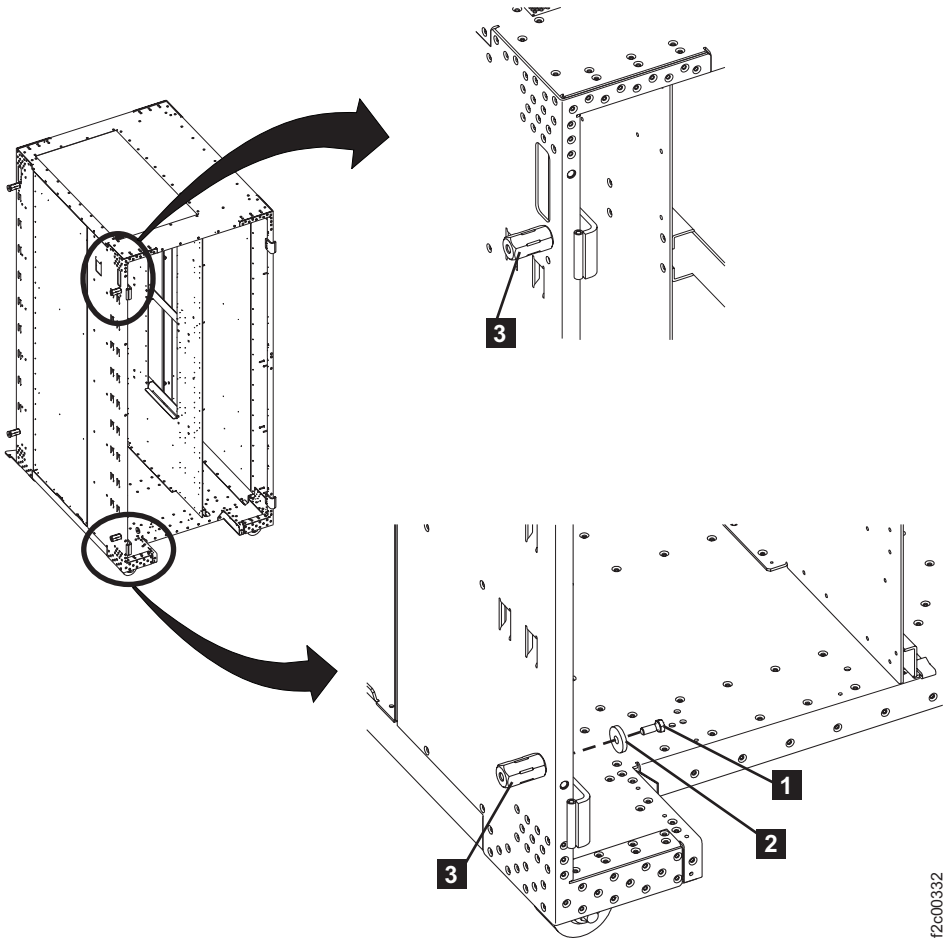


Figure 12. Interrack spacer studs

6. Determine the part number (P/N) of the interrack decorative side covers in your ship group. The P/N is printed near the middle of each side cover. There are two side covers and one top cover in the long narrow shipping box.

- P/N 22R0786 (original version) go to step 7.
- P/N 22R4964 (new version) go to step 8.

7. In the upper rear left corner of the existing rack, next to the hinge are two holes, one above the other. Use the upper hole and install a spacer stud 3 using a mounting bolt 1 and a washer 2, see Figure 12 on page 34. Do not tighten the bolt fully as some alignment will be needed. You can hold the side cover next to the spacer studs to ensure the spring clips align properly before going to step 9.

   Note: On early frames, it may be necessary to remove the rear left top hinge and spacer plate to allow the mounting bolt to be inserted. Reinstall the hinge and plate when the bolt has been tightened.

8. In the upper rear left corner of the existing rack, next to the hinge, there are two holes; one above the other. Use the lower hole and install a spacer stud 3 using a mounting bolt 1 and a washer 2, see Figure 12 on page 34. **Do not** tighten the bolt fully as some alignment will be needed. You can hold the side cover next to the spacer studs to ensure the spring clips align properly before going to step 9.

   Note: On early frames, it may be necessary to remove the rear left top hinge and spacer plate to allow the mounting bolt to be inserted. Reinstall the hinge and plate when the bolt has been tightened.

9. On the rear of the storage expansion rack being installed, perform the following steps to remove the right cover.
   a. Open the rear left machine cover.
   b. Remove and retain the two screws 1 and open the rear right machine cover. Refer to Figure 14 on page 36.

      Note: The screws must be reinstalled later to prevent non-service personnel from accessing a hazardous section of the machine.

   c. On the upper and lower door hinges, loosen the screw 1 and move the retention plate 2 that prevents the hinge pin 3 from being removed. Refer to Figure 13.

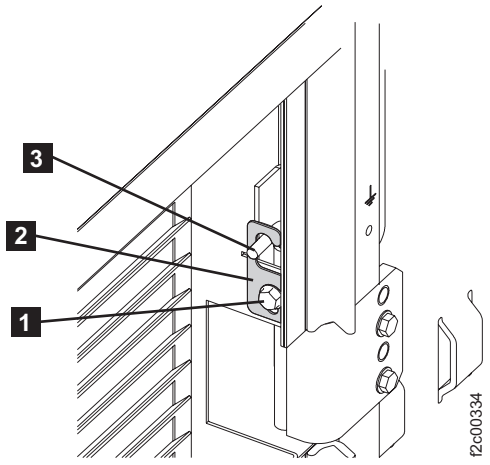


Figure 13. Removing rear left cover on Rack-1

   d. Remove the hinge pins, remove the rear cover and place it in a safe location.

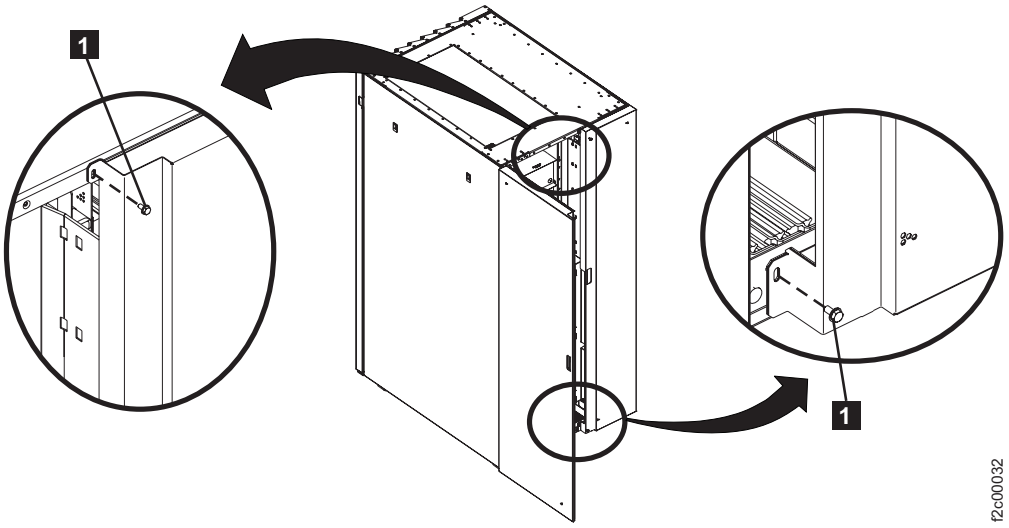


Figure 14. Removing retaining screws on right rear machine cover

10. Return to the front of the racks. Do not remove any front covers. Install 2 spacer studs on the front left of the storage expansion being installed.
    a. Install a spacer stud in the *lower* front left corner of the rack using a mounting bolt and a washer. **Do not** tighten the bolt fully as some alignment will be needed.
    b. Install a spacer stud in the *upper* front left corner of the rack using a mounting bolt and a washer. **If there are two frame holes near the hinge, use the same hole (upper or lower) as you did at the rear of the rack. Do not** tighten the bolt fully as some alignment will be needed.
11. Move the storage expansion rack being installed into its final position.
12. At the rear, secure the storage expansion rack being installed to the existing rack using one bolt and washer in the upper position only. The bolt is screwed into the spacer stud previously installed. Do not tighten the bolt fully.
13. At the front, insert two bolts and washers from the left rack and screw into the spacer studs previously installed in the right rack. When the alignment is correct, tighten all the bolts that have been installed.
14. Install the wheel chocks **1** (located in the ship group) on all four casters. If caster locks are available, engage the caster locks on all casters. Refer to Figure 15.

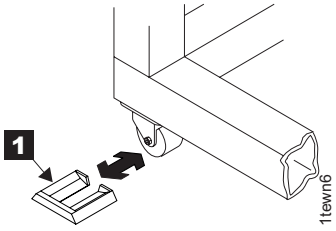


Figure 15. Wedge chocks

Reinstalling the right end cover on the right-most rack

The right end cover was previously removed in the task "Removing the right end cover from the existing rack".

1. Which version of the Rack-1 end cover do you have?

- Old version has two cover retaining brackets. Go to the next step.
- New version has two screws at the top of the cover. Go to step 3.

2. Install the two cover catch brackets from Rack 1 on the expansion rack. Install the right end cover (removed earlier) on the expansion rack, then go to step 4.

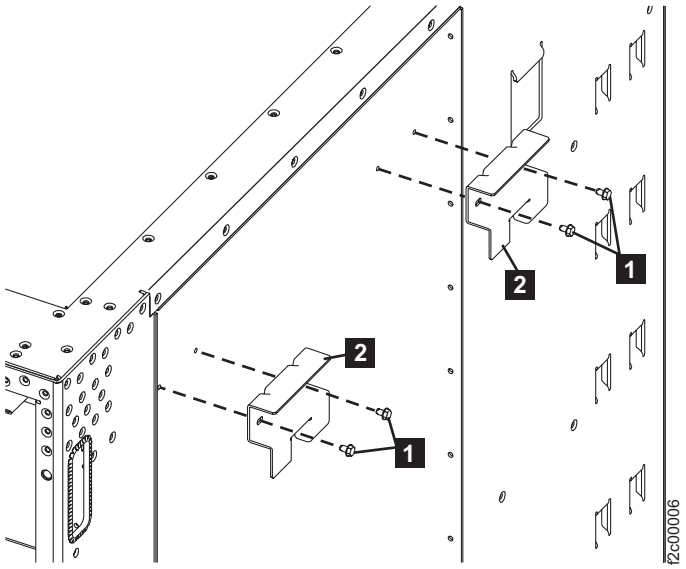


Figure 16. Removing/replacing right end cover

3. Does the expansion rack have the two screw holes in the top of the rack for the right end cover?
   - Yes, install the right end cover (removed earlier) on the expansion rack securing it with the two top screws.
   - No, call the next level of support. You will need to order the old version right end cover, retaining brackets and screws. Continue the installation without the right end cover.
4. Continue at the next section.

Checking for weight reduction feature

The weight reduction feature removes storage enclosures and/or battery modules to reduce the total rack weight. These parts are then shipped on a separate pallet and must be reinstalled.

1. Was the Weight reduction feature (FC 0200) ordered for this storage expansion rack?

   Note: If FC 0200 was ordered, the Storage Enclosures will have been removed in manufacturing and shipped separately.

   - Yes, go to Chapter 8, "Installing hardware removed by weight reduction feature FC 0200," on page 231. Return here and continue when the Storage Enclosures have been reinstalled.
   - No, continue with the next step.
2. Continue with "Routing and connecting the interrack cables" on page 38.

Routing and connecting the interrack cables

Perform the following steps for each storage expansion rack that you install.

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous.

To avoid shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet. Ensure outlet supplies proper voltage and phase rotation according to the system rating plate.**
- **Connect any equipment that will be attached to this product to properly wired outlets.**
- **When possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
- **Connect and disconnect cables as described below when installing, moving, or opening covers on this product or attached devices.**

To disconnect:

1. **Turn everything OFF (unless instructed otherwise).**
2. **Remove power cords from the outlet.**
3. **Remove signal cables from connectors.**
4. **Remove all cables from devices.**

To connect:

1. **Turn everything OFF (unless instructed otherwise).**
2. **Attach all cables to devices.**
3. **Attach signal cables to connectors.**
4. **Attach power cords to outlet.**
5. **Turn device ON.**

(D005)

1. There are two versions of the Air baffle, determine which one you have:
   - Old version - one piece of sheet metal that must be removed before the 208VDC bus bar gate to the right of the baffle can be swung to the open position. Go to the next step.
   - New version - sheet metal with a flexible plastic cutout at the right rear (**3** in the figure that follows). The plastic cutout bends out of the way when the 208VDC bus bar gate is swung open. Go to step 3 on page 39.
2. Remove the two screws **1** and take out the Air baffle **2** as shown in Figure 17 on page 39. Retain the parts for later reinstallation.

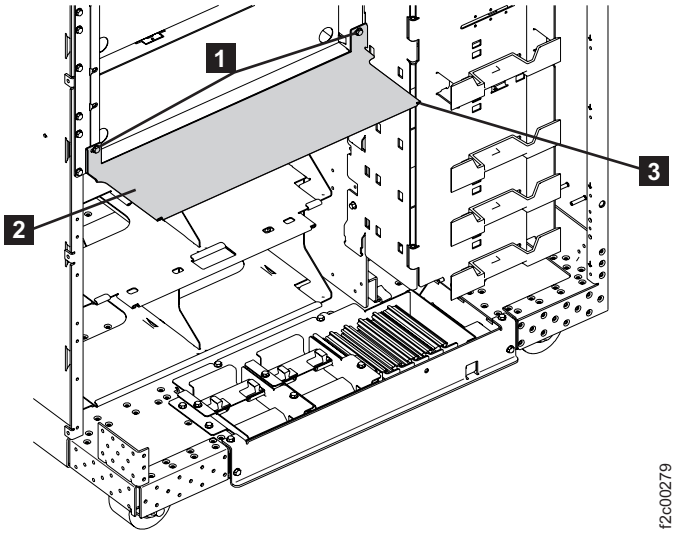


Figure 17. Air baffle

3. Remove the two screws **1** and pivot the 208VDC bus bar gate to the service position **2**, as shown in Figure 18.

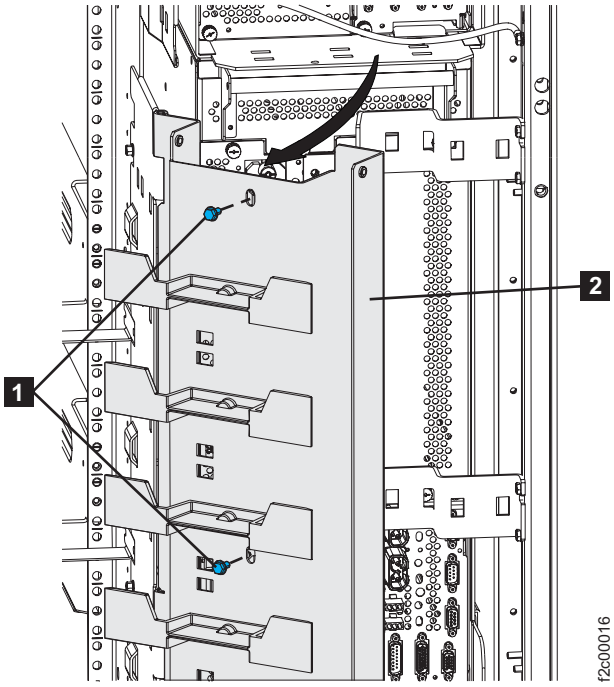


Figure 18. 208VDC bus bar gate service position

4. Remove the tailgate frame bracket. Remove two screws **2** as shown in Figure 19 on page 40. Loosen but do not remove the two top screws **1**. Slide the bracket out.

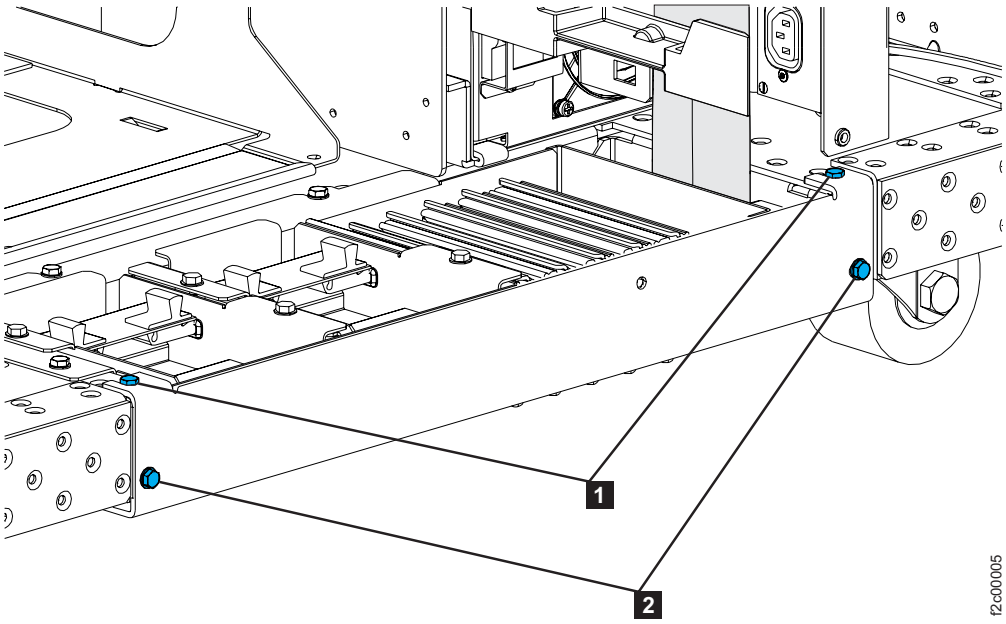


Figure 19. Tailgate frame bracket

5. Route and connect cables to RPC cards.
   a. Locate the two RPC cables in the top rear of the expansion rack. Route the cables through the hole at the top rear right side to the RPC cards in Rack 1. If this is not Rack 2, then the cables will need to be routed through all the intermediate racks between this one and Rack 1.

   Note: On early production racks the cables may be labeled with 'Base Rack'. On later production racks they will be labeled as Rack 1.
6. Plug the cables into the RPC connector as indicated in Table 25 and Figure 20 on page 41.

   Note: On some early production Storage Expansion Racks, the cables were labeled RPC-0 and RPC-1. The cable labeled RPC-0 must be plugged to RPC1 and the cable labeled RPC-1 must be plugged to RPC2.

   Important: It is very important that the cables are not crossed between the RPC cards. This could result in an unscheduled power drop during repair activities. If the RPC number labeling is not clear, then trace the cables back to the PPS. The cable to RPC1 originates from connector J1 on both PPSs. The cable to RPC2 originates from connector J2 on both PPSs.

Table 25. Rack numbers and RPC connector locations

Rack Number	2	3	4	5	6	7
RPC 1 and RPC 2 connector	J203	J205	J207	J209	J211	J213

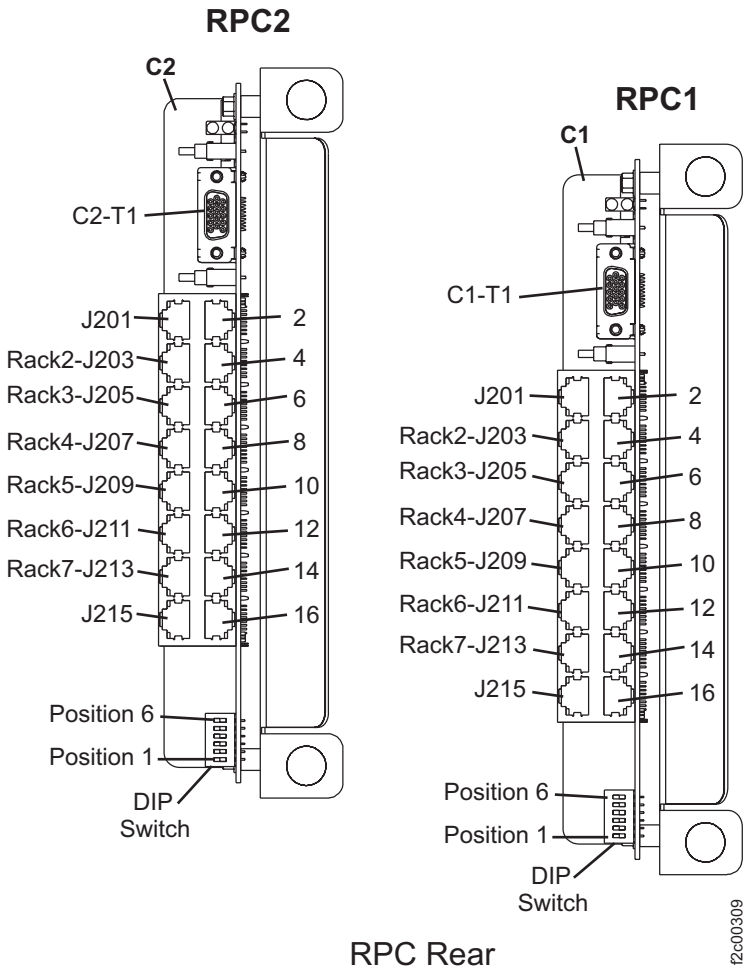


Figure 20. RPC card locations

7. Determine if this expansion rack has FC-AL blue cables that need to be routed and connected to another rack.

   Note: The FC-AL cables create the loops that connect storage enclosure FCIC cards to other storage enclosure FCIC cards or to I/O enclosure device adapter cards.

   Does this expansion rack have four I/O enclosures at the bottom of the rack?

   - Yes, all FC-AL cables in this rack are already connected. Go to step 11 on page 44.
   - No, this rack has FC-AL cables that need to be routed and connected to another rack. Go to step 8.

8. The unconnected end of the FC-AL cables to be routed are coiled at the top of the rack. Check the front and rear of the rack to find them. The cable connectors have black rubber protective covers. Uncoil the cables. Locate the attached labels that identify the destination rack and storage or I/O enclosure number. Route the cables through the holes at the top of the rack to the destination rack and enclosure. Use existing cable trays and "hook and loop" fastener straps. Refer to Figure 21 on page 42 and Figure 22 on page 43.

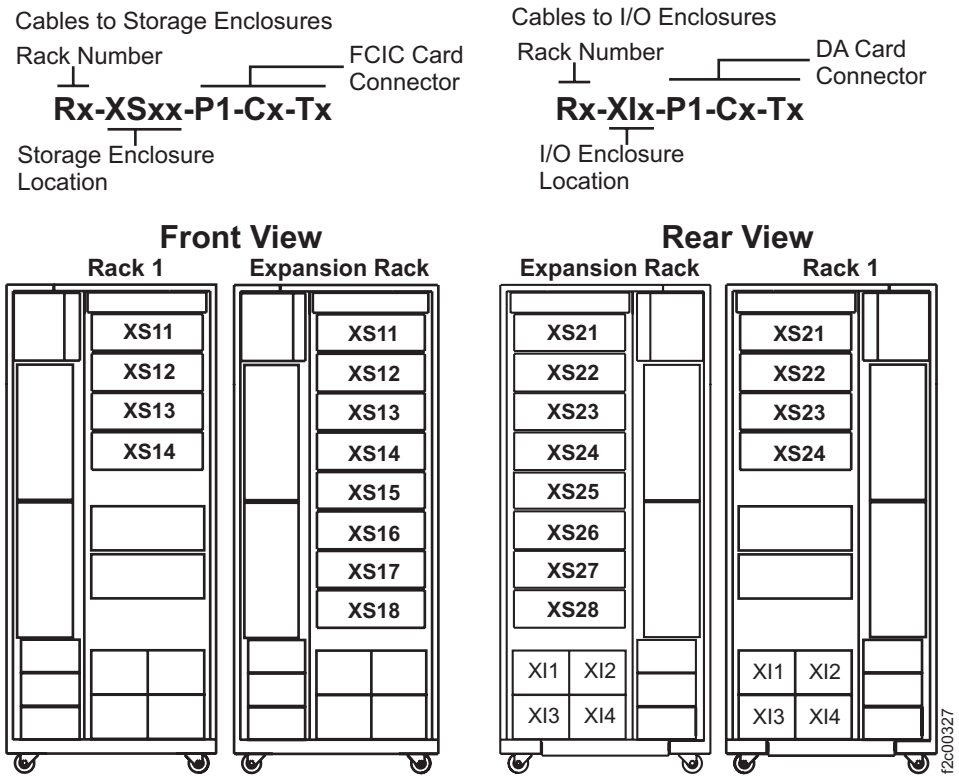


Figure 21. Cable labels, storage and I/O enclosure locations

Note: Figure 21 shows a fully configured expansion rack. Additional racks may be installed. Expansion racks may not contain I/O enclosures or be fully populated with storage enclosures.

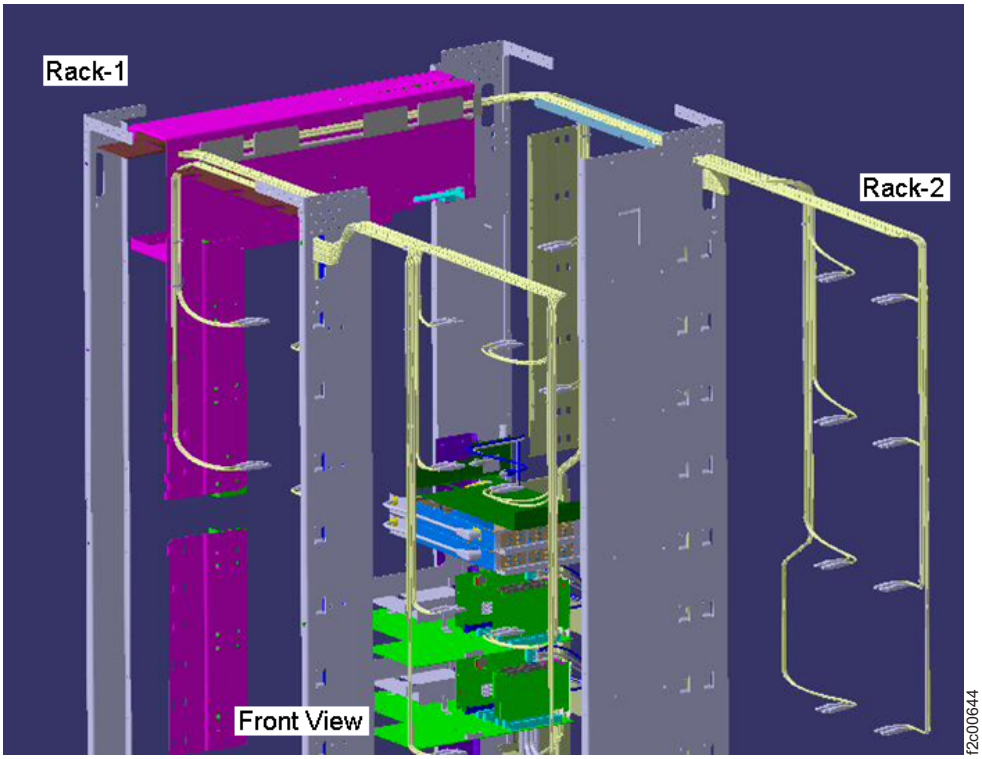


Figure 22. Mechanical routing of the FC-AL cables (rack-to-rack)

9. Remove the black rubber protective connector covers and then plug the FC-AL cables into the connectors on the DA cards in the I/O enclosures or FCIC cards in the storage enclosures as indicated on the cable labels. Refer to Figure 23 on page 44.

   Note: Do not discard the connector covers, you can store them in the rack 1 documents enclosure (front upper left).

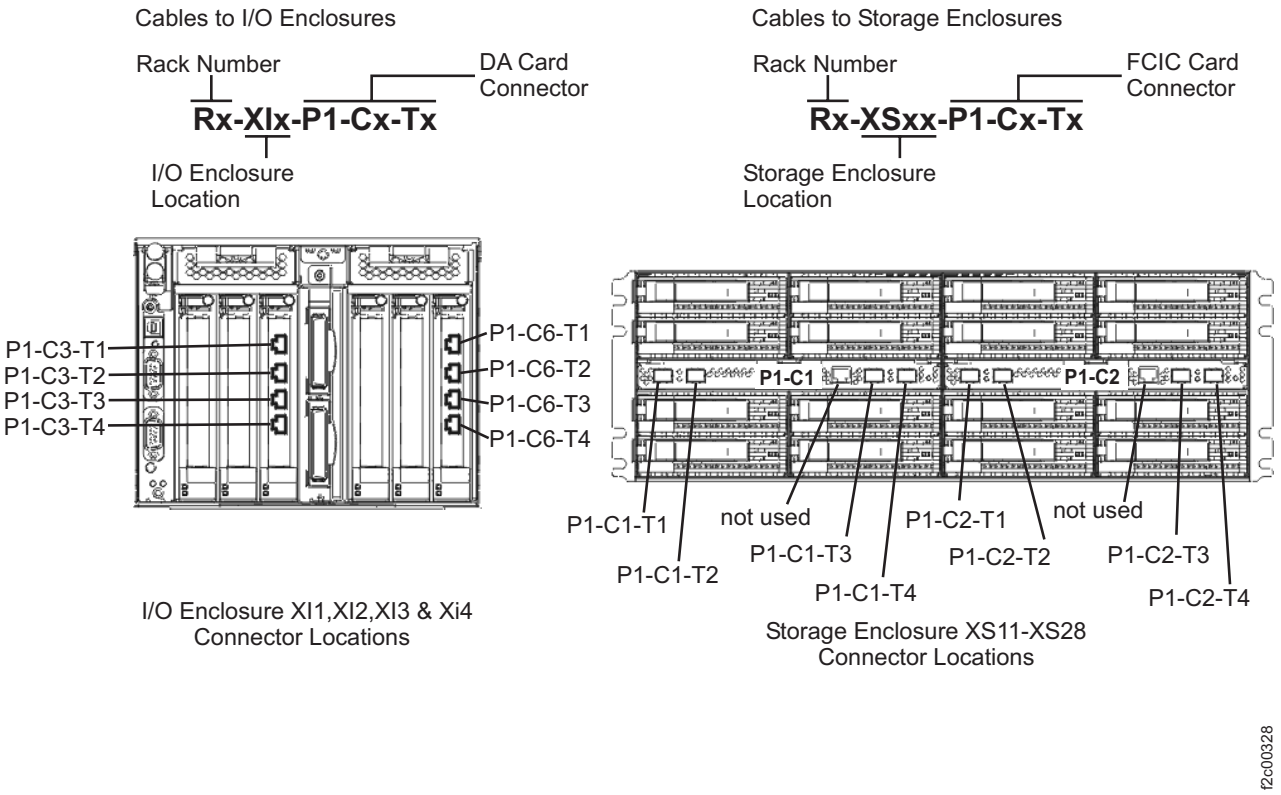


Figure 23. Cable labels to I/O Enclosures and Storage Enclosures

10. Continue with "Installing the interrack decorative covers kit" on page 50.
11. Prepare the tailgate in the new and existing racks.
    a. For the earlier version of the tailgate design (5 cable slots to the right) as shown in Figure 24 on page 45, remove the cable retention clamps **3**, as appropriate. Do this by removing the screws **1** from the underside and releasing the retention pins **2**.
    b. For the later tailgate design (4 cable slots to the left and 2 cable slots to the right), no additional preparation is needed.

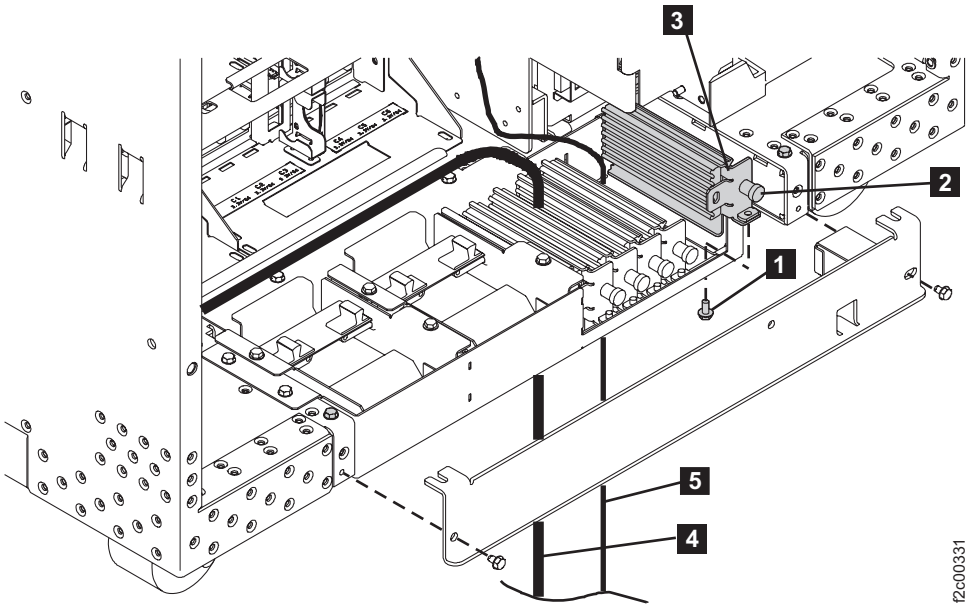


Figure 24. RIO & SPCN cable (remove or install)

12. This step shows an overview of the rack to rack routing of the RIO and SPCN cables. Do not route or connect the cables until directed in later steps.

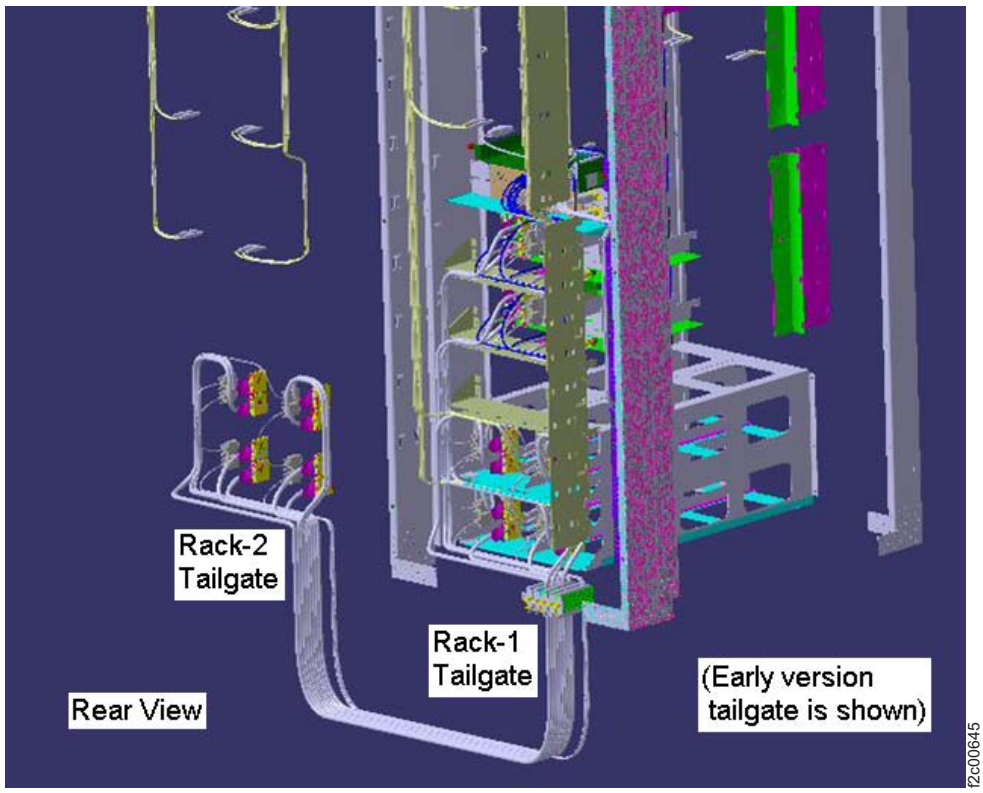


Figure 25. Mechanical routing of the RIO and SPCN cables (rack-to-rack)

- On a raised floor, the cables are run down through the tile cutouts and underneath the floor.
- On a non-raised floor, the cables are run beneath the racks.

13. Locate the thick black RIO cables that will be coiled near the tailgate and uncoil them. Locate the destination labels that are attached to the cables and identify to which rack and I/O enclosure the cables need to be routed. Refer to Figure 26.

    Note: On early production racks the cables may be labeled with 'Base Rack' or 'Expansion Rack'. On later production racks they will be labeled with the Rack number.

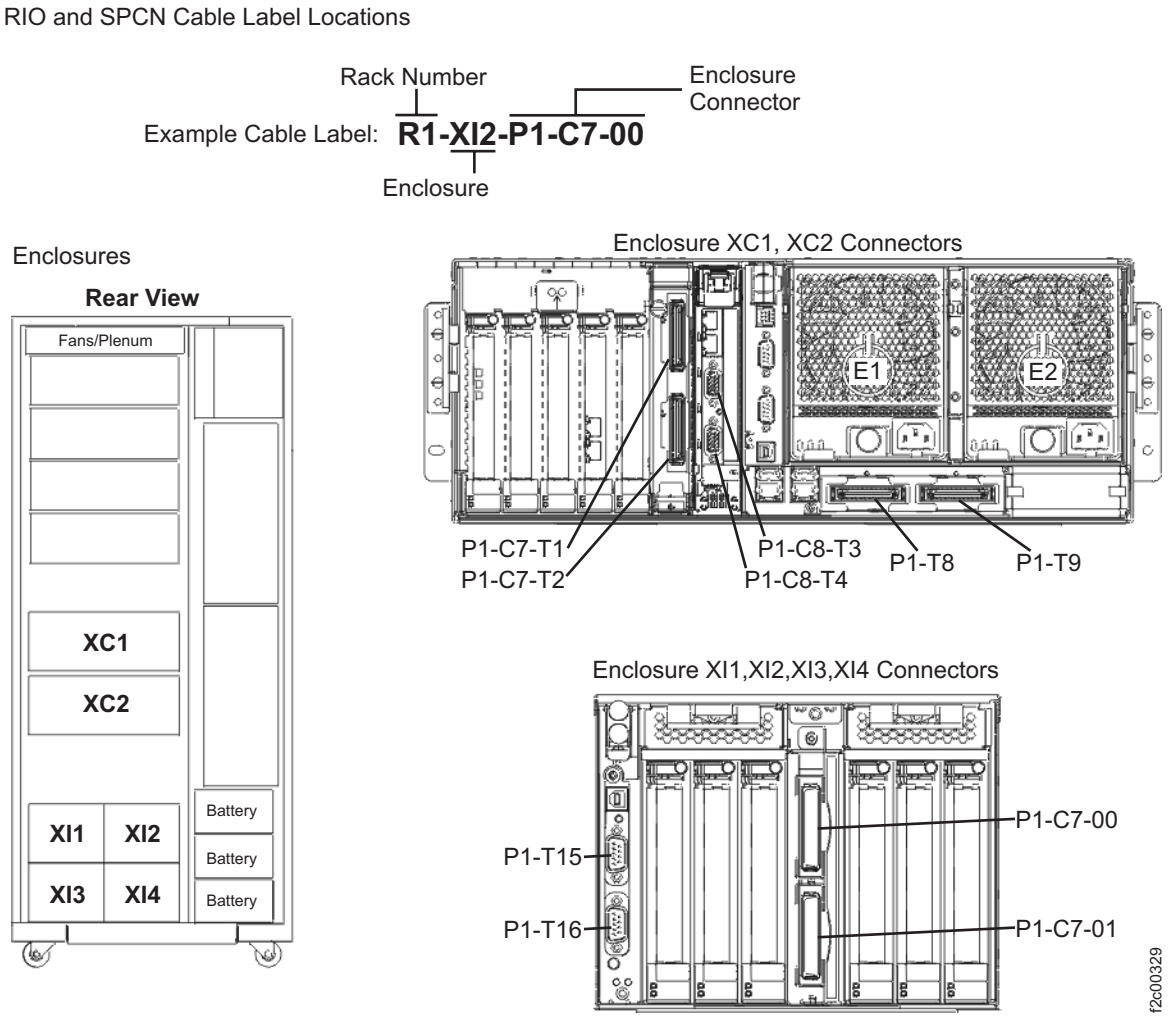


Figure 26. RIO and SPCN cable label locations

14. Route the RIO cables.
    - For cable routing inside of the rack, see Figure 27 on page 47.
    - If you have the earlier version of the tailgate (all five cable slots on the right side of the tailgate), route all RIO cables through slot 3. See Figure 27 on page 47.
    - If you have the later version of the tailgate (four cable slots on the left and two cable slots on the right), route the RIO cables as follows:
      – Route the RIO cables on the left side of the rack through slot 1. See Figure 28 on page 48.
      – Route the RIO cables on the right side of the rack through slot 6. See Figure 28 on page 48.

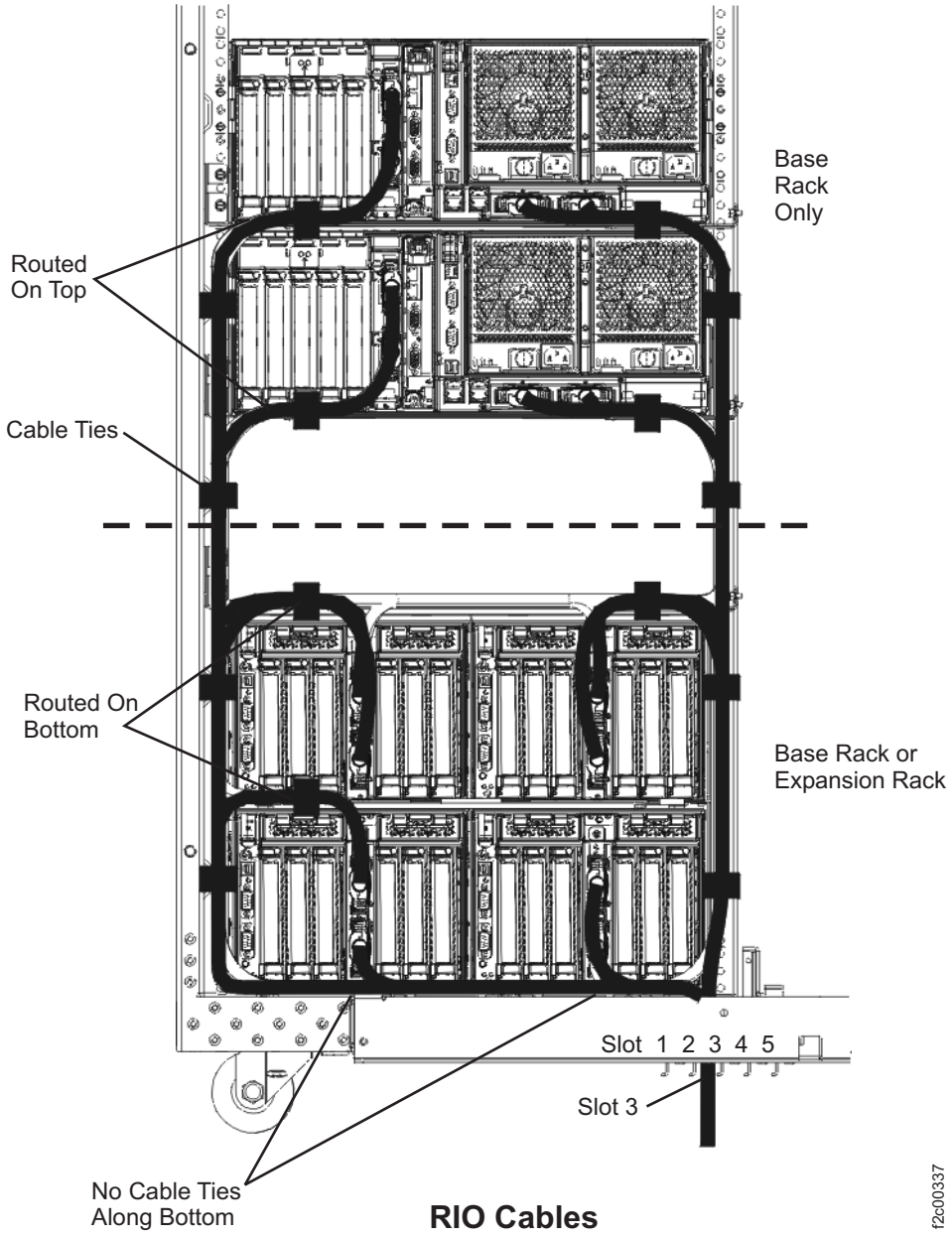


Figure 27. RIO cable routing (early version tailgate)

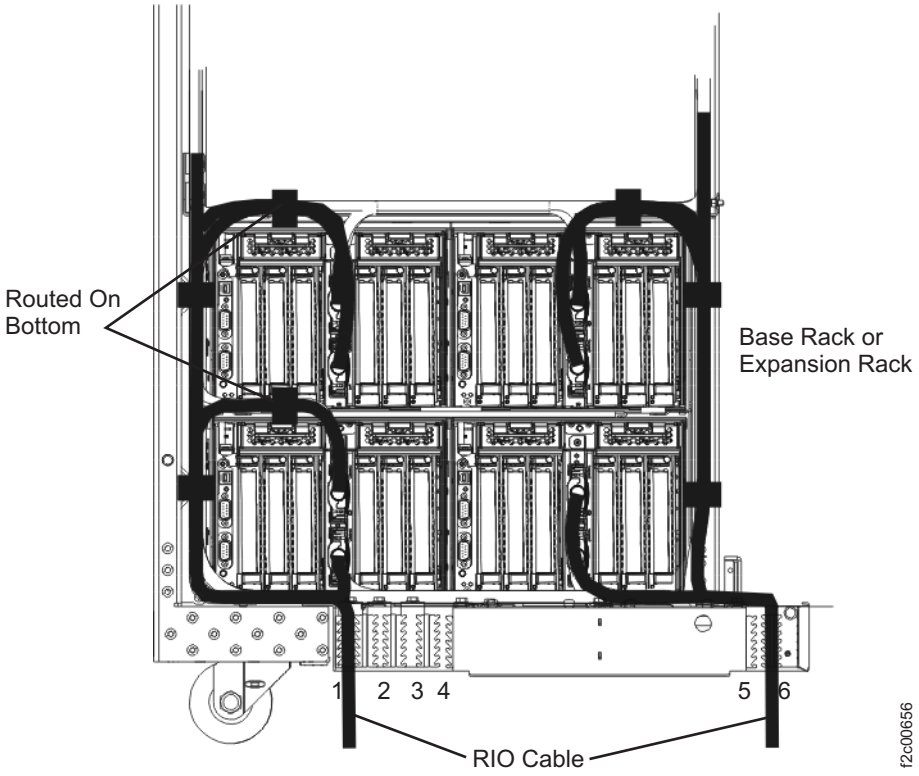


Figure 28. RIO cable routing through the tailgate (later version tailgate)

15. Locate the thin brown SPCN cables that will be coiled near the tailgate and uncoil them. Locate the destination labels that are attached to the cables and identify to which rack and I/O enclosure the cables need to be routed.

    Note: On early production racks the cables may be labeled with 'Base Rack' or 'Expansion Rack'. On later production racks they will be labeled with the Rack number.

16. Route the SPCN cables.
    - For cable routing inside of the rack, see Figure 29 on page 49.
    - If you have the earlier version of the tailgate (all five cable slots on the right end of the tailgate), route all SPCN cables through slot 5. See Figure 29 on page 49.
    - If you have the later version of the tailgate (four cable slots on the left and two cable slots on the right), route the SPCN cables as follows:
      – Route the SPCN cables on the left side of the rack through slot 2. See Figure 30 on page 50.
      – Route the SPCN cables on the right side of the rack through slot 5. See Figure 30 on page 50.

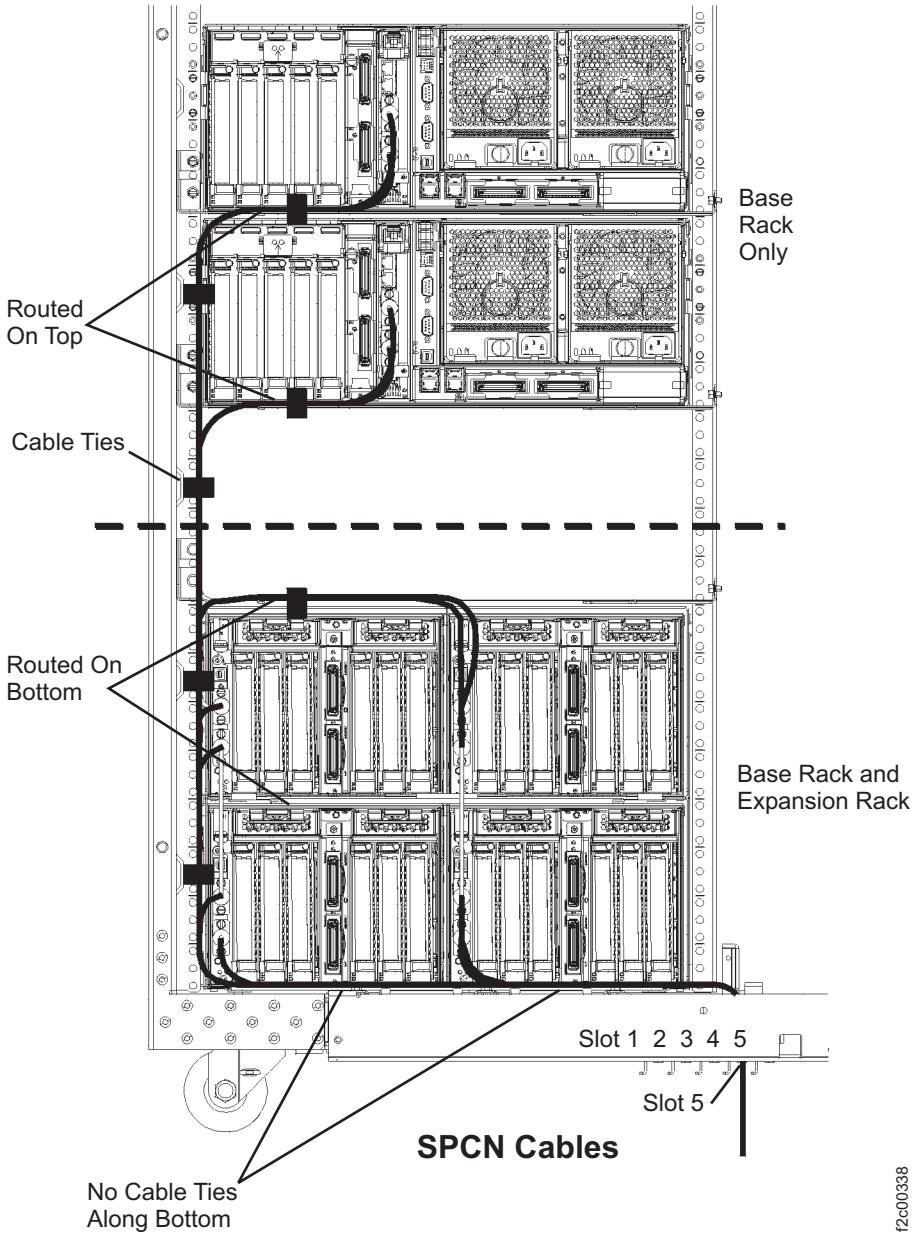


Figure 29. SPCN cable routing (early version of tailgate)

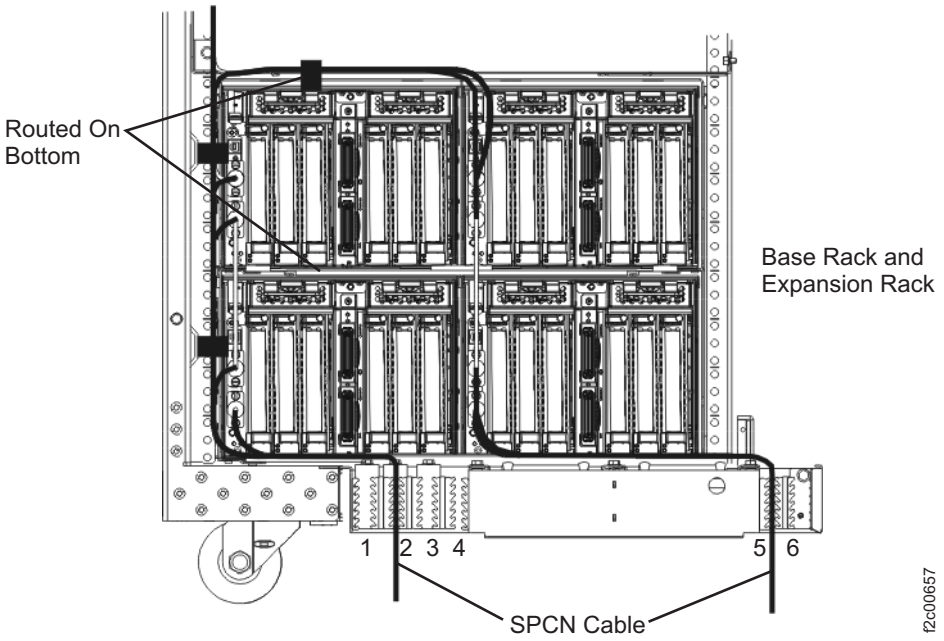


Figure 30. SPCN cable routing through the tailgate (later version tailgate)

17. Plug the RIO-G and SPCN cables into the indicated connector on the destination I/O enclosure. Figure 26 on page 46 displays the connector locations.
18. Reinstall the tailgate cable retention clamps to secure the RIO and SPCN cables in the tailgate.
19. Continue with "Installing the interrack decorative covers kit."

Installing the interrack decorative covers kit

Perform the following steps for each storage expansion rack that you are installing or adding.

1. Locate the interrack decorative covers kit. It contains two side interrack covers and one top interrack cover. There are two versions of the interrack decorative covers kit.
   - Early version - the covers are packaged in a long narrow cardboard box normally taped to the expansion rack. The side interrack covers are one piece. Go to step 3.
   - Later version - the covers are packaged in the large ship group box. Each side interrack cover is in two pieces that are hinged together. Go to the next step.
2. Assemble each of the side interrack covers as follows:
   a. Open the hinged side interrack cover **1** so that it is straight. See the following figure.
   b. Loosen the two nuts **2** on the threaded studs next to the hinge points.
   c. Slide the plate **3** so that it engages both studs.
   d. Tighten both nuts.

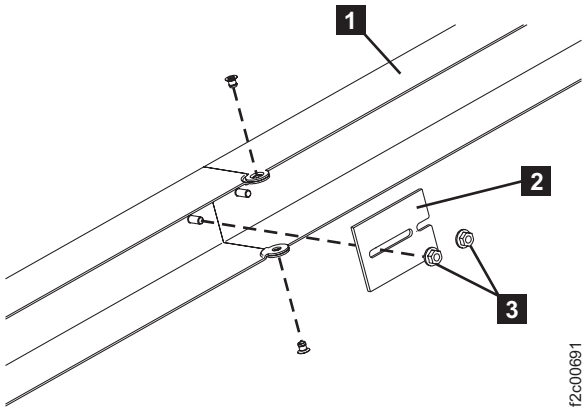


Figure 31. Assembling the later version of the interrack decorative side covers

3. Install each of the two interrack side covers **1** by pushing the cover into place over the interrack spacing studs. Take care not to interfere with any interrack cables. See Figure 32.
4. Install the top interrack cover **2** by pressing it down squarely. The spring clips should hold the cover in place. See Figure 32.

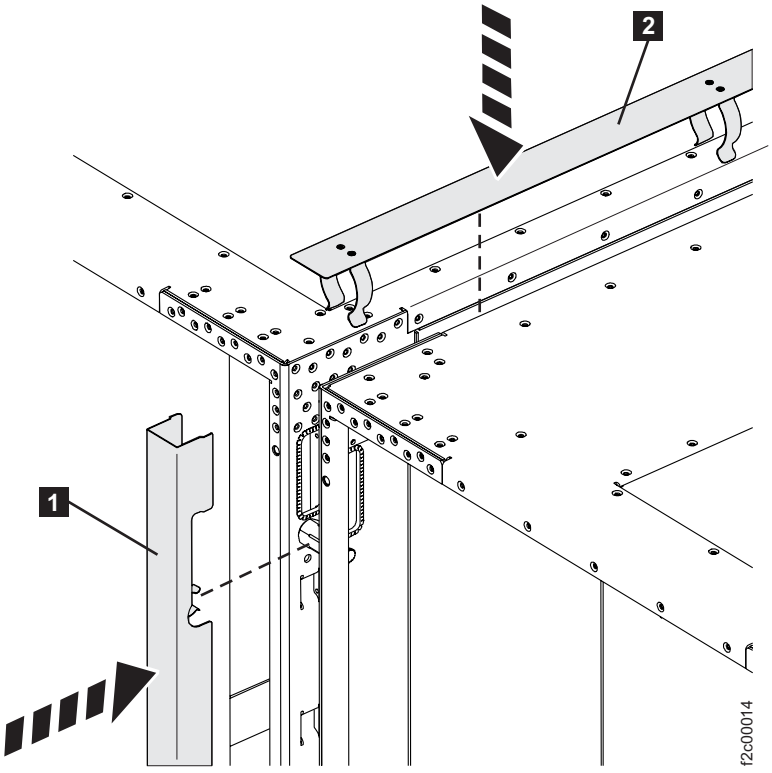


Figure 32. Installing the interrack decorative covers

5. Continue with "Performing the power and safety checks" on page 52.

Performing the power and safety checks

Preparing to check DS8000 and customer power

DANGER

Lethal voltages are present in this area of the machine.

You will need the following tools to perform the power safety checks:

- For resistance checks, IBM analog ohmmeter P/N 00P7029 (Mastech Model 7040).
- For voltage checks, IBM digital multimeter P/N 8496278 (Fluke Model 179).
- For probing, high voltage test probe tips P/N 43L0951.

Note: Use the listed part number (P/N) or an equivalent P/N that is approved by IBM.

Steps

1. Read the Danger notice and requirements above.
2. Continue with "Routing the mainline power cables."

Routing the mainline power cables

Repeat the following steps for each rack that you are installing.

1. Uncoil the mainline power cables from the ship group.
2. The mainline power cable that connects to PPS-1 (upper) **5** is longer than the mainline power cable that connects to PPS-2 (lower) **6** . See Figure 33 on page 53. Use the cable label and part number (P/N) to identify the longer cable.

Table 26. Cable label and part number

Feature Code	P/N of shorter cable	P/N of longer cable
1090 - 3 phase 60A non EMEA	22R1190	22R2222
1091 - 3 phase 60A EMEA	22R3794	22R3795
1092 - 3 phase 60A Japan	22R1191	22R2224
1093 - 3 phase 60A Chicago	22R1188	22R1189

CAUTION:
Do not connect the DS8000 mainline power cables to customer power until instructed to do so.

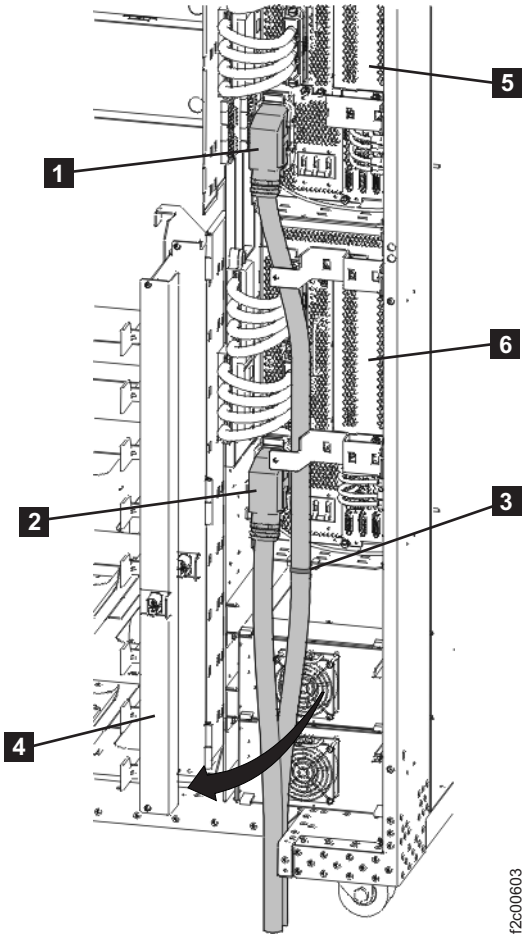


Figure 33. Base rack power cables

3. Ensure the 208VDC bus bar gate **4** is in the open position. See Figure 33.
4. For a base rack or expansion rack, complete the following steps.
   a. Route the longer mainline power cable **1** up through the tailgate as shown and connect it to PPS-1 (upper).
   b. Use a "hook and loop" fastener cable tie **3** to fasten it to the bracket.
   c. Route the shorter mainline power cable **2** up through the tailgate as shown and connect it to PPS-2 (lower).

   Notes:

   - If this is on a raised floor, route the cables down through the floor cutout and near the customer power connectors.
   - If this is not on a raised floor, route the cables underneath the frame behind the rear caster so they exit to the side. The cables must not exit the rack in the front or rear service areas.
5. Route and connect the mainline power cables. For this task, you have the option of disconnecting the 5/12V DDM "Y" power cables. See Figure 34 on page 54. The four screws **2** that secure these cables to the PPSs are not captive, so do not let them fall when you remove them.
   a. Route the longer mainline power cable **3** up through the tailgate and behind the 5/12V DDM "Y" power cables **1**. See Figure 34 on page 54. To make this easier, you can temporarily disconnect the right-most connector of each "Y" power cable.

b. Connect the mainline power cable to PPS-1 (upper). Use a "hook and loop" fastener cable tie **3** to fasten the upper cable to the bracket.
c. Route the shorter cable **2** up through the tailgate. Connect it to PPS-2 (lower) similarly to what is shown in Figure 33 on page 53.

Notes:

a. If this is on a raised floor, route the cables down through the floor cutout and near the customer power connectors.
b. If this is not on a raised floor, route the cables underneath the frame behind the rear caster so they exit to the side. The cables must not exit the rack in the front or rear service areas.

CAUTION:
Do not connect the DS8000 mainline power cables to customer power until instructed to do so.

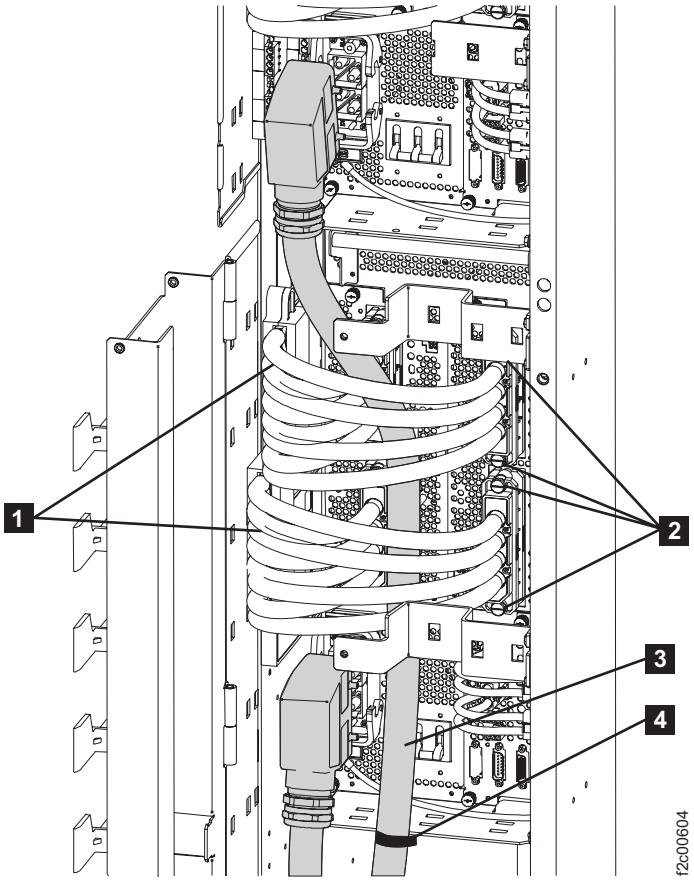


Figure 34. Expansion rack power cables

Determining mainline power cable type (plug in or wired)

Repeat the following steps for each DS8000 rack that you are installing.

1. Locate the customer end of the mainline power cables from all the DS8000 frames that you are installing.
2. Determine if the customer end of the mainline power cables are for plug- in or wired installations.

- Plug-in: The mainline power cable has a plug at both ends. Go to “Checking customer power for a plug-in mainline power cable.”
- Wired: The mainline power cable has a plug at one end and loose wires at the other end. Go to “Checking customer power for a ″wired″ mainline power cable” on page 58

Checking customer power for a plug-in mainline power cable

Repeat the following sections for both mainline power cables in each rack being installed.

Checking power system ground continuity and voltage (plug in)

Attention: Use an IBM-approved analog multimeter. Do not use a digital meter.

1. Switch off the customer circuit breaker that supplies AC voltage to the mainline power cables.

   CAUTION:
   Do not connect the mainline power cables until instructed to do so.
2. **Attention:** Attach a “Do Not Operate” tag (S229-0237) and the safety lockout padlock to each customer circuit breaker that was switched off.
3. Verify the MAIN LINE circuit breaker **1** (CB00) on the rear of each primary power supply is set to Off (down). Refer to Figure 35.

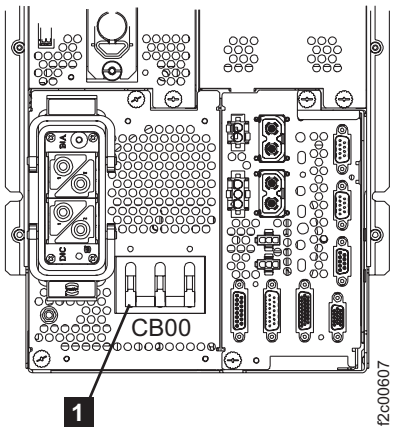


Figure 35. Rear view of PPS showing CB00

4. Verify the DS8000 mainline power cables are not connected to the customer power.
5. Prepare the multimeter to measure 0.1 ohm or less resistance. Place one lead of the multimeter on the ground pin of the male plug on the mainline power cable. Place the other lead on the conductive metal of its primary power supply enclosure. Refer to Figure 36 on page 56 for the location of the ground pin. Do this for each mainline power cable.

   Is there more than 0.1 ohm of resistance?
   - Yes, go to “MAP2330 Repair rack ground continuity” on page 618. To display the MAP, open the service Information Center on the management console, then open the **Isolation MAPs and Symbolic FRU procedures** section to locate the MAP.
   - No, go to “Checking customer receptacle ground pin continuity with customer CB off (plug in)” on page 56.

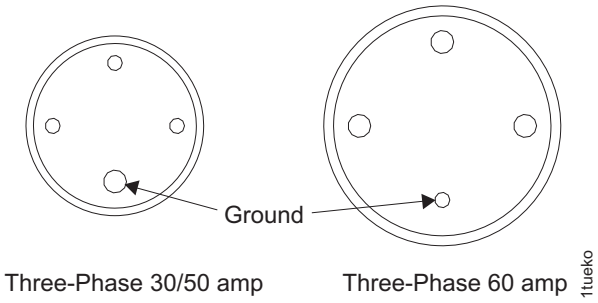


Figure 36. Three-phase amp

Checking customer receptacle ground pin continuity with customer CB off (plug in)

1. Prepare the multimeter to measure 1.0 V ac or less. Measure the voltage at the customer's AC power outlet between the ground pin and the building ground.

   Is the voltage less than 1.0 V ac?

   - Yes, go to step 3.
   - No, continue with the following step.
2. Voltage is present at a customer outlet with the customer circuit breakers off.

   DANGER

   Inform the customer that, even though the circuit breaker is off, voltage higher than 1.0 V ac is measured at the failing customer voltage outlet pins. Do not continue until the voltage is less than 1.0 V ac. (1003)
3. Prepare the multimeter to measure 1.0 ohm or less of resistance.
4. Measure the resistance between the customer AC power outlet ground pin and the building ground. Refer to Figure 37 for the location of the ground pin.

   Is the resistance 1.0 ohm or less?

   - Yes, continue with "Checking customer receptacle voltage pins with customer CB off (plug in)."
   - No, inform the customer. **Do not continue until the resistance is 1.0 ohm or less.**

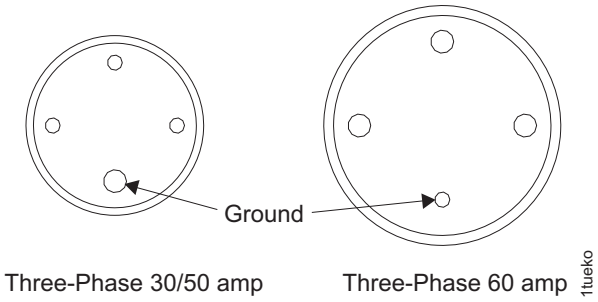


Figure 37. Three-phase amp

Checking customer receptacle voltage pins with customer CB off (plug in)

Prepare the multimeter to measure 1.0 V ac or less. Measure the voltage between each pair of voltage pins (**A**, **B**, and **C**) on the customer outlet. Also, measure the

voltage between each voltage pin and ground pin on the customer outlet. Did any voltage measure more than 1.0 V ac? Refer to Figure 38 for the location of the voltage pins.

- Yes, inform the customer that one or more voltage pins on the customer receptacle measured greater than 1.0 V ac even though the circuit breaker is off. **Do not continue until the voltage is less than 1.0 V ac.**
- No, continue with the next task, "Checking customer receptacle voltage pins with customer CB on (plug in)."

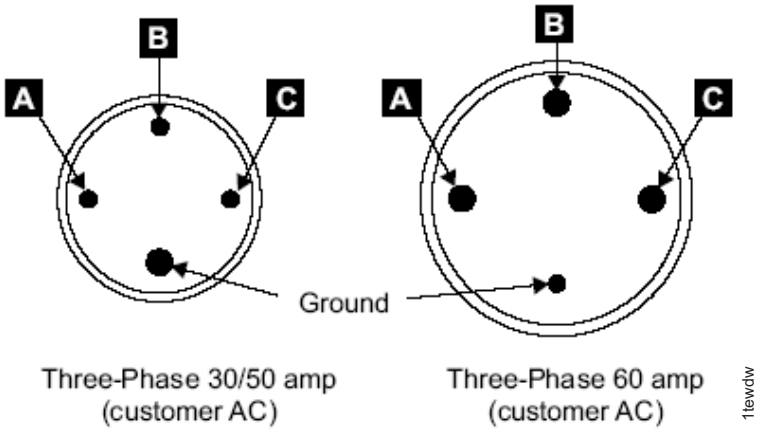


Figure 38. Measuring voltage between each pair of pins

Checking customer receptacle voltage pins with customer CB on (plug in)

1. Remove the "Do Not Operate" tag and the lockout padlock from each customer mainline AC voltage circuit breaker and then switch on the customer circuit breaker.
2. Prepare the multimeter to read line voltage AC.

   DANGER

   Dangerous voltages may be present. Do not touch the internal parts (pins and connectors) of the customer receptacle.

3. Measure the voltage between the ground pin and each voltage pin (**A** , **B** , and **C**) on the customer outlet. Refer to Figure 39 on page 58 for the location of the voltage pins.

   Are the voltages within 10% of each other?

   - Yes, continue with the next step.
   - No, inform the customer that the voltages are not correct. **Do not continue until the voltages are correct.**
4. Locate the DS8000 information label located near the top of the left side panel at the rear of the DS8000. Measure the voltage between each pair of voltage pins (**A** to **B** , **B** to **C** , and **C** to **A**) on the customer outlet. Refer to Figure 39 on page 58 for the location of the voltage pins. Verify that the customer AC input voltage that you just measured matches the machine input voltage information on the label.

   Do the voltages correspond with the label?

   - Yes, continue with "Connecting the mainline power cables on the racks (plug in)" on page 58.

- No, **do not continue with the installation**. Contact the marketing representative to confirm that the DS8000 was ordered with the correct power input feature.

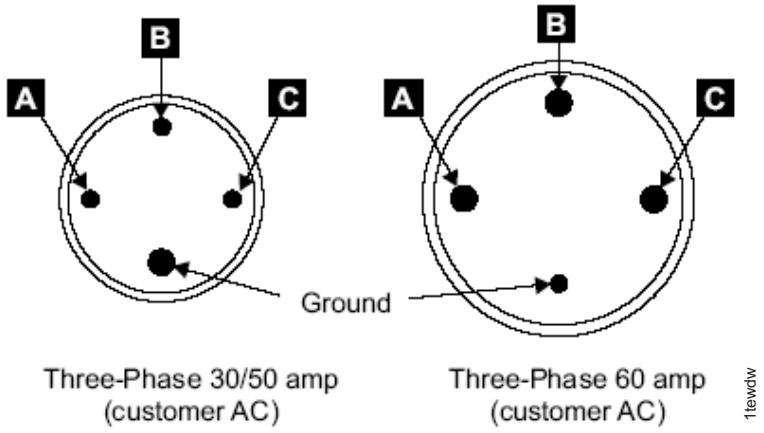


Figure 39. Measuring voltage between each pair of pins

Connecting the mainline power cables on the racks (plug in)

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (D004)

Repeat steps 1 through 3 for each rack that you install.

1. Switch the customer circuit breaker to Off for the mainline power cables.

   Attention: Attach a "Do Not Operate" tag (S229-0237) and the safety lockout padlock to each circuit breaker.
2. Verify the mainline circuit breaker (CB00) on the rear of each primary power supply is set to Off (down).
3. Connect each storage facility mainline power cable plug to the customer AC outlet.
4. Continue with "Checking the rack switch settings" on page 63.

Checking customer power for a "wired" mainline power cable

Use the following power sections to check the customer's power for a wired mainline power cable. Repeat the following steps for each rack being installed.

Checking power system ground continuity and voltage (wired)

Attention: Use an IBM-approved analog multimeter. Do not use a digital meter.

Repeat the following steps for each rack that you are installing.

1. Switch off the customer circuit breaker that supplies the AC voltage to the mainline power cables.

   CAUTION:
   Do not connect the mainline power cables until instructed to do so.

2. **Attention:** Attach a "Do Not Operate" tag (S229-0237) and the safety lockout padlock to each customer circuit breaker that was switched off. Refer to the *Electrical Safety for IBM Customer Engineers*.
3. Verify the MAIN LINE circuit breaker **1** (CB00) on the rear of each primary power supply is set to Off (down). Refer to Figure 40.

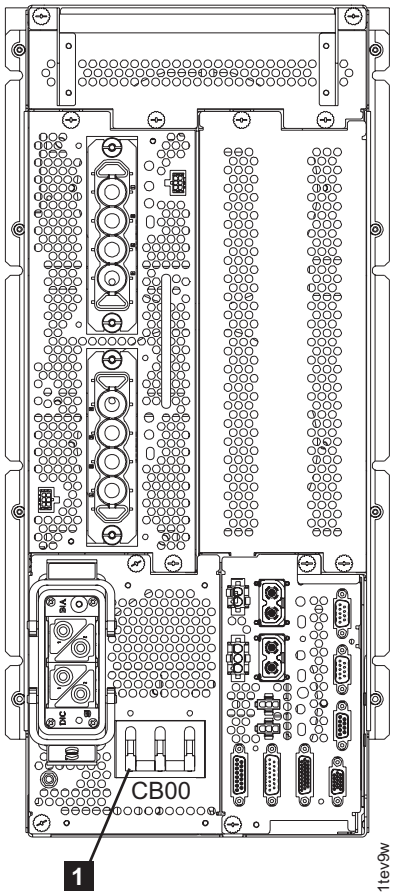


Figure 40. Rear view of PPS showing CB00

4. Verify the DS8000 mainline power cables are not connected to the customer power.
5. Connect the DS8000 mainline power cable to each primary power supply (PPS) input power connector.

   Note: Ensure that you connect the long mainline power cord to the upper primary supply and the short mainline power cord to the lower primary supply.
6. Prepare the multimeter to measure 0.1 ohm or less resistance. Place one lead of the multimeter on the green and yellow wire at the customer end of each mainline power cable. Place the other lead on the conductive metal of each PPS enclosure. Refer to Figure 41 on page 60.

   Is there more than 0.1 ohm of resistance?

   - Yes, go to "MAP2330 Repair rack ground continuity" on page 618.
   - No, continue with the next step.

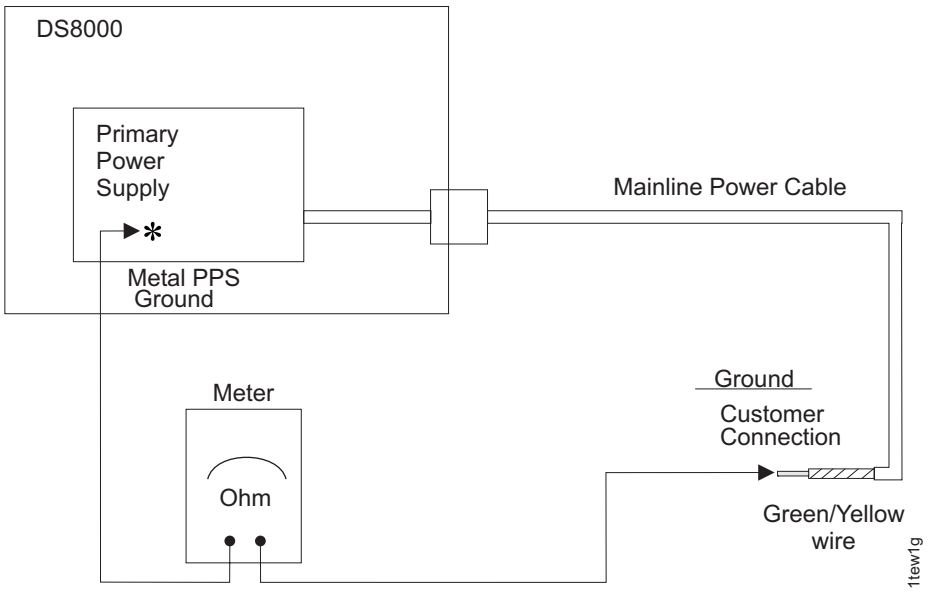


Figure 41. Prepare multimeter to measure ohm resistance

7. Disconnect the DS8000 mainline power cables from each PPS input power connector.
8. Instruct the customer to call a licensed electrician to connect each wired mainline power cable to the customer mainline power source.

   Attention: For EMEA installations, provide the following information to the electrician.

   EMEA Electrician Information

   The mainline power cord of this machine must be connected to the customer's mainline power source by a licensed electrician. The mainline power cable cannot be modified in any way.

   - For 3-phase machines:

     This machine must be connected to a 3-phase AC power. The mainline power cable is a four-conductor cable with the following color code:

     – L1 (phase 1) = black
     – L2 (phase 2) = blue
     – L3 (phase 3) = brown
     – PE (ground) = green/yellow

   Note: The connection to the AC power must be made without neutral, the blue wire must be used as a phase.
9. Continue with "Checking customer ground continuity with customer CB off (wired)."

Checking customer ground continuity with customer CB off (wired)

1. Prepare the multimeter to measure 1.0 V ac or less. Measure the voltage on the female ground pin on each mainline power cable and building ground. Refer to Figure 42 on page 61.

   Is the voltage less than 1.0 V ac?

   - Yes, go to step 3 on page 61.
   - No, continue at the following step.

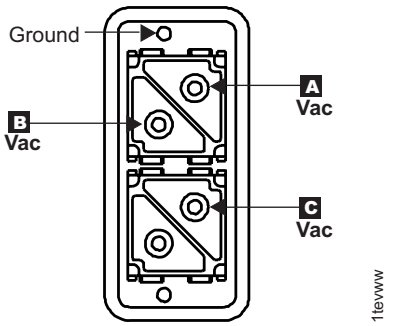


Figure 42. Mainline power cable connector

2. Voltage is present at a customer outlet with the customer circuit breakers off.

   DANGER

   Inform the customer that even though the circuit breaker is off, voltage higher than 1.0 V ac is measured at the failing customer voltage outlet pins.

   Do not continue until the voltage is less than 1.0 V ac.

3. Prepare the multimeter to measure 1.0 ohm or less of resistance.
4. Measure the resistance between the female connector ground pin on each mainline power cable and the building ground.

   Is the resistance 1.0 ohm or less?

   - Yes, continue with "Checking customer voltage with customer CB off (wired)."
   - No, inform the customer. **Do not continue until the resistance is 1.0 ohm or less**.

Checking customer voltage with customer CB off (wired)

1. Prepare the multimeter to measure 1.0 V ac or less.
2. Measure the voltage between each pair of voltage pins on the female connector on each mainline power cable. Also, measure the voltage between each voltage pin (**A**, **B**, and **C**) and the ground pin on each mainline power cable. Refer to Figure 43 on page 62.

   Did any voltage measure more than 1.0 V ac?

   - Yes, inform the customer that one or more voltage pins on the customer supply measured greater than 1.0 V ac even though the circuit breaker is off. **Do not continue until the voltage is less than 1.0 V ac.**
   - No, continue with "Checking customer voltage with customer CB on (wired)" on page 62.

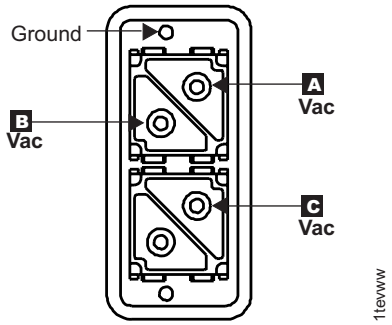


Figure 43. Mainline power cable connector

Checking customer voltage with customer CB on (wired)

1. Remove the "Do Not Operate" tag and the lockout padlock from each customer mainline AC voltage circuit breaker and then switch on the customer circuit breaker.
2. Prepare the multimeter to read line voltage AC.

   DANGER

   Dangerous voltages may be present. Do not touch the internal parts (pins and connectors) of the customer receptacle.

3. Measure the voltage between the ground pin and each voltage pin (**A** , **B** , and **C**) on each mainline power cable. Refer to Figure 44.

   Are the voltages within 10% of each other?

   - Yes, continue with the next step.
   - No, inform the customer that the voltages are not correct. **Do not continue until the voltages are correct.**

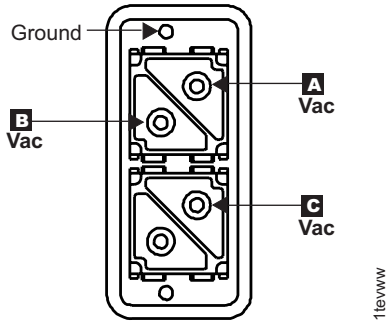


Figure 44. Mainline power cable connector

4. Locate the DS8000 information label located on the top of the left side panel at the rear of the storage facility. Measure the voltage between each pair of voltage pins (**A** to **B** , **B** to **C** , and **C** to **A**) on each mainline power cable. Refer to Figure 44. Verify that the customer AC input voltage that you just measured matches the machine input voltage information on the label.

   Does the voltage measured match the voltage on the DS8000 information label?

   - Yes, continue with "Connecting the mainline power cables on the racks (plug in)" on page 58.

- No, **do not continue with the installation.** Contact the marketing representative to confirm that the DS8000 was ordered with the correct power input feature.

Connecting the mainline power cables on the racks (wired)

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (D004)

1. Switch the customer circuit breaker to Off for the mainline power cables.

   Attention: Attach a "Do Not Operate" tag (S229-0237) and the safety lockout padlock to each circuit breaker.
2. Verify the mainline circuit breaker (CB00) on the rear of each primary power supply is set to Off (down).
3. Connect each storage facility mainline power cable plug to the PPS then continue with "Checking the rack switch settings."

Checking the rack switch settings

1. Verify the setting of the following switches on Rack-1.

Table 27. Switch settings and locations

Switch	Setting	Location	Figure reference
Battery enclosure circuit breakers CB0 and CB1.	On (up)	On each battery assembly (rear of rack)	4 in Figure 45 on page 64
UEPO red switch	Off (down)	Rack operator panel (front of rack) **Note:** Press the recessed switch towards the bottom. It will appear flat when off.	n/a
RPC card DIP switches 1, 2, 4, 5, 6 (Both cards)	Off (right)	Both RPC cards (top rear of rack)	1 in Figure 45 on page 64
RPC card DIP switch 3 (Both cards)	Off (right)	System z® power feature **is not** installed (LR card) **Note:** The ZLR card shown in 2 in Figure 45 on page 64 differs from the LR card in that it has four large connectors on the left side.	1 in Figure 45 on page 64
	On (left)	System z power feature **is** installed (ZLR card)	1 in Figure 45 on page 64
Local Remote switch	Local (down)	LR or ZLR card (rear of rack)	2 in Figure 45 on page 64

Figure 45 on page 64 shows the rear view of the rack:

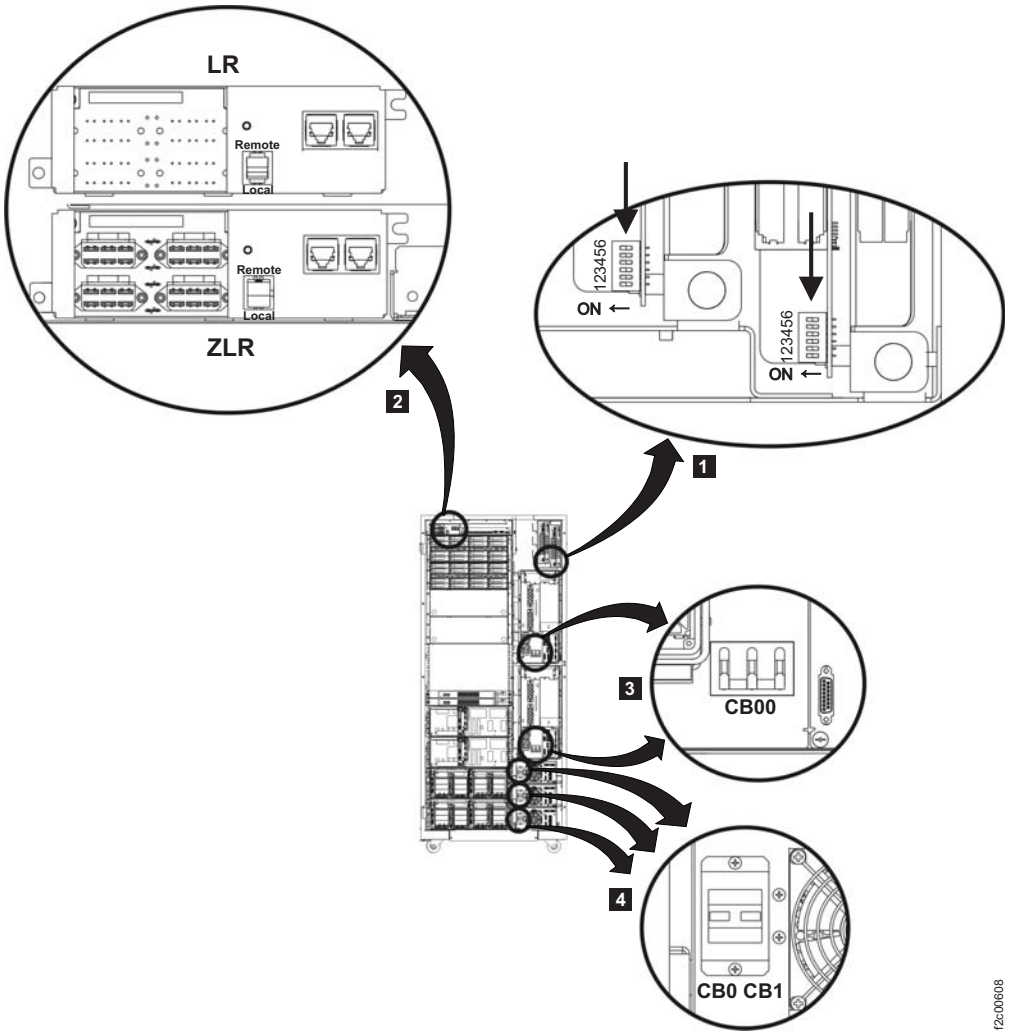


Figure 45. Rack rear view

Figure 46 on page 65 shows the enable disable switches for the primary power supply sequencer module.

2. Continue verifying the settings of the following switches on Rack-1.

Table 28. Switch settings and locations

Switch	Setting	Location	Figure reference
Primary power supply circuit breaker CB00	Off (down)	On each PPS, on the AC input power module (rear of rack)	**3** in Figure 45
Primary power supply sequencer module three enable/disable switches	Enabled (up)	Three switches on each PPS (rear of rack)	**1** in Figure 46 on page 65
Enable/disable switches on the PPS 5/12 V DDM power module	Enabled (up)	Two switches on each PPS (rear of rack)	**1** in Figure 47 on page 66

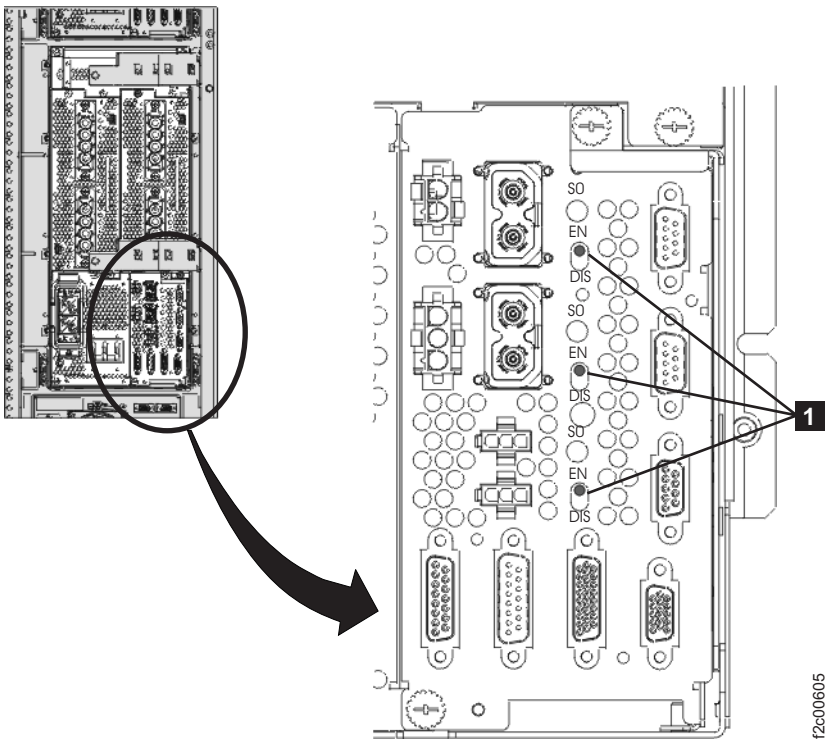


Figure 46. PPS sequencer module and LED enable/disable switch

Figure 47 on page 66 shows the enable disable switches for the primary power supply DDM.

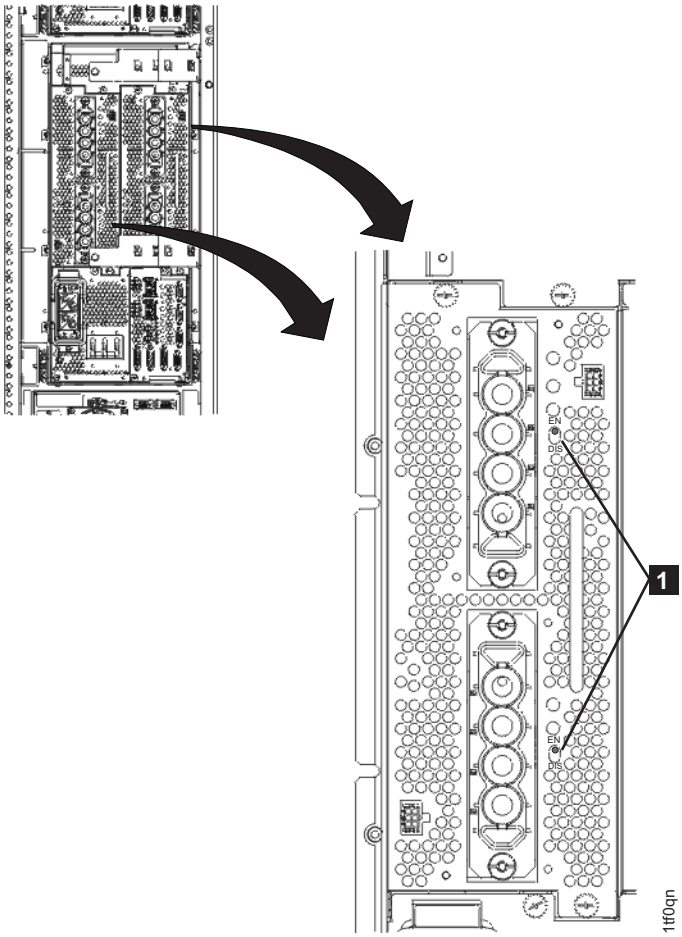


Figure 47. Enable/disable switches on a 5/12 V DDM power module (PPS)

3. Do you have additional storage expansion racks?
   - Yes, continue with step 4.
   - No, continue with step 5 on page 67.
4. Verify the setting of the following switches on each expansion rack. Each rack has:
   - One UEPO switch
   - Two PPSs
   - Zero to three battery enclosures

Table 29. Switch settings and locations for storage expansion racks

Switch	Setting	Location	Figure reference
UEPO red switch	Off (down)	Rack operator panel (front of rack) **Note:** Press the recessed switch towards the bottom. It will appear flat when off.	n/a
Primary power supply CB00	Off (down)	On AC input power module	**3** in Figure 45 on page 64

Table 29. Switch settings and locations for storage expansion racks (continued)

Switch	Setting	Location	Figure reference
Battery enclosure circuit breakers CB0 and CB1.	On (up)	On each battery enclosure (rear of rack)	4 in Figure 45 on page 64
Primary power supply sequencer module enable/disable switches	Enabled (up)	On PPS modules (rear of rack)	1 in Figure 46 on page 65
Primary power supply DDM module enable/disable switches	Enabled (up)	On PPS modules (rear of rack)	1 in Figure 47 on page 66

5. Continue with "Checking rack UEPO switch operation."

Checking rack UEPO switch operation

Start with Rack-1, and then repeat the following steps for each additional storage facility that you are installing.

1. Remove the "Do Not Operate" tag and the lockout padlock from each customer mainline AC voltage circuit breaker that supplies power to the storage facility that you are installing.
2. Switch on each customer circuit breaker.
3. Switch the MAINLINE CB00, on the rear of each primary power supply to On (up).
4. Observe the six vertical LED indicators at the front of each primary power supply (to the left of the fans).
   - If you are here for Rack 1, the Rack 1 UEPO switch must already be in the Off position as indicated in the section "Checking the rack switch settings" on page 63.
   - If you are here for a subsequent Rack, the Rack 1 UEPO switch must already be in the On position as indicated in step 5.

   Use Table 30 to find the condition that applies:

Table 30. LED indicators when MAINLINE CB00 is on

AC INPUT GOOD	UEPO LOOP GOOD	PPS Status Display	Action
On	Off	Ignore	Normal condition, continue with the next step
On	On	Ignore	UEPO fault, go to "MAP21F0 UEPO loop good LED should be off" on page 595
Off	Off	Ignore	Input power fault, go to "MAP2050 Loss of AC Input to a single primary power supply" on page 552. **Note:** If both PPSs are failing, then repeat the customer voltage checks done previously.

5. Push a thin paper clip through the small hole in the operator panel to reset the UEPO red switch to the On (up) position.

Use Table 31 to find the condition that applies.

Table 31. LED indicators when UEPO switch is on

AC INPUT GOOD	UEPO LOOP GOOD	PPS Status Display	Action
On	On	Blank, U0, XC, or XD **Note:** Some levels of PPS firmware will cause an XC or XD error code to be displayed. This is a false error. The condition will remain until the DDM power supply is turned on in a later step. No action is required. Continue with the next step.	Normal condition, continue with the next step.
On	On	Error code	Go to "MAP21A0 PPS fault isolation during install" on page 592.
On	Off	N/A	UEPO fault, go to "MAP21E0 UEPO Loop Good LED should be on" on page 594.

6. Observe the six vertical LED indicators at the front of each primary power supply (to the left of the fans). Use Table 30 on page 67 to find the condition that applies.
7. Swing the 208VDC bus bar gate back into its non-service position. Reinstall and tighten the two retaining screws **1** . See Figure 48.
8. For an expansion rack, if you removed the air baffle **2** earlier to allow the 208VDC bus bar to swing open, then reinstall it now. See Figure 48.

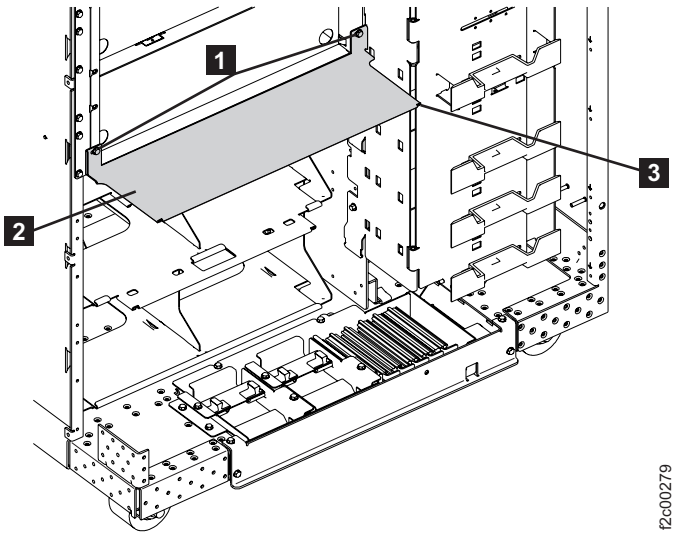


Figure 48. Air baffle

9. Continue with “Determining the management console configuration.”

Configuring the management console

Determine which management console task you need to perform.

Determining the management console configuration

1. Record the following date and time:
   a. Record the *stop* date and time for the Check Customer Preparation through Safety Checks phase in Table 20 on page 18, “Recording information for the installation report” on page 17.
   b. Record the *start* date and time for the HMC Initial Configuration phase in Table 20 on page 18, “Recording information for the installation report” on page 17.
2. Review the following information for an overview of a storage plex and management console MC 1 versus MC 2:
   a. A storage complex is one or more storage facilities that share one or two management consoles (HMCs).
   b. The storage facilities in a storage complex have Ethernet cables that connect their internal rack mounted Ethernet switches together into a private network.
   c. The first HMC for a storage complex MUST BE assigned the role of primary management console (MC 1).
   d. MC 1 runs a DHCP server to assign the IP addresses on the private networks (gray and black). It also collects and maintains all information about the storage complex hardware and code.
   e. If there is a second HMC for the same storage complex, it MUST BE assigned the role of secondary management console (MC 2).
   f. The secondary HMC can be:
      - an external HMC installed in an IBM or customer-provided utility rack that is cabled to the same storage complex.
      - an internal HMC in a storage facility that is part of the same storage complex.
   g. MC 1 and MC 2 both run DHCP servers. DHCP lease information and other storage complex data is automatically synchronized between them. MC 1 and MC 2 provide backup for each other to ensure continuous availability of HMC functions in the event of a single HMC failure.
   h. MC 1 must be completely installed and configured before MC 2 can be connected to the private network. This ensures MC 2 gets a complete copy of all the needed information from MC 1.
   i. If two storage facilities each having an internal HMC are being installed at the same time:
      - The first storage facility in the storage complex must have the primary management console (MC 1)
      - The other storage facility must have the secondary management console (MC 2)
      - The install of the second storage facility will have to wait until the install of the first storage facility has completed the section titled “Testing of management console communications”. This will ensure MC 1 is

completely configured and ready to provide a copy of its information to MC 2 when it is connected into the storage complex.

3. If you are:
   - Installing the first storage facility in a storage complex, go to Table 32.
   - Adding astorage facility to an existing storage complex, go to Table 33.

Table 32. Installing the first storage facility in a storage complex

The storage facility being installed contains:	**Action**
One integrated management console (one in Rack 1).	Go to "Configuring the management console in rack 1 as the primary management console."
One integrated management console and one external management console.	Go to "Configuring the management console in rack 1 as the primary management console." **Note:** Installation of the external management console (MC 2) will be performed after the storage facility and primary management console are installed. The external management console harvests configuration information from MC 1.

Table 33. Adding a storage facility to an existing storage complex

The storage facility being installed contains:	**Action**
New storage facility has an integrated management console in Rack 1.	Go to "Configuring the management console in rack 1 as the secondary management console" on page 75.
New storage facility does not have an integrated management console in Rack 1.	Go to "Connecting a new storage facility to an existing storage plex" on page 80.

Configuring the management console in rack 1 as the primary management console

Perform the following steps to configure a primary management console (MC 1) in rack 1. If you also have an external management console to install, then that task will be performed later in the install sequence.

1. Check the HMC TCP/IP address selected on the customization worksheets provided by the customer. This is the address to be assigned to the HMC network port (eth2) for connection to the customer network.

   Is the address in either of the following ranges?

   `172.16.0.0 - 172.16.255.255` or `172.17.0.0 - 172.17.255.255`

   - No, go to step 3.
   - Yes, go to step 2.
2. There is the potential of an address conflict between the customer networks and the DS8000 private networks. Call the next level of support. The next level of support will need to assist you in converting the private network (gray and black) address ranges to one of the optional addresses that the customer has selected on the "Management console network settings work sheet". They will have a special procedure to allow this network address conversion to occur during an install.

Refer to "MAP7005 Determining which private network address range is selected" on page 867 to ensure that the address range selected is the same as what is already in use for the primary management console (MC 1).

3. Observe the power LED on the front of the management console server. See Figure 49 (X335 server) or Figure 50 (X336 server).

   Is the LED indicator off?

   - Yes, go to "MAP6520 Management console power problem" on page 817.
   - No, go to the next step.

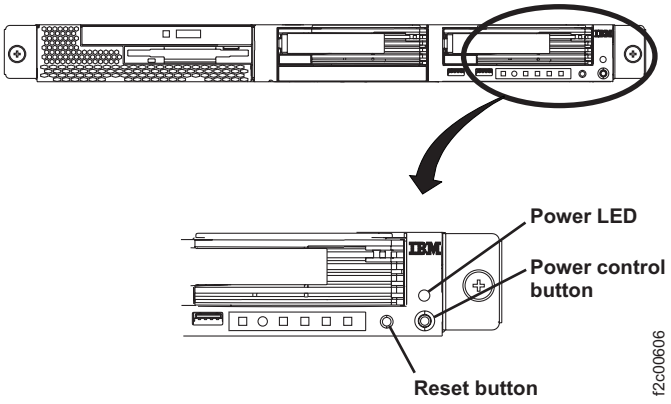


Figure 49. X335 management console server (front view)

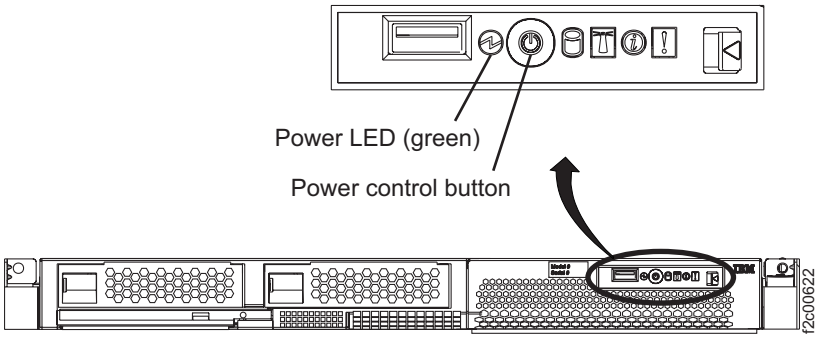


Figure 50. X336 management console server (front view)

4. Is the power LED indicator flashing?
   - Yes, push in the Power control button and then continue with the next step.
   - No, continue with the next step.
5. Slide the management console keyboard and display drawer out to the service position and raise the display panel. If necessary, press the power on button to turn on the display. Wait up to *5* minutes for the HMC ROLE SELECTION MENU to be displayed. For example:

```
*****************************************************
*               WELCOME TO THE                      *
*            HMC ROLE SELECTION MENU                *
*****************************************************

ENTER A MENU OPTION FROM THE LIST
1)   ASSIGN HMC AS PRIMARY
2)   ASSIGN HMC AS SECONDARY
99)  EXIT

ENTER YOUR SELECTION AND HIT THE "ENTER" KEY
--> __
```

Is the HMC ROLE SELECTION MENU displayed?

- Yes, continue with the next step.
- No, this indicates that either the HMC Role has already been assigned (HMC login screen is displayed) or that the management console is not booting correctly.

  Important: To reset all the HMC code objects to prepare for the installation, the HMC role must transition from *Primary* to *Secondary* or *Secondary* to *Primary* at least once. If the role does not transition, the code objects will not be reset.

  – If the management console login screen is displayed, then go to "MAP6090 HMC Role selection not displayed as expected" on page 774. Return here and continue with step 6 when you correct the problem.

  – If the management console login screen is not displayed, go to *MAP6020 Management console problem determination*.

6. Assign this management console as the primary management console:
   a. Type 1 and press **Enter**.
   b. Type Yes and press **Enter** to confirm the selection.
   c. Check the HMC label located on the front of the management console keyboard tray. If it does not indicate MC 1, then locate the label in the ship group and attach it.
7. When the keyboard layout configuration screen is displayed (as shown below), type 2 and press **Enter**.

```
If you are using a non English US keyboard, you can choose to change your
keyboard layout configuration.  You can make your selection by pressing a number
key then press enter.  If you don't press any key within 30 seconds, this
program will terminate automatically.

1 -- Do not change keyboard layout and run this program again on the next
        system boot.
2 -- Do not change keyboard layout and do not run this program again on
       the next system boot.
3 -- Change to a new keyboard layout.

Your selection is:
```

8. Wait up to 5 minutes for the HMC configuration to be updated, and the HMC login screen to display. Is the management console login screen displayed?
   - Yes, continue with the next step.
   - No, go to *MAP6020 Management console problem determination*.
9. The management console is shipped with predefined user IDs and passwords. The user IDs and passwords are case-sensitive. Enter the user ID and password as shown below.

ID: CE
Password: serv1cece

10. If any "License Agreement" pop-up panels are displayed, accept the agreements.
11. Use the customization worksheets provided by the customer to perform the management console customization tasks in Table 34. Additional guidance is available through the *IBM System Storage DS8000 Introduction and Planning Guide*.

    To access the management console navigation item listed in the second column of Table 34, do the following:

    a. In the HMC Navigation area, open the **Management Environment**, select and open the HMC.
    b. Select and open the HMC (localhost.localdomain).
    c. Open **HMC Management**, then **HMC Configuration**.
    d. In the right content area, select the desired HMC configuration from the second column of Table 34.

Table 34. Management console customization tasks

You are here to set the following HMC option:	HMC Configuration Option	Notes
Console Date / Time and Timezone	Customize Console Date and Time	1. Set the date and time to the local time. 2. Choose a location that has the same time zone and daylight savings settings as the storage facility location. **Note:** The date, time, and time zone that you select will be used later by an automated process to update those settings in the storage facility. Ensure that you set this accurately. 3. Click **OK** on the Reboot warning panel, but do not reboot at this time.
HMC Network Settings	Customize Network Setting	1. Set the Console Name, Domain Name and description per the worksheets. 2. Click on the LAN adapters Tab, select eth2, click on details and set up the customer network connection. 3. Click on the Name Services Tab and configure the customer's DNS (if required). 4. Click on Routing Tab and configure the customers Gateway (if required). Set the Gateway Device to **eth2**. 5. Perform a quality check of all the entered data. 6. Press **Apply**.

12. Logoff and reboot the management console by performing the following steps:
    a. From the task bar, click on **Console**.
    b. Select **Exit**, and then click **Exit now**.
    c. From the selection box, select **Reboot Console**.
    d. Click **OK**.
13. Wait for the management console logon panel to display.
14. Route and connect the customer Ethernet cable.
    a. Locate the customer-supplied Ethernet cable.

b. Route the Ethernet cable through the tailgate and up to the rear of the management console server.

c. Connect the cable to the customer Ethernet port (eth2) on the management console server. Refer to Figure 51 (X335 server) or Figure 52 (X336 server).

Note: If the customer requests the Media Access Control (MAC) address of the HMC port they will connect to, refer to *MAP6010 Displaying the HMC MAC address for the customer connection*.

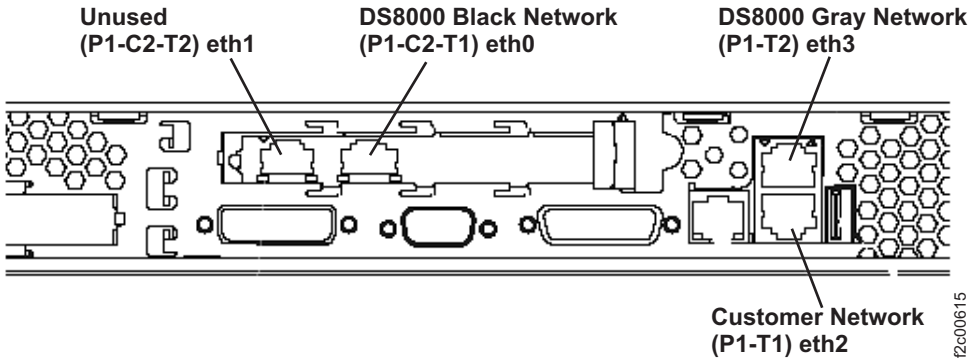


Figure 51. Ethernet connectors on the rear of the X335 management console server

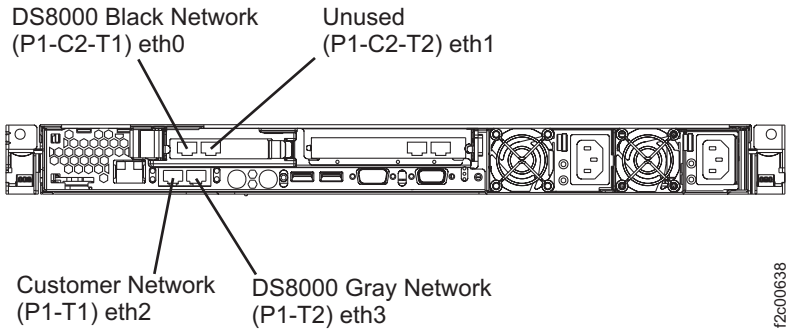


Figure 52. Ethernet connectors on the rear of the X336 management console server

15. Route and connect the customer's phone line cable by performing the following steps:
    a. Locate the customer's phone line cable.
    b. Plug the customer's phone line cable into the line connector on the modem card at the rear of the management console server. See Figure 53 on page 75 (X335 server) or Figure 54 on page 75 (X336 server).
    c. Route the customer's phone line cable through the storage facility tailgate.
    d. Plug the other end of the telephone cable into the customer's telephone line connector.

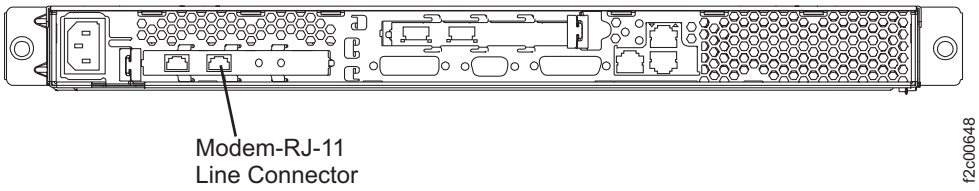


Figure 53. The modem connector (RJ-11 phone line) on the rear of the X335 management console server

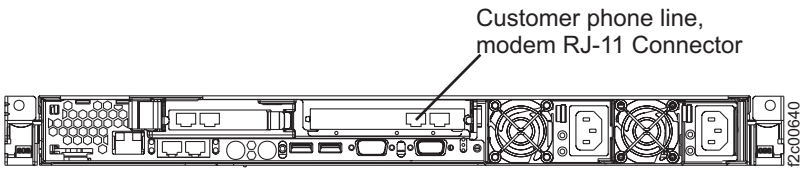


Figure 54. The modem connector (RJ-11 phone line) on the rear of the X336 management console server

16. Continue with "Powering on and verifying the storage facility" on page 82.

Configuring the management console in rack 1 as the secondary management console

Perform the following steps to configure a secondary management console (MC 2) in rack 1.

Attention: This section is used when adding a storage facility containing a management console to an **existing** storage plex. The management console will be configured as the secondary management console **before** connecting it to the DS8000 private network.

1. Check the HMC TCP/IP address selected on the customization worksheets provided by the customer. This is the address to be assigned to the HMC network port (eth2) for connection to the customer network. Is the address in either of the following ranges?

   `172.16.0.0 - 172.16.255.255` or `172.17.0.0 - 172.17.255.255`

   - No, go to step 3.
   - Yes, go to step 2.
2. There is the potential of an address conflict between the customer networks and the DS8000 private networks. Call the next level of support. The next level of support will need to assist you in converting the private network (gray and black) address ranges to one of the optional addresses that the customer has selected on the "Management console network settings work sheet". They will have a special procedure to allow this network address conversion to occur during an install.

   Refer to "MAP7005 Determining which private network address range is selected" on page 867 to ensure that the address range selected is the same as what is already in use for the primary management console (MC 1).
3. Observe the power LED on the front of the management console server. See Figure 55 on page 76 (X335 server) or Figure 56 on page 76 (X336 server).

   Is the LED indicator off?

   - Yes, go to "MAP6520 Management console power problem" on page 817.
   - No, go to the next step.

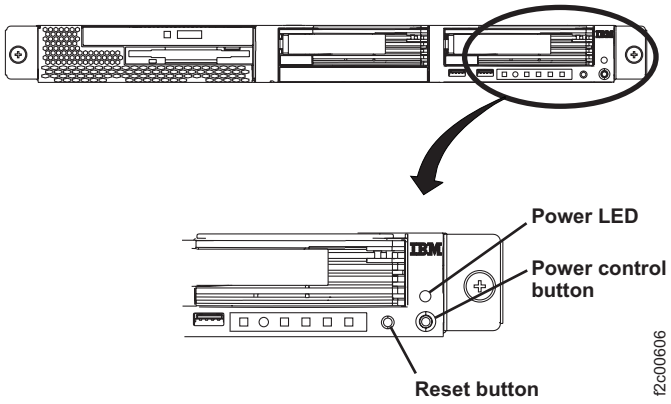


Figure 55. X335 management console server (front view)

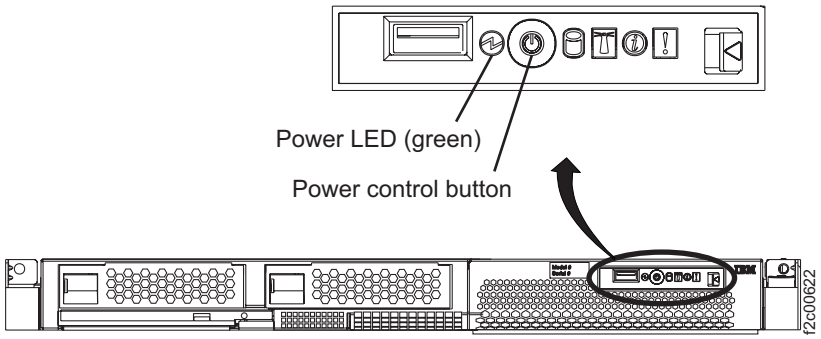


Figure 56. X336 management console server (front view)

4. Is the power LED indicator flashing?
   - Yes, push in the Power control button and then continue with the next step.
   - No, continue with the next step.
5. Slide the management console keyboard and display drawer out to the service position and raise the display panel. If necessary, press the power on button to turn on the display. Wait up to *5* minutes for the HMC ROLE SELECTION MENU to be displayed. For example:

```
*****************************************************
*               WELCOME TO THE                      *
*           HMC ROLE SELECTION MENU                 *
*****************************************************

ENTER A MENU OPTION FROM THE LIST
1)   ASSIGN HMC AS PRIMARY
2)   ASSIGN HMC AS SECONDARY
99)  EXIT

ENTER YOUR SELECTION AND HIT THE "ENTER" KEY
--> __
```

   Is the HMC ROLE SELECTION MENU displayed?
   - Yes, continue with the next step.
   - No, this indicates that either the HMC Role has already been assigned (HMC login screen is displayed) or that the

     Important: To reset all the HMC code objects to prepare for the installation, the HMC role must transition from *Primary* to *Secondary* or

Secondary to *Primary* at least once. If the role does not transition, the code objects will not be reset.

- If the management console login screen is displayed, then go to "MAP6090 HMC Role selection not displayed as expected" on page 774. Return here and continue with step 6 when you correct the problem.
- If the management console login screen is not displayed, go to *MAP6020 Management console problem determination*.

6. Assign this management console as the secondary management console (MC 2) by performing the following steps:
   a. Type 2 and press **Enter**.
   b. Type Yes and press **Enter** to confirm the selection.
   c. Locate the MC 2 label in the ship group. Attach the label to the front of the management console keyboard tray.
7. When the keyboard layout configuration screen is displayed (as shown below), type 2 and press **Enter**.

```
If you are using a non English US keyboard, you can choose to change your
keyboard layout configuration.  You can make your selection by pressing a number
key then press enter.  If you don't press any key within 30 seconds, this
program will terminate automatically.

1 -- Do not change keyboard layout and run this program again on the next
        system boot.
2 -- Do not change keyboard layout and do not run this program again on
       the next system boot.
3 -- Change to a new keyboard layout.

Your selection is:
```

8. Wait up to 5 minutes for the HMC configuration to be updated, and the HMC login screen to display. Is the management console login screen displayed?
   - Yes, continue with the next step.
   - No, go to *MAP6020 Management console problem determination*.
9. The management console is shipped with predefined user IDs and passwords. The user IDs and passwords are case-sensitive. Enter the user ID and password as shown below.

   ID: CE
   Password: serv1cece
10. Ensure the code LIC level of the new management console code (MC 2) is compatible with the LIC level of the existing management console (MC 1). Normally they must be at the same level. Contact your next level of support if they are not.
    a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
    b. Open **Licensed Internal Code Maintenance → HMC Code Update**.
    c. In the right content area, the Status section displays the HMC LIC levels.
11. Use the customization worksheets provided by the customer to perform the management console customization tasks in Table 35 on page 78. Additional guidance is available through the *IBM System Storage DS8000 Introduction and Planning Guide*.

    To access the management console navigation item listed in the second column of Table 35 on page 78, do the following:
    a. In the HMC Navigation area, open the **Management Environment**, select and open the HMC.

b. Open **HMC Management → HMC Configuration**, in the right content area, select the desired HMC configuration option.

Table 35. Management console customization tasks

You are here to set the following HMC option:	HMC Configuration Option	Notes
HMC Network Settings	Customize Network Setting	1. Set the Console Name, Domain Name and description per the worksheets. 2. Click on the LAN adapters Tab, select eth2, click on details and set up the customer network connection. 3. Click on the Name Services Tab and configure the customer's DNS (if required). 4. Click on Routing Tab and configure the customers Gateway (if required). Set the Gateway Device to **eth2**. 5. Perform a quality check of all the entered data. 6. Press **Apply**.
Console Date / Time and Timezone	Customize Console Date and Time	1. Set the date and time to the local time. 2. Choose a location that has the same time zone and daylight savings settings as the storage facility location. **Note:** The date, time, and time zone that you select will be used later by an automated process to update those settings in the storage facility. Ensure that you set this accurately. 3. Click **OK** on the Reboot warning panel, but do not reboot at this time.

12. Logoff and reboot the management console by performing the following steps:
    a. From the task bar, click on **Console**.
    b. Select **Exit**, and then click **Exit now**.
    c. From the selection box, select **Reboot Console**.
    d. Click **OK**.
13. Route and connect the customer Ethernet cable.
    a. Locate the customer-supplied Ethernet cable.
    b. Route the Ethernet cable through the tailgate and up to the rear of the management console server.
    c. Connect the cable to the customer Ethernet port (eth2) on the management console server.

    Note: If the customer requests the Media Access Control (MAC) address of the HMC port they will connect to, refer to *MAP6010 Displaying the HMC MAC address for the customer connection*.

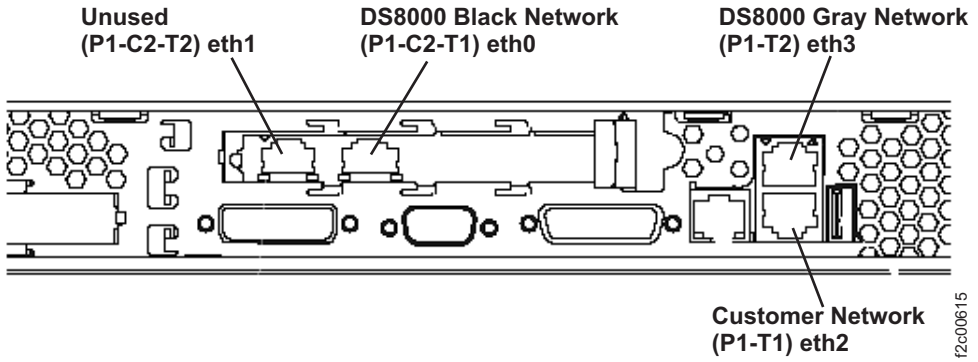


Figure 57. Ethernet connectors on the rear of the X335 management console server

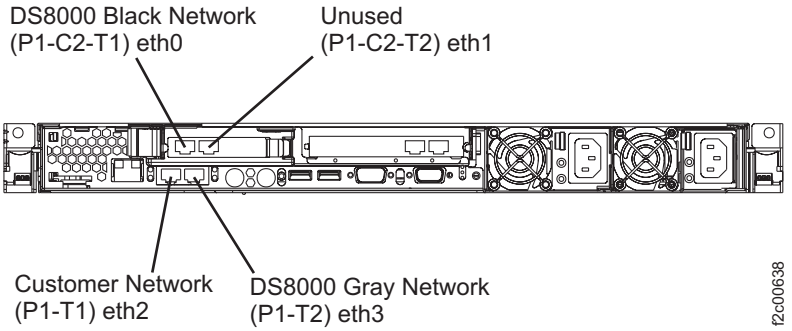


Figure 58. Ethernet connectors on the rear of the X336 management console server

14. Route and connect the customer's phone line cable.
    a. Locate the customer's phone line cable.
    b. Connect the customer's phone line cable to the line connector on the modem card at the rear of the management console server. See Figure 59 (X335 server) or Figure 60 on page 80 (X336 server).
    c. Route the customer's phone line cable through the storage facility tailgate.
    d. Plug the other end of the customer's phone line cable into the customer's telephone line connector.

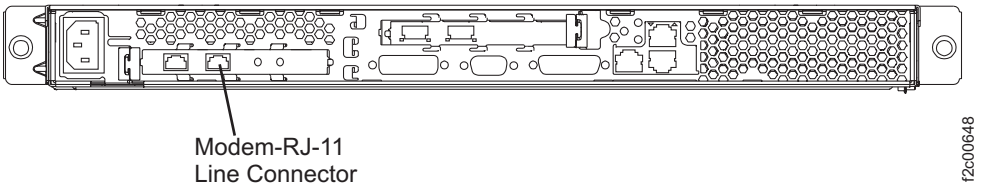


Figure 59. The modem connector (RJ-11 phone line) on the rear of the X335 management console server

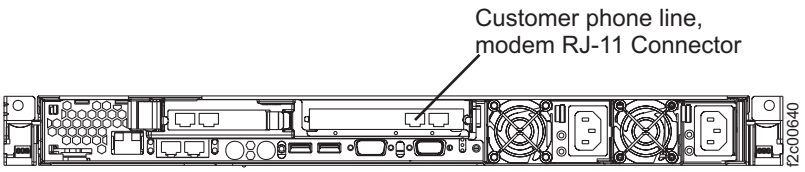


Figure 60. The modem connector (RJ-11 phone line) on the rear of the X336 management console server

15. Wait for the management console logon panel to appear and then continue with "Connecting a new storage facility to an existing storage plex."

Connecting a new storage facility to an existing storage plex

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (D004)

This section provides the additional steps to connect a new storage facility to an existing storage plex.

Attention: If you will be installing more than one new storage facility to an existing storage plex, completely install one storage facility at a time.

1. This step is a reminder to ensure the code level of the existing storage plex and management consoles are already at a compatible level or same level as the new storage facility code levels.
2. Ensure the code level of the existing storage plex and management consoles are already at a compatible level or same level as the new storage facility code levels.

   Note: Do not intermix the following bundles within a storage plex without the approval of next level of support.
   - bundle 6.1.6xx.xx or prior
   - bundle 6.2.0xx.xx or later
3. Read the following information before going to the next step.
   a. You will be routing and connecting two Ethernet cables from the Ethernet switches in the new storage facility (SF) to the Ethernet switches in the first SF (SF1) in the existing storage complex.
   b. The SF number of the new storage facility is set by the Ethernet switch port it is connected to in the existing SF1. This is to facilitate private network isolation procedures that assume the connections to be in a particular sequence. All Ethernet switch ports have equal function.
   c. The first SF in a storage complex is always SF1 and its Ethernet cables are connected to its Ethernet switches port T-1.
   d. Additional SFs being installed must be connected in the sequence shown in Table 36 on page 81.

e. Removing an SF from an existing storage plex may leave a gap in the storage facility number sequence. This is acceptable. (Example: The storage plex had 3 SFs; SF1, SF2, and SF3. SF2 was removed leaving only SF1 and SF3.)

f. A new SF must be connected to the lowest SF number port available. In the example above, a new SF would be connected to the T15 port to become SF2. This would fill in the gap and once again you would have SF1, SF2 and SF3. The next SF connected to the T13 port would become SF4.

Table 36. Storage Facility Number connection sequence

Sequence	Storage Facility Number	Ethernet Switch Connector Port
1	SF1	T1
2	SF2	T15
3	SF3	T14
4	SF4	T13
5	SF5	T12
6	SF6	T11
7	SF7	T10
8	SF8	T9

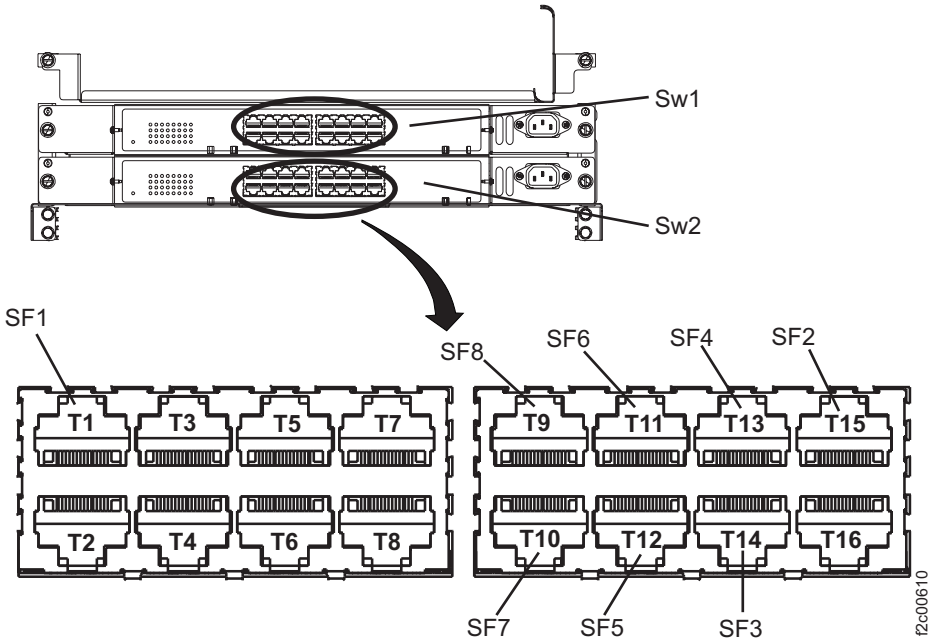


Figure 61. Ethernet switch port designations (SW1 & SW2)

4. Label, route, and connect the 31 meter long *black* Ethernet cable from the ship group.

   Note: All existing cables connected to these two Ethernet switches should be black.

Table 37. Routing Ethernet cables, switch 1

From new storage facility	To first SF in existing storage complex
Ethernet switch SW1 (upper) Port T16	Ethernet switch SW1 (upper) Port T*xx* (*xx*=first free port in sequence, see Table 36 on page 81.)

5. Label, route, and connect the 31 meter long *gray* Ethernet cable from the ship group.

   Note: All existing cables connected to these two Ethernet switches should be gray.

Table 38. Routing Ethernet cables, switch 2

From new storage facility	To first SF in existing storage complex
Ethernet switch SW2 (lower) Port T16	Ethernet switch SW2 (upper) Port T*xx* (*xx*=first free port in sequence, see Table 36 on page 81.)

6. Continue with "Powering on and verifying the storage facility."

Powering on and verifying the storage facility

DANGER

The DS8000 will be powered on automatically during this procedure. Hazardous voltages will be present. Ensure that all safety covers are in place and that normal safety precautions are taken.

1. Record the date and time as follows:
   a. Record the *stop* date and time for the HMC Initial Configuration phase in Table 20 on page 18, "Recording information for the installation report" on page 17.
   b. Record the *start* date and time for the Storage Facility Bring-up phase in Table 20 on page 18, "Recording information for the installation report" on page 17.
2. On Rack-1 set the Local/Remote switch **1** on the LR/ZLR card to Remote (up ↑ position).

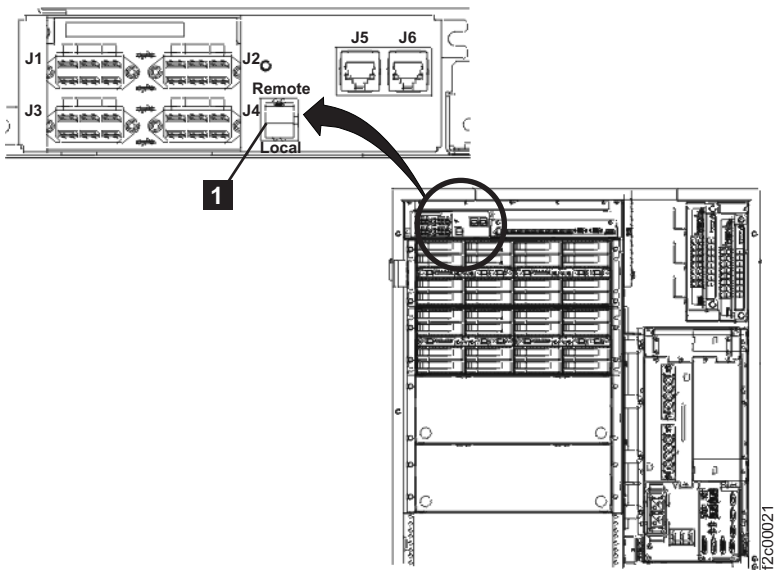


Figure 62. LR, ZLR card location

3. If you are adding a new Storage Facility to an existing Storage Complex, then ensure that the Ethernet cables have been installed and connected to the Storage Facility that contains primary management console (MC 1).

   Note: If you are installing a storage facility containing a secondary management console, then do not reconnect the secondary management console cables until instructed to do so in a later section.

4. Power on and verification of the new storage facility must be performed from the primary management console (MC 1). If not done previously, slide the keyboard/display drawer out to the service position and raise the panel display. If not done previously, log on to the management console. The CE user ID and password are as follows: If not done previously, log on to the management console. The CE user ID and password are as follows:

   ID: CE
   Password: serv1cece

   Note: If the management console panel is not functioning correctly, go to "MAP6020 Management console problem determination" on page 768.

5. Display the storage facility Install State.
   a. Log into the management console (HMC) for rack 1.
   b. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   c. Open **Service Applications → Service Focal Point**.
   d. In the right content area, select **Install/Add/Remove Hardware**. A window displays a list of storage facilities.
   e. Observe the displayed Install State for the storage facility being installed.
6. Is the Machine Type and Serial Number for the storage facility being installed listed on the panel as "Ready for Install" or "New"?
   - Yes, select the storage facility to be installed. Go to the next step.
   - No, go to step 1 of "MAP1400 HMC is reporting an installation error prior to serviceable events being created" on page 531.

7. Click on **Selected**, and then from the drop-down select **Storage Facility Field Install**.
8. Follow the on-screen instructions to perform the following tasks:
   a. The certify DDM process must be performed for all installations.

      Note: Record the start date and time for the Monitor Certify DDM phase in Table 21 on page 19, in section "Recording information for the installation report" on page 17.

   b. Confirm if a call home is required on completion of the certify DDM phase. If you will leave the customer site before the certify DDM completes, a call home is required so the customer can be notified by the next level of support that the storage facility is ready for use. If you will stay onsite until the certify DDM is complete and you will notify the customer, then the call home is not required.
   c. If prompted, install the storage facility configuration CD into the HMC CD/DVD-RAM drive. The CD/DVD is included in the ship group.

      Note: The CD should be in the CE envelope. If it is not in the envelope, check the customer envelope and the shipping material for the rack.
9. The on screen message will indicate that the Storage Facility Field Install process will now start. This action may take up to 1.5 hours to complete.

   Note: If errors occur during the automated installation process, on-screen messages will direct you to "MAP1400 Repair a problem found during install storage facility process". Use the guidance in that MAP to resolve the problem and then restart the installation process. To display the MAP, open the service Information Center on the management console, then open the **Isolation MAPs and Symbolic FRU procedures** section to locate the MAP.
10. While the Storage Facility Field Install process is in progress, you should perform two separate install processes in parallel to minimize the installation time. Use Table 39 and Table 40 on page 85 to perform **Install Process A** and **Install Process B** at the same time.

Table 39. Install Process A

Install Process A	
A1	**Do not** log off or reboot the management console.
A2	Check the WebSM GUI every 10 minutes and respond to any pop-up messages from the Installation process that may appear. If an error is detected, follow the on-screen directions to go to "MAP1400 HMC is reporting an installation error prior to serviceable events being created" on page 531 to repair the problem and restart.
A3	A message will display that indicates Field Installation Verification for the Storage Facility has completed. You may be asked to check if any problems were logged. Read the on-screen instructions carefully, **keep the message box open** and **do not reply to the message until after you have checked for problems**.
A4	A message will display that indicates Certify DDM has started. Continue with the remaining actions in this installation section.

Table 40. Install Process B

Install Process B	
B1	Do one of the following: • If you are installing a storage facility that contains an integrated management console, then continue with "Completing the management console customization and configuration." • If you are installing a storage facility which does not contain an integrated management console then continue with "Completing the install" on page 92.

Completing the management console customization and testing communications

Use the following sections to complete the customization of the management console. If you installed a storage facility that contains a management console, you can use this section to test management console communications.

Completing the management console customization and configuration

Perform these steps if you installed a storage facility that contains a management console. Otherwise, go to "Completing the install" on page 92.

1. Record the date and time for the following:
   a. Record the *stop* date and time for the Storage Facility Bring-up phase in Table 20 on page 18, "Recording information for the installation report" on page 17.
   b. Record the *start* date and time for the HMC Initial Configuration phase in Table 20 on page 18, "Recording information for the installation report" on page 17.
2. Are you installing a storage facility containing a secondary management console?
   • Yes, continue with the next step.
   • No, continue with step 5.
3. Locate the management console cables that were previously disconnected. Relabel and reconnect them to the SW1-T2 and SW2-T2 positions as follows:
   a. Relabel the Ethernet cable previously removed from SW1-T1 to SW1-T2 and plug it into the Ethernet cables in SW1-T2.
   b. Relabel the Ethernet cable previously removed from SW2-T1 to SW2-T2 and plug it into the Ethernet cables in SW2-T2.
4. Press the power control button to power on the management console.
5. Wait for the HMC logon panel to appear and then logon with user ID `CE` and password `serv1cece`.
6. Set the HMC remote support options using the customer work sheets.

   To access the management console navigation item listed in the second column of Table 41 on page 86, do the following:
   a. In the HMC Navigation Area, open the **Management Environment**, select and open the HMC.
   b. Open **Service Applications** → **Remote Support**, in the right content area, select the desired HMC Remote Support options.

Note: Additional guidance is available through the on-line Help button and the *IBM System Storage DS8000 Introduction and Planning Guide*.

Table 41. Management console customization tasks for remote support

Task	Management console navigation option	Customer Work Sheet	Done
Customer information	**Customize Customer Information**	Company information work sheet.	
Outbound connectivity	**Customize Outbound Connectivity** → **Local Modem** **Note:** To set the Dial prefix, click the **Modem configuration** button.	Company Information work sheet and Outbound (call home) work sheet.	
Outbound connectivity See Note 1 for new VPN information to support existing customization work sheets.	**Customize Outbound Connectivity** → **Internet VPN**	Outbound (call home) work sheet	
Outbound connectivity	**Customize Outbound Connectivity** → **Pass Through**	Management console network settings work sheet	
Inbound Connectivity	**Customize Inbound Connectivity**	Inbound (remote services) work sheet	

Note 1: The following is new information that may not be in the version of the customization work sheet provided by the customer.

- Selecting "By VPN" means that the customer allows the management console (MC) to use VPN over an internet connection when a connection is established to the IBM service center. IBM's VPN implementation is a client/server VPN. The two VPN endpoints are on the MC and on the IBM Boulder/Rochester VPN server. There is no need for additional VPN hardware in the customer network infrastructure.
- If you use VPN, the management console (MC) must have access through your internet firewall to the following:
  IBM Boulder VPN server, IP address 207.25.252.196
  IBM Rochester VPN server, IP address 129.42.160.16
  IBM Boulder test VPN server no longer used
- If VPN connectivity is not an option, FTP can be configured for faster offload of log and trace data.
- Even if VPN is configured the modem can serve as a backup. If configured it also allows IBM support personnel to remotely access the MC without a person on-site having to initiate a connection.
- General information: The remote support work sheets enable you to specify whether you want outbound (call home) or inbound (remote services) remote support. IBM recommends that you enable both outbound and inbound support to help you maintain the highest availability of your data.

  When you enable outbound (call home) support, your management console sends an electronic call home record to IBM support when there is a problem within the storage complex. In the header of each call-home record, a callback password appears.

  If inbound remote services is also enabled, this password enables IBM service representatives to remotely sign on to the management console in response to the service call. If outbound support is enabled, but inbound remote services is not enabled, the IBM service representative must physically come out to your location to troubleshoot and service the storage complex. When inbound remote services are enabled, service representatives can perform service tasks remotely. They can view error logs and problem logs, and initiate trace or dump retrievals.

7. Set HMC service agent options using the customer work sheets.

   To access the management console navigation item listed in the second column of Table 41, do the following:

   a. In the HMC Navigation area, open the **Management Environment**, select and open the HMC.

b. Open **Service Applications → Service Agent**, in the right content area, select the desired HMC Service Agent options.

Note: Additional guidance is available through the on-line Help button and the *IBM System Storage DS8000 Introduction and Planning Guide*.

Table 42. Management console customization tasks for Service Agent

Task	Management console navigation option	Customer Work Sheet	Done
MRPD settings FOR MC 1 ONLY! See **Note 1**	**Transmit Service Information → Transmit** • Click **Schedule when to transmit the service information** • Set the Frequency to 14 (days) • Set the Time when the storage facility will be powered on.	Not used.	
FTP settings	**Transmit Service Information → FTP** **Note:** This is only required if the customer has chosen to allow dumps and traces to be sent by FTP. • Leave the default settings for the FTP server. • If required, enter the customer firewall information. • Check 'Enable FTP offload of service information'.	Outbound (call home) work sheet.	
Customer e-mail notification	**Service Agent → Customer notification**	E-mail notification work sheet.	
SNMP alert	**Service Agent → Customer notification**	SNMP trap notification work sheet.	
Note 1: If you have a primary HMC (MC 1) and secondary (MC 2) management console, only set MC 1 to send MRPD data.			

8. If displayed, remove the default HMC hostname object (localhost.localdomain) from the HMC Navigation Area.

   The figure that follows shows an example of two managed HMC names in the Management Environment after installation.
   `localhost.localdomain` is the default HMC name at the beginning of the installation. This example shows `ras88hmca.storage.sanjose.ibm.com` as the HMC hostname set during installation by using the customer configuration work sheets.

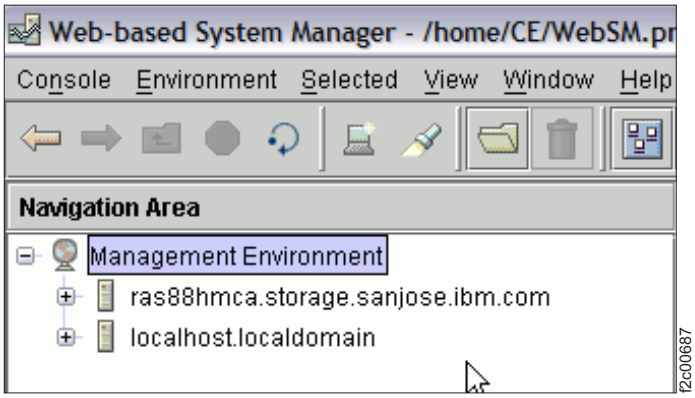
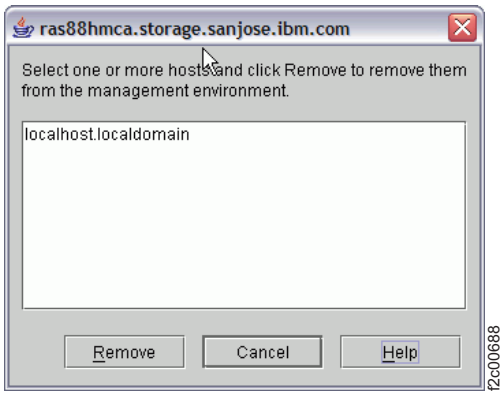


Figure 63. Examples of HMCs in management environment

a. At the top of the screen, click on **Console** → **Remove** → **Hosts**.
b. A pop-up window should list the `localhost.localdomain`.



c. Select localhost.localdomain and click **Remove**.
d. Observe the HMC Navigation Area and ensure any other installed HMCs are still listed.

9. Continue with "Testing management console communications."

Testing management console communications

Perform these steps if you installed a storage facility that contains a management console. Otherwise, continue with "Completing the install" on page 92.

1. Are you installing a storage facility that contains a management console?
   - Yes, go to step 2.
   - No, continue with "Completing the install" on page 92.
2. Test the service communication methods.

Table 43. Tests for management console communications

Communication method	How to test
Remote support - Modem	Select **Service Applications** → **Remote Support** → **Customize Outbound Connectivity** → **Local Modem** → **Test**

Table 43. Tests for management console communications (continued)

Communication method	How to test
Remote support - VPN	Select **Service Applications** → **Remote Support** → **Customize Outbound Connectivity** → **Internet VPN** → **Test** If the test fails, go to "MAP1301 Isolating Call Home/remote services failure" on page 520. **Note:** If this test identifies incorrect network settings that require a management console reboot, do not reboot until the storage facility verification and DDM certification has completed.
Call Home	1. Select **Service Application** → **Service Focal Point** → **Service Utilities**. 2. Click on the storage facility that you are installing. 3. From the **Selected** drop down, click on **Test problem notification (PMH, SNMP, Email)**. 4. Ask the support center to verify that a test PMH was created on Retain. **Note:** You have previously verified that this storage facility is registered in Retain earlier in this installation. If the test fails, go to "MAP1301 Isolating Call Home/remote services failure" on page 520.
Remote Access **Note:** Follow your geographical guidelines to determine if this test is needed.	1. Select **Service Applications** → **Remote Support** → **Customize Inbound Connectivity**. 2. For Unattended Session, put a check for **Allow unattended sessions**. 3. For Duration, select **Temporary**, then click **OK**. 4. Ask the support center to test remote access. 5. After the test is complete, restore the Inbound Connectivity settings to the customer choice on the worksheets.

3. Test the customer communication methods.

Communication method	How to test
Customer e-mail notification	Select **Service Applications** → **Service Agent** → **Customer notification** → **Test e-mail**. Ask the customer if the e-mail was received. **Note:** If the test fails, go to "MAP1310 Isolating e-mail notification problems" on page 525.
Customer connection to DS8000 Storage Manager server in the management console	Ask the customer to test the access of the application or method that they will use to connect to the DS8000 Storage Manager in the management console. For information on testing the connection, see *IBM System Storage DS8000 User's Guide* included on the service and customer documentation CDROM. **Note:** If the test fails, go to "MAP1301 Isolating Call Home/remote services failure" on page 520.

4. Only perform this step if this storage facility is at code bundle 6.1.600.41 (October 2005 release) or higher.
   Set the management console heartbeat options (frequency and enable/disable):

a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
b. Open **Service Applications** → **Service Focal Point**.
c. In the right content area, select **Service Utilities**. A window lists the storage facilities that are managed by this HMC.
d. Select the storage facility, click Selected (on top tool bar), and then select **Get HMCs**. A window lists the HMCs.
e. Select the HMC, click Selected (on top tool bar), and then select **View/Change Heartbeat Configuration**.
f. Select the frequency of the heartbeat (7 days is recommended).
g. Click **Schedule Heartbeat**. The window will refresh and display the current settings.
h. Click **Send Heartbeat Now** to send the first heartbeat.

Note: The management console heartbeat function verifies that the HMC continues to be available for call home and remote service. It will use the VPN connection if configured, or the modem if VPN is not configured. The service representative sets the frequency (1, 7, 14, or 28 days) selected by the customer. The recommended setting is 7 days. The heartbeat function uses the HMC to create a serviceable event (SE) with SRC BEF00012. The SE contains the frequency setting, and is sent to IBM with the normal SE call home function. If IBM does not receive these SEs at the recommended frequency, a service action to determine the cause can be initiated by next level of support.

5. Do you have an external management console to be installed?
   - Yes, continue with Chapter 5, "Installing an external management console," on page 105 and then return here and continue. **Note:** If two service representatives are servicing the machine, one can perform this procedure while the other performs the procedure in the next step.
   - No, go to the next step.
6. Continue with "Routing and connecting customer cables to the storage facility" on page 92.

Creating, sending, and verifying the management console public key-file

The management console public key file must be uploaded to IBM to allow the next level of support to access the management console remotely.

1. Create and send the management console public key-file by completing the following:
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Service Utilities**.
   d. Select the storage facility. Click **Selected** (on top tool bar), and then select **Get HMCs**.
   e. Select the HMC. Click **Selected** (on top tool bar), and then select **Generate HMC Public Key**. Click **Yes** to confirm the action.
   f. A serviceable event with `SRC=BEF00010` should be created immediately.
2. Determine if a serviceable event with `SRC=BEF00010` was created. Display open serviceable events as follows:

a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
b. Open **Service Applications** → **Service Focal Point**.
c. In the right content area, select **Manage Serviceable Events**. A window displays a list of selection criteria.
d. In the Error criteria section, click the down arrow for the reference code (SRC) criteria and look for `BEF00010`. The reference code is listed only if the serviceable event was created.

   Is the reference code `BEF00010` listed?

   - Yes, select the `BEF00010` reference code and click **OK** to display the serviceable event overview, then continue at the next step.
   - No, repeat step 1 on page 90 and if a serviceable event is still not created, call the next level of support.

3. Verify that the HMC public key was successfully delivered to the Retain system server.
   a. From the Serviceable Event Overview window, select the Problem #, click **Selected** (from the top tool bar), and then select **View Details**.
   b. In the Field Name column of the serviceable events details, scroll to the Data (EED) Offload status field. Read the text message to the right of this field. Select one of the following that applies:
      - Message includes the text `"successfully transmitted problem information or SUBMITTED SUCCESSFULLY"`, go to step 6 on page 92.
      - Message indicates `Unavailable`, go to step 4.
4. It can take up to one hour for the serviceable event to be called home and then stored away successfully. The serviceable event Data (EED) Offload Status field will be automatically updated when the process is complete. Redisplay the serviceable event details looking for a status of good. Are you running a level of code released prior to October 2005 (Bundle 6.1.600.41)?
   - Yes, go to step 5.
   - No, go to step 6 on page 92.
5. The call home may have been successful, but the EED field may not be displaying the correct status. You can use the following alternate procedure to check the status:
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **HMC Management** → **HMC Configuration**.
   c. In the right content area, select **View Console Events**. A window opens that displays a list of console events.
   d. The View Console Events window displays event log text messages.
   e. Look for a Console Event log with text similar to:

      ```
      Successfully transmitted problem information:
       EED: /extra/data/vr/23/23.zip
      Reporting system:
       rashmc33a Machine type-model/serial: 2107-922/1300310 Problem..."
      ```

      Is the above console message log text listed?

      - Yes, the call home was successful, return to the procedure that sent you here.
      - No, the call home has not occurred yet, go to step 6 on page 92.

6. You can continue other service activities now, but before you leave the customer account you must ensure the call home of the public key is successful. If it is not successful, remote support will not be possible.

   Note: If the management console call home tests in the prior section did not complete successfully, manually offload the public key file to a laptop directly connected to the private network and then upload it to IBM. Refer to the article "Retrieving the WebSM Public Key locally" on the DS8000 - Engineering Web site.

Completing the install

Use the information in the following sections to complete the installation.

Routing and connecting customer cables to the storage facility

1. Record the date and time as follows:
   a. Record the *stop* date and time for the HMC Customization and Communication Tests phase in Table 20 on page 18, "Recording information for the installation report" on page 17.
   b. Record the *start* date and time for the End of Install and Clean-up phase in Table 20 on page 18, "Recording information for the installation report" on page 17.
2. Has the customer ordered the remote power control feature?
   - Yes, go to the next step.
   - No, go to step 6 on page 94.
3. Route the remote power control cables **1** from each host up through the tailgate to the ZLR remote power control card connectors **3**. Use hook and loop bands to fasten the cable to the frame **2**. See Figure 64 on page 93.

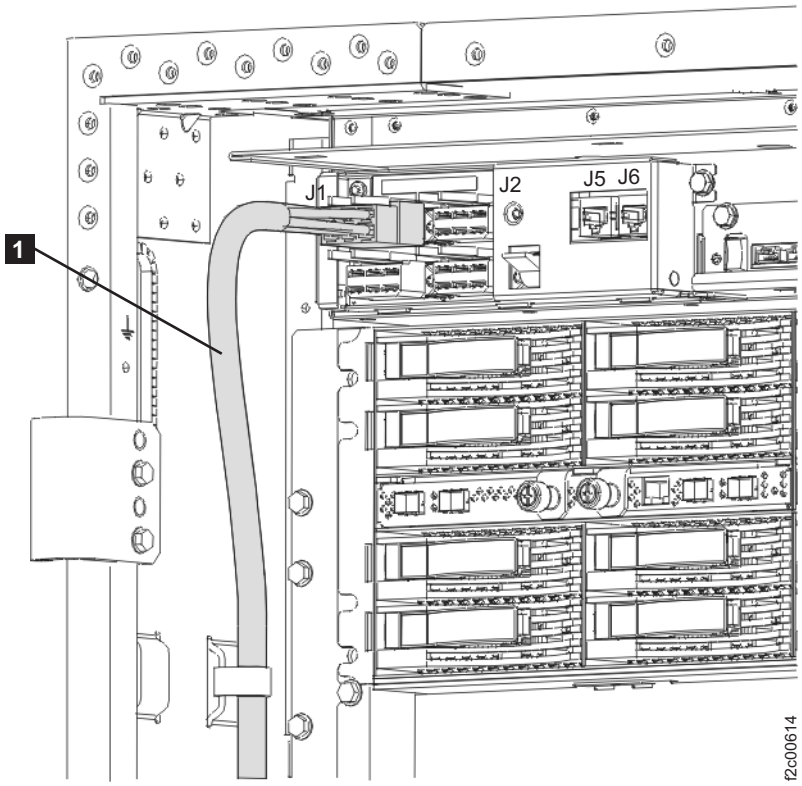


Figure 64. Remote power control cables from host to ZLR card

Attention: The remote power control feature will be enabled in the next step. Remind your customers that they must test it.

4. Determine if the DS8000 Remote Mirroring, feature codes 1801, 1802, or 1803 are installed. These feature codes install a dual port Ethernet card for each storage facility image (SFI) in each CEC enclosure. The cards allow faster management of flash copy relationships. Does the rear of each CEC enclosure have a two-port Ethernet card in PCI slot 1 or 5?
   - Yes, go to step 5.
   - No, go to step 6 on page 94.
5. Do the following to set up for customer access:
   a. The customer must provide one Ethernet cable from their network that will be connected to the upper port of each dual port Ethernet Card in PCI slot 1 and 5.
   b. Route the customer Ethernet cables through the tailgate.
   c. Connect the cables only to the upper port on each card. The default network settings disable the port.
   d. After the storage facility installation is complete, the customer will use the DS Storage Manager GUI interface to set and enable the ports.
   e. If the customer encounters problems with setup or access, refer to "MAP4770 Customer problem accessing Ethernet port for Flash Copy Establish feature" on page 698.

Table 44. Ethernet card slot selection

CEC	Path or SFI	Slot
XC1	"B" or SFI-1	1 (XC1-P1-C1)
	"A" or SFI-2	5 (XC1-P1-C5)
XC2	"A" or SFI-2	1 (XC2-P1-C1)
	"B" or SFI-1	5 (XC2-P1-C5)

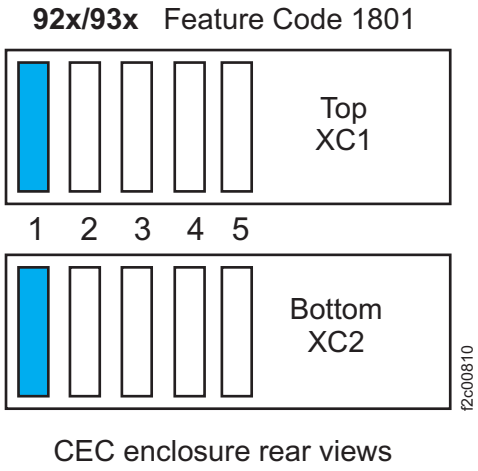


Figure 65. Ethernet card pair on the rear of the CEC enclosures (FC1801)

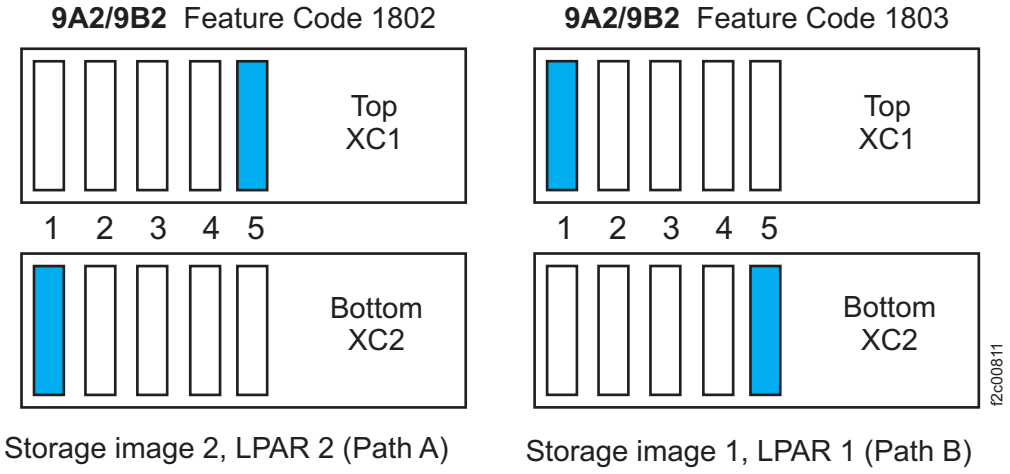


Figure 66. Ethernet card pairs on the rear of the CEC enclosures (FC1802 and FC1803)

6. Ask the customer to supply a diagram or output from the DS8000 Storage Manager to define the connectivity between the DS8000 host card ports and system host card ports.
7. Label the ESCON and fibre host cables from each customer host adapter.
8. Route the cables **1** to the rear of the appropriate DS8000 frame. See Figure 67 on page 95.

   Note: To allow correct connection and disconnection of external cables, label cables using the customer's current cable-identification plan and the labels provided by your customer.

9. In the tailgate, squeeze the black release levers **2**, pivot the retention bracket up and then remove it.

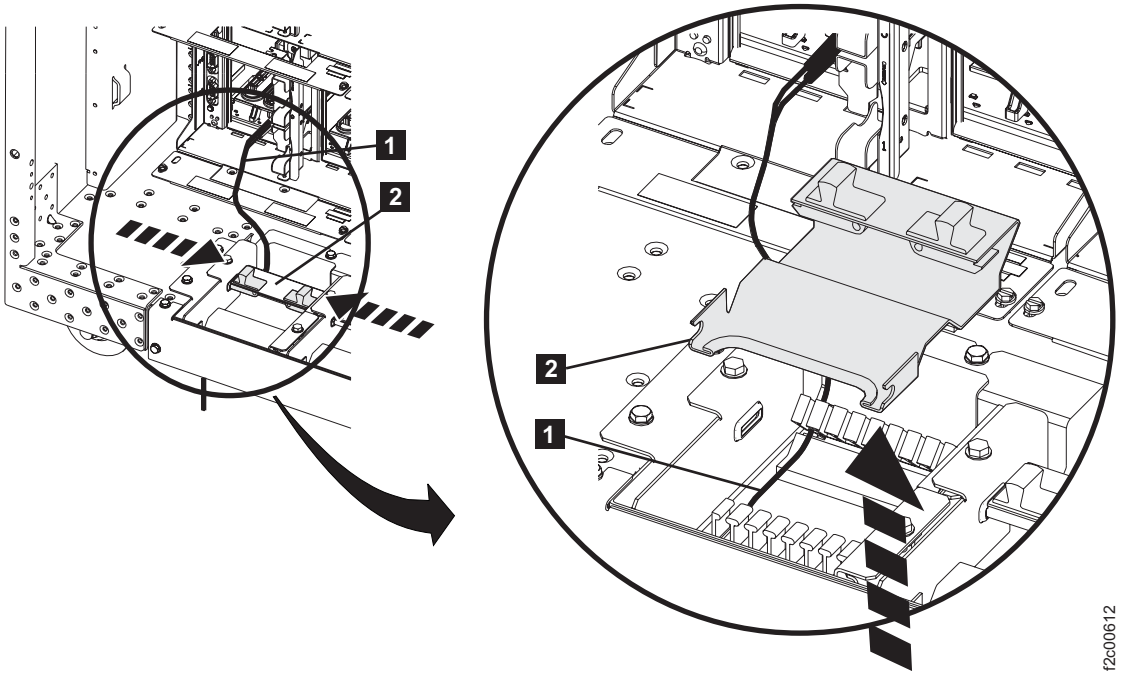


Figure 67. Tailgate cable and fibre channel cable retention

10. Identify the I/O enclosure that contains the host card and port to which the host cables from the host will be attached. See Figure 68.

    Note: The syntax of the location code shown on the ICAT configuration tool might differ slightly from that shown in Figure 68. For the device adapter card connectors, the syntax might be R*x*-I*x*-C*x*-T*x* (the backplane identifier of P1 is missing and I*x* is equivalent to XI*x*).

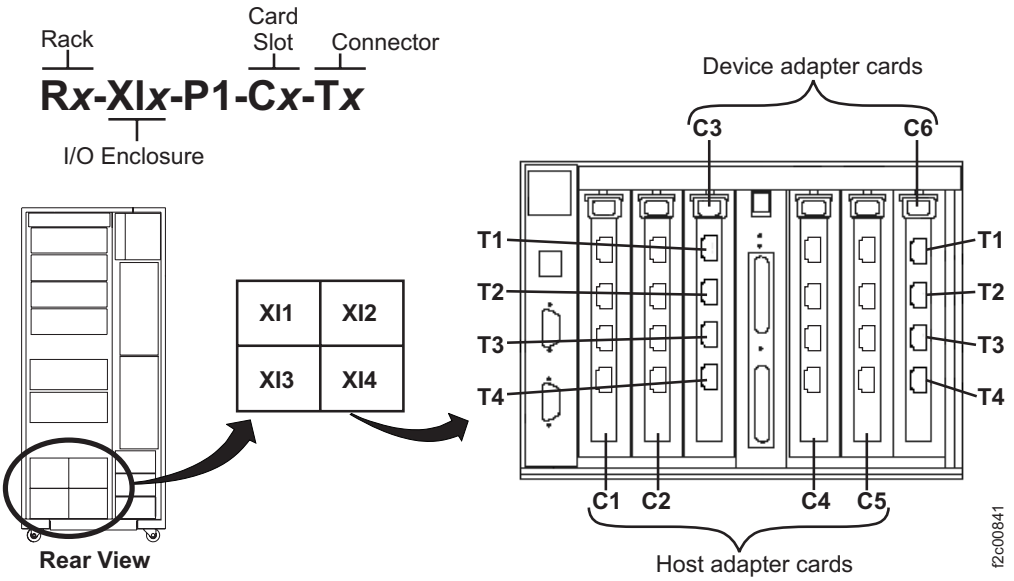


Figure 68. Location codes for device adapter and host adapter cards

11. Feed the host cables up through the tailgate and route them to the destination I/O enclosure and host card and plug them in.

    Notes:

    - Save the wrap tools removed from each Fibre or ESCON host card. The wrap tool can be used as a dust cover and also a wrap tool for diagnosis and repair.
    - There are two types of fibre channel cards:
      – Short wave
      – Long wave

12. Secure the host cables in the cable guide by pressing them into the slots.
13. Reinstall the retention bracket removed earlier.
14. Reinstall the tailgate brackets in all frames using the screws **2** removed earlier. Tighten all four screws **1** and **2**. See Figure 69

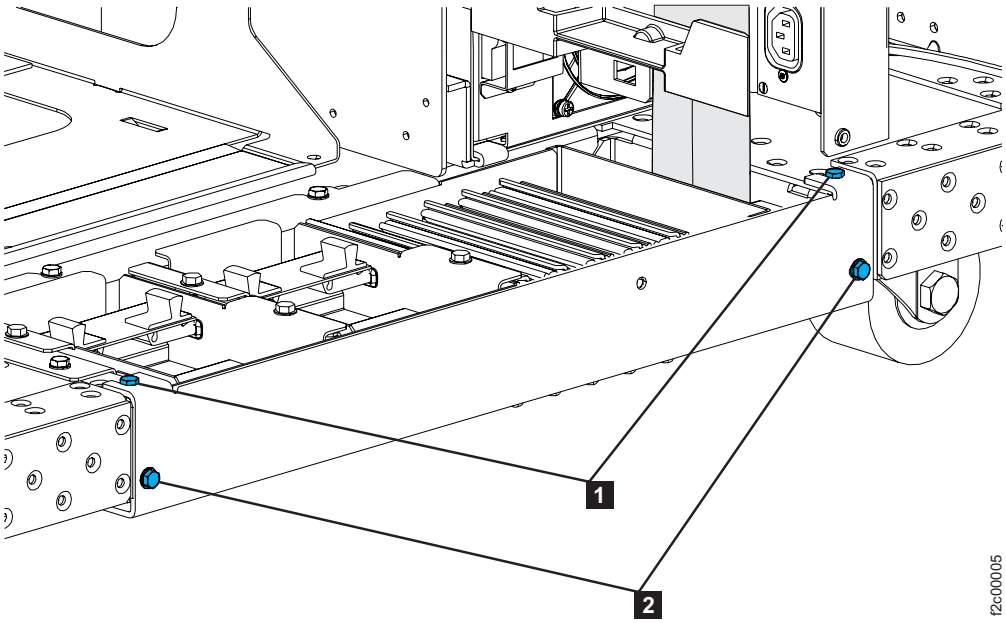


Figure 69. Tailgate frame bracket

Finish install and cleanup

1. Is there an external management console that is to be installed?
   - Yes, go to Chapter 5, “Installing an external management console,” on page 105. Return here and continue with the next step when installation has been completed.
   - No, continue with the next step.
2. Set the storage facility rack power control mode that the customer has chosen on the configuration worksheet. For more information, see “MAP2460 Configuring and overview of the DS8000 Power Control Mode” on page 625.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Service Utilities**. A windows displays a list of Storage Facilities.

d. Select the Storage Facility that is being installed from the list. Click **Selected** from top tool bar, and then select **Manage Power Control**.

e. Make the desired customer selections from the worksheets.

3. Verify the following Control Switch settings against the Customization Worksheets.

Table 45. Control switch settings

Control Switch Setting	Default Value
AS400 LUN Serial Suffix number	0
Fibre LUN Access Control	0 (Off)
CUIR support	0 (Off)

Do the control switch settings need to be changed from the default values shown?

- Yes, from the HMC GUI perform the following steps to alter the Control Switch Settings for each storage facility image that needs to be updated.
  a. In the HMC Navigation area, open **Management Environment**, select and open the HMC.
  b. Open **Service Applications** → **Service Focal Point**.
  c. In the right content area, select **Service Utilities**. A window displays a list of Storage Facilities.
  d. Select the Storage Facility that is being installed from the list. Click **Selected** from the top tool bar, and then select **Get Storage Facility Images**. A window displays a list of Storage Facility Images.
  e. Select the Storage Facility Image to be updated. Click **Selected** and choose Enable/Disable Control Switches.
  f. Update the values from the Customization Worksheets. Click **Set**, then **OK** in the message box, then **Cancel** to exit.
  g. Continue with the next step.
- No, continue with the next step.

4. Perform the following steps if you are installing a storage facility with a management console. Ensure the schedule to back up the HMC critical console data to DVD-RAM disc is set.

   Note: Microcode bundles at 6.2.xx.xx or later should preset the values to every Friday at 3:00:00 AM for an indefinite period of time.

   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **HMC Management** → **HMC Configuration**.
   c. In the right content area, select **Schedule Operations**. A window displays a list.
   d. Select the management console that you want to back up and click **OK**.
   e. If the existing values are Friday, 3:00:00 AM, Indefinite, exit the screen and go to step 5 on page 98. If the existing values are not set, continue.
   f. Click **Options** from the top tool bar, and then select **New**.
   g. In the Add a Scheduled Operation window, select **Backup Critical Console Data** and click **OK**.
   h. In the appropriate fields, enter the time and date that you want this backup to occur.

i. Click the **Repeat** tab and set the schedule to repeat with a 1 weekly interval with Infinite repetitions.

j. When you are finished setting the backup time and date, click **Save**. When the Action Completed window opens, click **OK**.

5. Will you be installing additional racks, storage enclosures, or other hardware features to this storage facility as part of this installation activity?
   - Yes, the backup of critical console data will occur after all installation activity is complete. Go to step 9.
   - No, the backup of critical console data will occur now. Go to step 6.
6. Locate the critical console data back up DVD disc for each HMC on this storage plex. The DVD disc should be in the ship group during an installation or kept in the HMC DVD-RAM drive after installation.

   There are two versions of the DVD disc:
   - Newer version is labeled with the HMC machine type model S/N and also "HMC Critical Console Data Backup DVD, Keep in HMC DVD-RAM drive". If you have this version, go to 8.
   - Older version has no preprinted label, it should have the HMC machine type model S/N hand printed by the service representative. If you have this version, go to the next step.
7. Is the HMC machine type model and S/N printed on the DVD disc?
   - Yes, go to the next step.
   - No, hand print the HMC machine type model and S/N and "HMC Critical Console Data" on the DVD disc. For example: `HMC machine type model S/N: 8837-PLM 75KKTWT8R, HMC Critical Console Data`. Go to the next step.
8. Perform the following steps to back up critical console data on each HMC for this storage plex. Use the DVD disc with the HMC machine type model S/N for this HMC.

   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).

   b. Open **Licensed Internal Code Maintenance → HMC Code Update**.

   c. In the right content area, select **Back up Critical Console Data**.

   d. Select **Back up to DVD on local system** and click **Next**.

   e. Insert a formatted DVD-RAM media into the drive.

   f. Enter a description for the archive data.

   g. Click **OK** to store your critical console data on the DVD-RAM.
9. Place the following items in the front document enclosure for future reference:
   - Copies of the configuration worksheets
   - Spare ship group components
   - CD-ROMs
   - Spare labels
   - Cable planning worksheets
   - Host card wrap tools
10. Use the Network Topology Tool to verify connectivity with all nodes (Ethernet ports) on the DS8000 private network and then save the topology. The following lists examples of nodes.
    - Local HMC ports.
    - HMC ports on second HMC (if installed).

- Service processor card ports.
- LPAR (partition) ports on the CEC enclosure I/O backplane assembly or PCI Ethernet card.

Invoke the Network Topology tool as follows:

a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
b. Click **Service Applications** → **Service Focal Point**.
c. In the right content area, select **Service Utilities**, a window displays a list of storage facilities.
d. Select the storage facility, click **Selected** (on top tool bar), and then select **Get Storage Plex**. A window displays the storage plex.
e. Select the storage plex, click **Selected** (on top tool bar), and then select **View Network Topology**.
f. Wait several minutes for the tool to gather and present the results.
g. A window displays with the current network topology (port connections) listed on top, and the saved topology from the last time the tool was run and the Save button was selected. Normally the saved topology should be from results when all nodes on both private networks were fully present and operational.

   Note: The option to save the topology is used after all nodes on both private networks are determined to be present and operational.
h. Determine if all expected nodes are present. Refer to Figure 70 on page 100, Figure 71 on page 100, and the Notes list.
i. Are any nodes missing or failing?
   - Yes, go to "MAP7000 Entry point for DS8000 private network problems" on page 855 in the DS8000 Service Information Center. To display the MAP, open the service Information Center on the management console (MC), then open the **Isolation MAPs and symbolic FRU procedures** section to locate the MAP.
   - No, go to step 11 on page 101

The left side of Figure 70 on page 100 shows an example of a 921 or 93x with a single management console. The right side shows an example of a 9A2 or 9B2 with two management consoles.

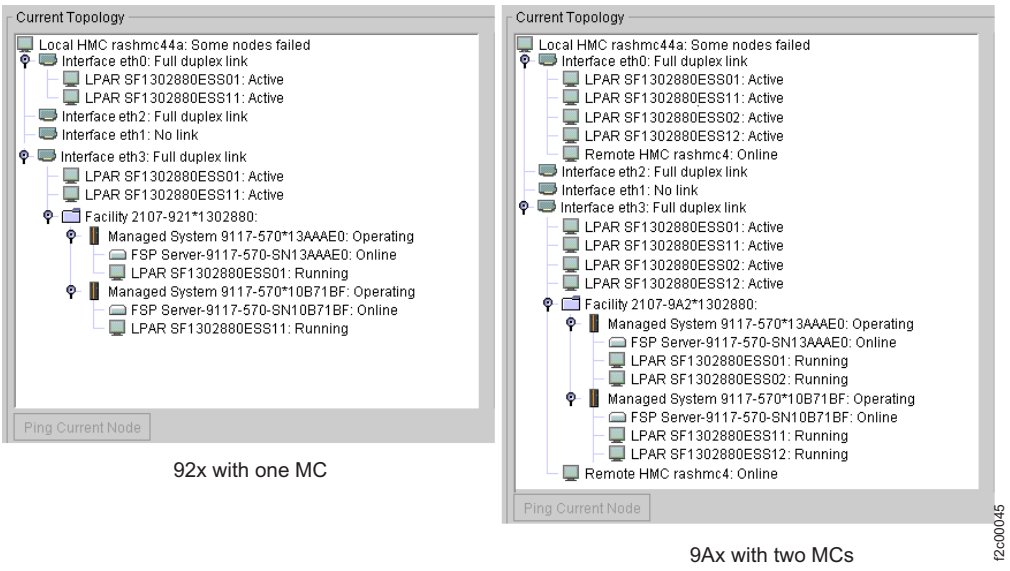


Figure 70. Two examples of the current topology screen

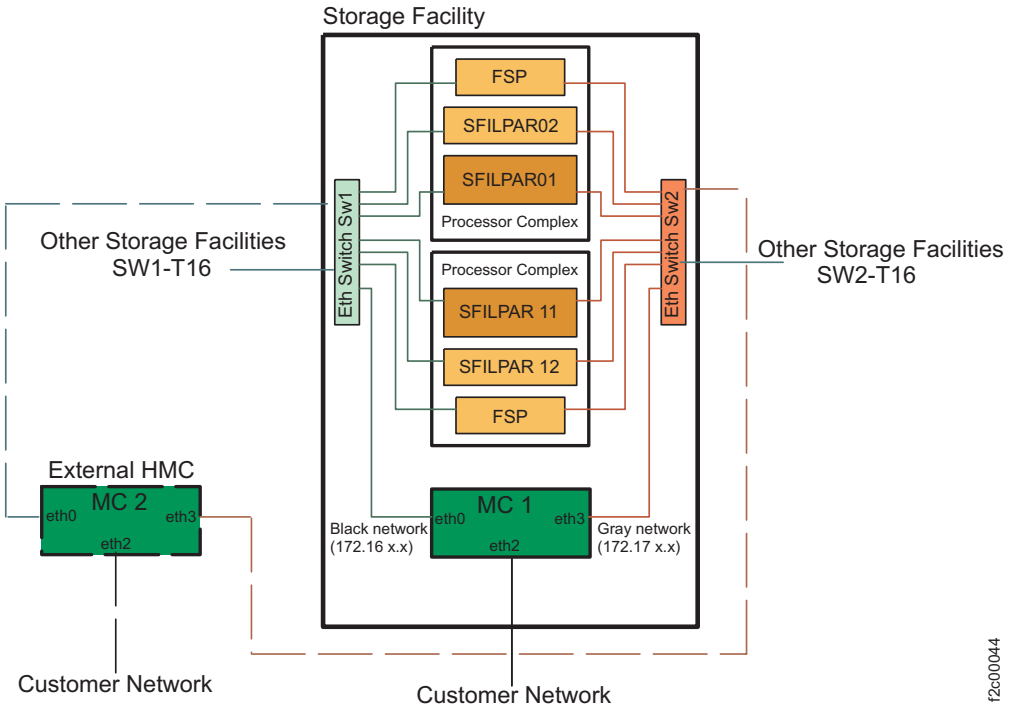


Figure 71. Diagram of the network topology

Notes:

- The tool provides a hierarchical view of the network from the management console which you logged in to.
- The Current Topology view shows the status of **detected** nodes on each of the two DS8000 private networks at the time the tool was launched or when **Refresh** was selected.
- The service processor cards are accessed through one of the two networks, so they will not appear on both. This is normal.

- The service processor cards are accessed by MC 1 through the GRAY network (default 172.17.xxx.xxx or one of three optional address ranges; to determine the range, see "MAP7005 Determining which private network address range is selected" on page 867). To display the MAP, open the service Information Center on the management console, then open the **Isolation MAPs and Symbolic FRU procedures** section to locate the MAP.
- The service processor cards are accessed by MC 2 through the BLACK network (default 172.16.xxx.xxx or one of three optional address ranges; to determine the range, see "MAP7005 Determining which private network address range is selected" on page 867.).

• The Storage Facility system status information is displayed along with the associated service processor card, so it will not appear on both networks. This is normal.

11. If there is a second HMC in this storage complex, go to that HMC and save the network topology there also.
12. Store the customer provided configuration worksheets in the Rack 1 document enclosure (front upper right of rack).
13. Use the View Storage Facility Status utility to ensure there are no unreported or unexpected problems or conditions.
    a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
    b. Open **Service Applications → Service Focal Point**.
    c. In the right content area, select **Service Utilities**, a window appears displaying a list of storage facilities.
    d. Select a storage facility, click **Selected** (on top tool bar), and then select **View Storage Facility State**.
    e. A window opens listing passed/failed status for 25 or more system checks. You can display the details for each system check.

    Note: Further explanations and options are detailed in "MAP1100 View storage facility state (end of call)" on page 446.
14. Observe the CEC enclosure system attention LED indicator **1** on the front of each CEC enclosure. Is the indicator lit?
    • Yes, go to "MAP4050 Switching off the CEC enclosure system attention indicator (lit solid)" on page 659, then return here and continue with the next step.

    Note: When the CEC enclosure attention indicator is lit solid, the rack operator panel attention LED indicator will also be lit solid.

    • No, go to the next step.

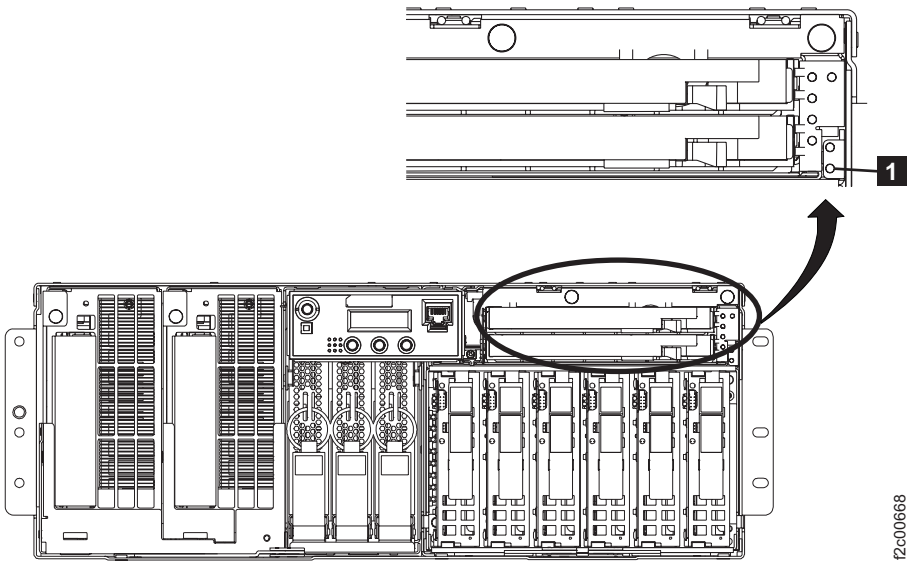


Figure 72. CEC enclosure system attention LED indicator

15. Reminder, if you installed a management console and the HMC public key file upload status was not complete, refer to "Creating, sending, and verifying the management console public key-file" on page 90, step 3 on page 91 to ensure it is complete before you continue.
16. Reference the pack/unpack instructions for return/discard information. Discard the shipping material locally.
17. The storage facility is now regarded as "Installation complete".
    a. Record the stop date and time for the End of Install and Clean-up phase in Table 19 on page 18, "Recording information for the installation report" on page 17.
    b. Update the account records to show the install is complete.
    c. Record any additional time to install features, ECs, and MESs to the correct service code. Do not charge the additional time to the DS8000 installation.
    d. Go to the next step.
18. Determine if the management console software or storage facility LIC level needs to be updated by completing the steps that follow. Compare the installed versions with the versions determined in the task "Checking for required microcode" on page 21.
    a. At the top of the management console interface, select **Help**.
    b. Select **About Hardware Management Console**. A window opens that displays information on the level of the management console software.
    c. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
    d. Open **Licensed Internal Code Maintenance → Licensed Internal Code Updates**.
    e. In the right content area, select **Change Internal Code**. A window displays a list of Storage Facilities.
    f. Select the Storage Facility that is being installed from the list. Click **Selected** from the top tool bar, and then select **Display Installed Code Levels**.

    Does the management console software or storage facility LIC need to be updated?

- Yes, go to step 23.
- No, go to the next step.

19. Did you choose the recommended option for the storage facility to call home on Certify DDM completion?
    - Yes, go to 20.
    - No, go to 22.
20. The on-site service actions are now complete.
    a. Inform the customer that the machine will be available for configuration when the DDM certification completes.
    b. Upon receipt of the call-home, the IBM support center will call the contact name and telephone number entered earlier and inform them that the DS8000 is now available.
    c. Go to step 26 on page 104 to complete the storage facility Install Report.

       Note: There are three fields in the report for Monitor Certify DDM. Please enter the value "00.0" in each field as you will not be waiting for the certify to complete. This value will indicate that you selected the call home on certify DDM completion option.
21. If the rear of each CEC enclosure has a two-port Ethernet card in PCI slot 1 or 5 (counted from left to right), then customer has ordered a feature code that installs additional Ethernet cards. The cards allow faster management of flash copy relationships.
    a. The customer must configure the network settings for each port by using the DS Storage Manager GUI interface (**Storage images main table → Configure Network Ports**).
    b. The customer must test the connections. If there are any problems, refer to "MAP4770 Customer problem accessing Ethernet port for Flash Copy Establish feature" on page 698.
22. Monitor the certify DDM process for completion.
    a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
    b. Open **Service Applications → Service Focal Point**.
    c. In the right content area, select **Service Utilities**, a window displays a list of Storage Facilities.
    d. Select the Storage Facility that is being installed from the list. Click **Selected** from the top tool bar, and then select **Certify DDM**.
    e. When the certify DDM process is complete, inform the customer that the storage facility is now available for configuration.

       Note: Use Table 21 on page 19, "Recording information for the installation report" on page 17 to record the stop date and time for the Monitor Certify DDM phase.
    f. Go to step 26 on page 104 to complete the storage facility Install Report.
23. To save time, acquire the LIC code bundle while monitoring the certify DDM process for completion.
    a. Refer to the Microcode installation instructions to acquire the LIC code bundle.
    b. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
    c. Open **Service Applications → Service Focal Point**.

d. In the right content area, select **Service Utilities**. A window displays a list of Storage Facilities.
e. Select the Storage Facility that is being installed from the list. Click **Selected** from the top tool bar, and then select **Certify DDM**.
f. Wait until the certify DDM process is complete.

Note: Use Table 21 on page 19, "Recording information for the installation report" on page 17 to record the stop date and time for the Monitor Certify DDM phase.

g. Use the supplied LIC Installation Instructions to update the storage facility LIC.

Note: Use the table in "Recording information for the installation report" on page 17 to record the start date and time for the SF Code Upgrade (SC33) phase.

h. When the LIC is complete, inform the customer that the storage facility is now available for configuration.

Note: Use the table in "Recording information for the installation report" on page 17 to record the start date and time for the SF Code Upgrade (SC33) phase.

i. Go to step 26.

24. If the customer has purchased LIC features, the customer is responsible for retrieving the keys and activating the licenses by using the procedures in the *IBM System Storage DS8000 User's Guide* (see Activating Licenses).

Note: If the customer cannot access the keys on the DSFA Web site the customer is instructed to open a service call. The service representative can have PFE (via the next level of support) manually generate and provide the keys to the customer.

25. If the customer has problems creating the logical configuration, they may come to you for help. You can check for any open serviceable events related to the I/O enclosures or storage enclosures to be repaired. If there are none, have the customer contact IBM support and ask for software help with the logical configuration and the GUI interface.
26. Complete the storage facility Install report.
    a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
    b. Open **Service Applications → Service Focal Point**.
    c. In the right content area, select **Service Utilities**, a window displays a list of Storage Facilities.
    d. Select the Storage Facility that is being installed from the list. Click **Selected** from the top tool bar, and then select **Generate Storage Facility Install Report**.

Chapter 5. Installing an external management console

This section guides you on how to physically install an external management console, perform the configuration and customization, connect the console to the storage complex and perform a communications test.

Installing the external management console in the rack

This section provides guidance on how to perform the physical installation of an external management console in a standard 19″ rack.

The rack will be ordered and supplied with the console from IBM or it will be provided by the customer. The detailed instructions provided with the management console server and monitor/keyboard tray will be used.

1. Identify the following items in the shipping carton.
   - x-server rack installation kit and instructions.
   - x-server.
   - Monitor/keyboard tray and installation instructions.
2. The management console ship group contains two private network Ethernet cables that are 31 meters (101 feet) in length. Will the cables reach from the external management console to the nearest storage facility in the storage plex to be managed?
   - Yes, go to step 4.
   - No, go to step 3.
3. Do one of the following and then go to step 4:
   - Have the customer select a new rack location that will allow the cables to reach.
   - Have the customer provide two Ethernet cables that are straight 4-pair UTP CAT 5E with RJ-45 jacks, and a maximum length of 100 meters (328 feet). One cable must be labeled as “Black” on both ends and the other must be labeled as “Gray”. All private network cables are marked as Black or Gray to visually separate the redundant network cabling.
4. Do you have an IBM-supplied rack to install?
   - Yes, use the instructions provided with the rack to install the rack in the customer designated location.
   - No, the rack must already be installed by the customer. If that is not complete, then ask the customer to do that before you continue. Ask the customer to identify the location in the rack where the server and monitor and keyboard is to be installed. 1U of vertical rack space is required for each of the two items.
5. Install the x-server rails into the rack. Use the hardcopy instructions *(P/N 33P2616)* from the ship group.
6. Slide the x-server into the rack by sliding it in from the front. Secure the x-server in place by tightening the two thumbscrews at the front.
7. Install the monitor and keyboard tray in the rack. Use Chapter 2 of the *Flat Panel Monitor Console Kit Installation and Maintenance Guide* in the ship group.

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8. If you are installing an x335 server, route and then plug the C2T cable from the keyboard and monitor into the C2T OUT connector on the rear of the x-server. See Figure 73 for locations.

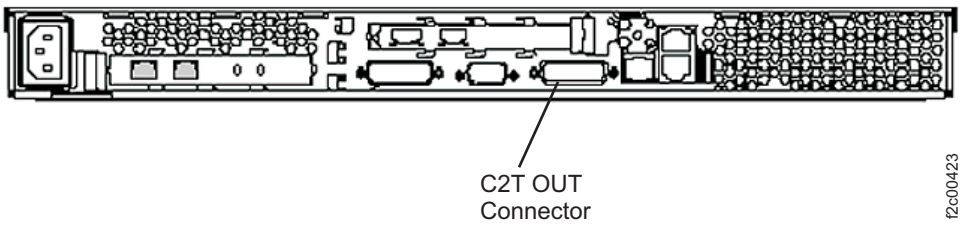


Figure 73. Rear view of X335 management console server

9. If you are installing an x336 server, route and then connect the three cables from the keyboard, mouse, and monitor into the appropriate connectors on the rear of the x-server. See Figure 74.

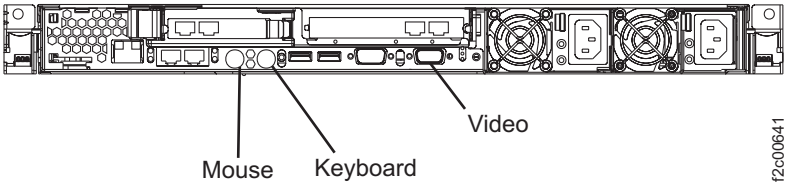


Figure 74. X336 management console keyboard/mouse/video ports

10. Route the power cables from the x-server and the monitor and keyboard tray power supply to the power strip in the rack. Plug the cables in at both ends.
11. Continue with "Power on and initial configuration of the external management console."

Power on and initial configuration of the external management console

This section provides guidance on how to power on, set the HMC role to secondary (MC 2), and configure the management console.

Note: If you are following a hardcopy or PDF version of these instructions and you are sent to a MAP, then go to the *Isolation MAPs and symbolic FRU procedures* section in the DS8000 Service Information Center. This can be accessed on the *IBM System Storage DS8000 series Service Documents CDROM* CD or launched from WebSM on a working management console.

1. Check the HMC TCP/IP address selected on the customization worksheets provided by the customer. This is the address to be assigned to the HMC network port (eth2) for connection to the customer network.

   Is the address in either of the following ranges?

   `172.16.0.0 - 172.16.255.255` or `172.17.0.0 - 172.17.255.255`

   - No, go to step 3.
   - Yes, go to step 2.
2. There is the potential of an address conflict between the customer networks and the DS8000 private networks. Call the next level of support. The next level of support will need to assist you in converting the private network (gray and black) address ranges to one of the optional addresses that the

customer has selected on the “Management console network settings work sheet”. They will have a special procedure to allow this network address conversion to occur during an install.

Refer to “MAP7005 Determining which private network address range is selected” on page 867 to ensure that the address range selected is the same as what is already in use for the primary management console (MC 1).

3. Slide the monitor and keyboard tray out and switch on the monitor.
4. Check the power LED on the front of the server. See Figure 75 (X335 server) or Figure 76 (X336 server).

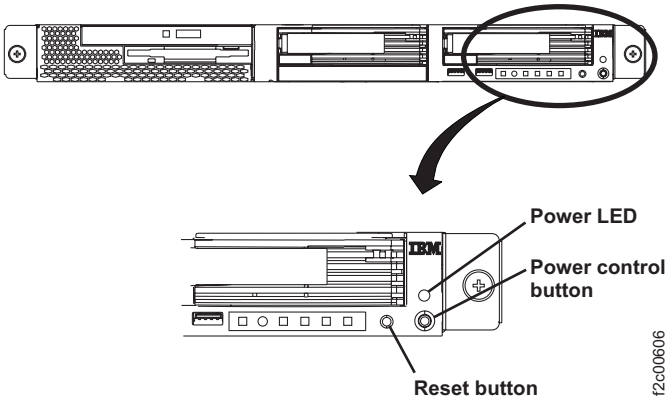


Figure 75. X335 management console server (front view)

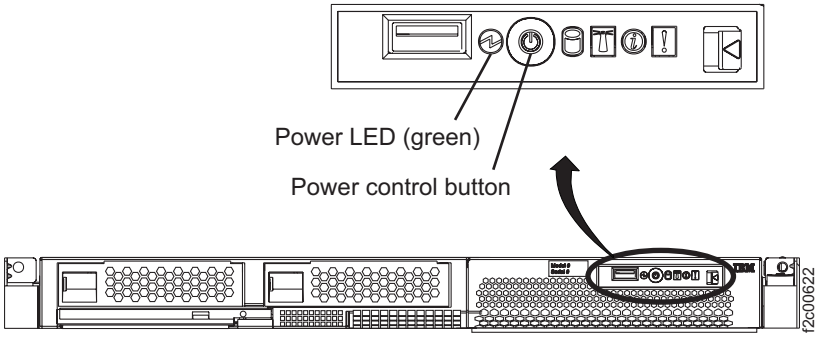


Figure 76. X336 management console server (front view)

- If the LED is lit, then continue with the next step.
- If the LED is flashing, then press the power control button and continue with the next step.
- If the LED is off, then verify that power input is available. If no problem is found then go to “MAP6520 Management console power problem” on page 817.

5. Wait up to 5 minutes for the HMC ROLE SELECTION MENU to be displayed on the monitor. For example:

```
*****************************************************
*               WELCOME TO THE                      *
*           HMC ROLE SELECTION MENU                 *
*****************************************************

ENTER A MENU OPTION FROM THE LIST
1)   ASSIGN HMC AS PRIMARY
2)   ASSIGN HMC AS SECONDARY
99)  EXIT

ENTER YOUR SELECTION AND HIT THE "ENTER" KEY
--> __
```

Is the HMC ROLE SELECTION MENU displayed?

- Yes, continue with the next step.
- No, this indicates that either the HMC Role has already been assigned (HMC login screen is displayed) or that the

  Important: To reset all the HMC code objects to prepare for the installation, the HMC role must transition from *Primary* to *Secondary* or *Secondary* to *Primary* at least once. If the role does not transition, the code objects will not be reset.

  – If the management console login screen is displayed, then go to "MAP6090 HMC Role selection not displayed as expected" on page 774. Return here and continue with step 6 when you correct the problem.

  – If the management console login screen is not displayed, go to *MAP6020 Management console problem determination*.

6. Assign this management console as the secondary management console (MC2) by performing the following steps:
   a. Type 2 and press **Enter**.
   b. Type Yes and press **Enter** to confirm the selection.
   c. Locate the MC 2 label in the ship group. Attach the label to the front of the management console keyboard tray.
7. When the keyboard layout configuration screen is displayed (as shown below), type 2 and press **Enter**.

```
If you are using a non English US keyboard, you can choose to change your
keyboard layout configuration.  You can make your selection by pressing a number
key then press enter.  If you don't press any key within 30 seconds, this
program will terminate automatically.

1 -- Do not change keyboard layout and run this program again on the next
        system boot.
2 -- Do not change keyboard layout and do not run this program again on
       the next system boot.
3 -- Change to a new keyboard layout.

Your selection is:
```

8. Before the change locale screen is displayed, decide which of the three options below you will select. When the change locale screen is displayed, you will only have 20 seconds to click a radio button and then press the **Enter** key.

```
You can change the locale now in order to run the HMC in a
different locale.  If you do not make a selection in 20 seconds,
the dialog exits.  Enter your selection.

* Change Locale
* Exit now and don't prompt for locale again.
* Exit now and prompt again for it.
```

9. Wait up to 5 minutes for the HMC configuration to be updated, and the HMC login screen to display. Is the management console login screen displayed?
   - Yes, continue with the next step.
   - No, go to *MAP6020 Management console problem determination*.
10. The management console is shipped with predefined user IDs and passwords. The user IDs and passwords are case-sensitive. Enter the user ID and password as shown below.

    ID: CE
    Password: serv1cece
11. Use the customization worksheets provided by the customer to perform the management console customization tasks in the following table. Additional guidance is available through the *IBM System Storage DS8000 Introduction and Planning Guide*.

Table 46. Management console customization tasks

Task	Management Console Navigation Item	Notes
Console Date / Time and Timezone	**Management Environment → (HMC hostname) → HMC Management → HMC Configuration → Customize Console Date and Time**	1. Set the date and time on the HMC being installed as close as possible to the values on the existing HMC. 2. The HMC will be rebooted when it is power cycled in later steps.
HMC Network Settings	**Management Environment → (HMC hostname) → HMC Management → HMC Configuration → Customize Network Setting**	1. On the LAN Adapters tab, select Ethernet eth2 and click Details to set the TCP/IP address and network mask. 2. Use other tabs for remaining settings. 3. When all settings have been entered, click **OK**. 4. The HMC will be rebooted when it is power cycled in later steps.

12. Shutdown and power off the management console as follows:
    a. At the upper left of the HMC task bar, click **Console**.
    b. From the drop down menu, click **Exit**.

c. At the exiting Web-based System Manager screen, click **Exit Now**.

d. From the selection box, select **Shutdown Console**, and then click **OK**.

The HMC will shutdown and power off to standby mode (green power LED will be slow blinking).

13. Continue with "Cabling and connecting the management console to the storage complex."

Cabling and connecting the management console to the storage complex

Use this section to connect the external management console to the storage complex.

1. Route and connect the management console to the customer network Ethernet cable by performing the following steps:
   a. Locate the customer-supplied Ethernet cable.
   b. Route the Ethernet cable through the tailgate and up to the rear of the management console server.
   c. Connect the cable to the customer Ethernet connector (eth2) on the rear of the management console server. See Figure 77 (X335 server) or Figure 78 (X336 server).

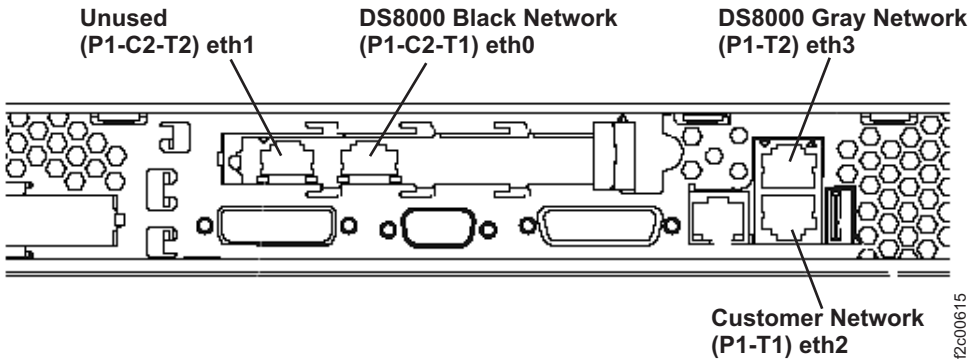


Figure 77. Ethernet connectors on the rear of the X335 management console server

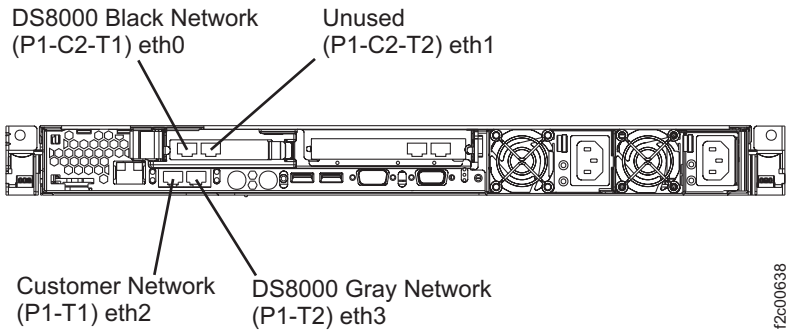


Figure 78. Ethernet connectors on the rear of the X336 management console server

2. Route and connect the customer's phone line cable by performing the following steps:

a. Locate the customer's phone line cable.
b. Connect the customer's phone line cable to the modem RJ-11 line connector on the modem card at the rear of the management console server. See Figure 79 (X335 server) or Figure 80 (X336 server).

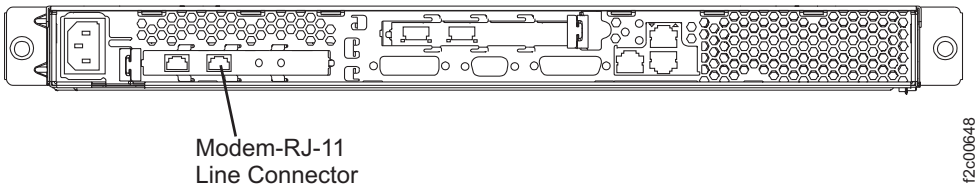


Figure 79. The modem connector (RJ-11 phone line) on the rear of the X335 management console server

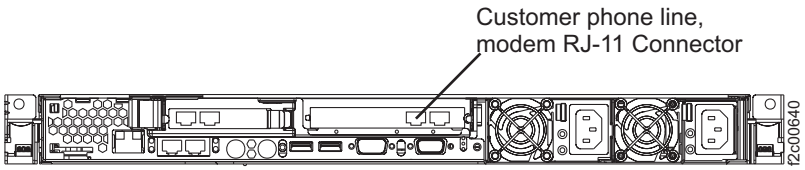


Figure 80. The modem connector (RJ-11 phone line) on the rear of the X336 management console server

c. Route the telephone cable through the tailgate.
d. Connect the other end of the customer's phone line cable to the customer's phone line cable connector.

Note: If required, use the telephone adapter that is supplied in the ship group to make this connection.

3. Locate the DS8000 that contains the other HMC for this storage complex. The HMC being installed will be cabled to the Ethernet switches in that DS8000.
4. Locate the two 31-meter (101 feet) Ethernet cables for the private network in the ship group (black cable P/N 22R1798; gray cable P/N 22R1799), or the two extended length customer-provided cables if the standard cables are not long enough. Prepare the cables for connection between the HMC and the Ethernet switch by labeling their ends according to the "From (HMC)" and "To (storage facility)" columns in Table 47.

Note: Ethernet cables are also supplied with each storage facility. They are not needed for the SF that contains MC 1 and will be stored in the storage box located inside the storage facility. If none are supplied with the HMC, then these can be used instead.

Table 47. Ethernet cables

Color	Part Number	From (HMC)	To (storage facility) Ethernet switch
Black	22R1798	P1-C2-T1	SW1-T2 (upper switch)
Gray	22R1799	P1-T2	SW2-T2 (lower switch)

5. Route but do not connect the two cables (prepared in step 4) from the HMC being installed to the DS8000 identified in step 3.
6. Route the two cables through the storage facility tailgate and plug the cables into port ″T2 HMC2″ in each Ethernet switch as shown in Table 48 on page 112.

Table 48. Ethernet switch port designations

T1 HMC1	T3 FSP1	T5 ESS01	T7 ESS02	T9 SF #8	T11 SF #6	T13 SF #4	T15 SF #2
T2 HMC2	T4 FSP2	T6 ESS11	T8 ESS12	T10 SF #7	T12 SF #5	T14 SF #3	T16 OUT

7. At the rear of the HMC, plug the black cable into the P1-C2-T1 connector (eth0) and the gray cable into the P1-T2 connector (eth3) at the rear of the HMC as shown in Figure 77 on page 110 (X335 server) or Figure 78 on page 110 (X336 server).
8. Continue with "Completing the installation of the external management console."

Completing the installation of the external management console

This section provides guidance on how to complete the installation of the external management console. Final customization and testing will be performed.

1. Press the power control button to power on the management console server.
2. Wait for the management console logon panel to appear and log on with the user ID `CE` and password `serv1cece`.
3. Use the customization worksheets provided by the customer and Table 49 to perform the management console customization tasks.

   Note: Additional guidance is available through the on-line Help button and the *IBM System Storage DS8000 Introduction and Planning Guide*.

Table 49. Management console customization tasks

Task	Management Console Navigation Item
RSF settings - Customer information	Service applications/Remote Support **Customize Customer Information**
RSF settings - Outbound See Note 1 for new VPN information to support existing customization work sheets.	Service applications/Remote support **Customize Outbound Connectivity**
RSF settings - Inbound	Service applications/Remote Support **Customize Inbound Connectivity**
MRPD settings See **Note** in the next column.	Service applications/Service Agent **Transmit Service Information / Transmit** • Click **Schedule when to transmit the service information** • Set the Frequency to 14 (days) • Set the time to a value when you know that the DS8000 will be powered on. **Note:** You must designate **only** one management console to send MRPD data. If MC 1 was already configured to send MRPD data, then **do not** configure it on this management console.

Table 49. Management console customization tasks (continued)

Task	Management Console Navigation Item
FTP settings	Service applications/Service Agent **Transmit Service Information / FTP** **Note:** This is only required if the customer has chosen to allow dumps and traces to be sent by FTP. • Leave the default settings for the FTP server. • If required, enter the customer firewall information. • Check 'Enable FTP offload of service information'.
Customer e-mail notification	Service Agent/Customer notification
SNMP alert	Service Agent/Customer notification

Note 1: The following is new information that may not be in the version of the customization work sheet provided by the customer.

- Selecting "By VPN" means that the customer allows the management console (MC) to use VPN over an internet connection when a connection is established to the IBM service center. IBM's VPN implementation is a client/server VPN. The two VPN endpoints are on the MC and on the IBM Boulder/Rochester VPN server. There is no need for additional VPN hardware in the customer network infrastructure.
- If you use VPN, the management console (MC) must have access through your internet firewall to the following:

  IBM Boulder VPN server, IP address 207.25.252.196
  IBM Rochester VPN server, IP address 129.42.160.16
  IBM Boulder test VPN server no longer used
- If VPN connectivity is not an option, FTP can be configured for faster offload of log and trace data.
- Even if VPN is configured the modem can serve as a backup. If configured it also allows IBM support personnel to remotely access the MC without a person on-site having to initiate a connection.
- General information: The remote support work sheets enable you to specify whether you want outbound (call home) or inbound (remote services) remote support. IBM recommends that you enable both outbound and inbound support to help you maintain the highest availability of your data.

  When you enable outbound (call home) support, your management console sends an electronic call home record to IBM support when there is a problem within the storage complex. In the header of each call-home record, a callback password appears.

  If inbound remote services is also enabled, this password enables IBM service representatives to remotely sign on to the management console in response to the service call. If outbound support is enabled, but inbound remote services is not enabled, the IBM service representative must physically come out to your location to troubleshoot and service the storage complex. When inbound remote services are enabled, service representatives can perform service tasks remotely. They can view error logs and problem logs, and initiate trace or dump retrievals.

4. If displayed, remove the default HMC hostname object (localhost.localdomain) from the HMC Navigation Area.

   The figure that follows shows an example of two managed HMC names in the Management Environment after installation.
   `localhost.localdomain` is the default HMC name at the beginning of the installation. This example shows `ras88hmca.storage.sanjose.ibm.com` as the

HMC hostname set during installation by using the customer configuration work sheets.

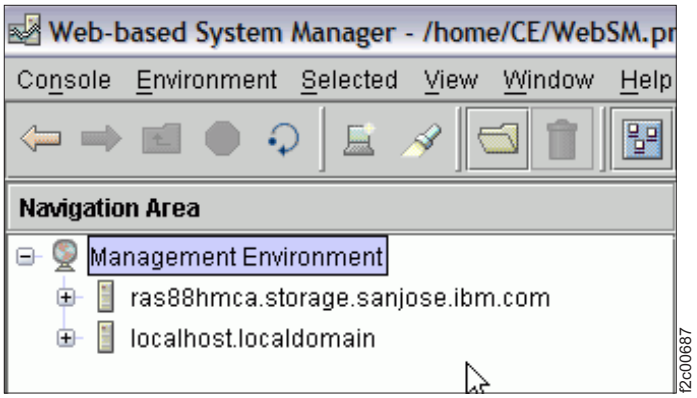
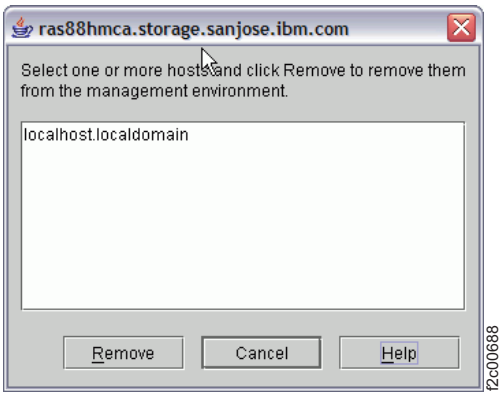


Figure 81. Examples of HMCs in management environment

a. At the top of the screen, click on **Console** → **Remove** → **Hosts**.
b. A pop-up window should list the `localhost.localdomain`.



c. Select localhost.localdomain and click **Remove**.
d. Observe the HMC Navigation Area and ensure any other installed HMCs are still listed.

5. Test the service communication methods. Perform these tests if this management console was enabled as a call home server.

Table 50. Tests for a management console enabled as a call home server

Communication method	How to test
Remote support - Modem	Select **Service Applications** → **Remote Support** → **Customize Outbound Connectivity** → **Local Modem** → **Test**
Remote support - VPN	Select **Service Applications** → **Remote Support** → **Customize Outbound Connectivity** → **Internet VPN** → **Test** If the test fails, go to "MAP1301 Isolating Call Home/remote services failure" on page 520. **Note:** If this test identifies incorrect network settings that require a management console reboot, do not reboot until the storage facility verification and DDM certification has completed.

Table 50. Tests for a management console enabled as a call home server (continued)

Communication method	How to test
Call Home	1. Select **Service Application** → **Service Focal Point** → **Service Utilities**. 2. Click on the storage facility that you are installing. 3. From the **Selected** drop down, click on **Test problem notification (PMH, SNMP, Email)**. 4. Ask the support center to verify that a test PMH was created on Retain. **Note:** You have previously verified that this storage facility is registered in Retain earlier in this installation. If the test fails, go to "MAP1301 Isolating Call Home/remote services failure" on page 520.
Remote Access **Note:** Follow your geographical guidelines to determine if this test is needed.	1. Select **Service Applications** → **Remote Support** → **Customize Inbound Connectivity**. 2. For Unattended Session, put a check for **Allow unattended sessions**. 3. For Duration, select **Temporary**, then click **OK**. 4. Ask the support center to test remote access. 5. After the test is complete, restore the Inbound Connectivity settings to the customer choice on the worksheets.

6. Test the customer communication methods.

Communication method	How to test
Customer e-mail notification	Select **Service Applications** → **Service Agent** → **Customer notification** → **Test e-mail**. Ask the customer if the e-mail was received. **Note:** If the test fails, go to "MAP1310 Isolating e-mail notification problems" on page 525.
Customer connection to DS8000 Storage Manager server in the management console	Ask the customer to test the access of the application or method that they will use to connect to the DS8000 Storage Manager in the management console. For information on testing the connection, see *IBM System Storage DS8000 User's Guide* included on the service and customer documentation CDROM. **Note:** If the test fails, go to "MAP1301 Isolating Call Home/remote services failure" on page 520.

7. Set the management console heartbeat options (frequency and enable/disable):
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Service Applications** → **Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   d. Select the storage facility. On the main menu (top tool bar), choose **Selected** → **Get HMCs**. A list of HMCs is displayed.
   e. Select the HMC. On the main menu, choose **Selected** → **View/Change Heartbeat Configuration**.

f. Select the frequency of the heartbeat (7 days is recommended).
g. Click **Schedule Heartbeat**. The window is refreshed and the current settings are display.
h. Click **Send Heartbeat Now** to send the first heartbeat.

Note: The management console heartbeat function verifies that the HMC continues to be available for call home and remote service. It will use the VPN connection if configured, or the modem if VPN is not configured. The service representative sets the frequency (1, 7, 14, or 28 days) selected by the customer. The recommended setting is 7 days. The heartbeat function uses the HMC to create a serviceable event (SE) with SRC BEF00012. The SE contains the frequency setting, and is sent to IBM with the normal SE call home function. If IBM does not receive these SEs at the recommended frequency, a service action to determine the cause can be initiated by next level of support.

8. Allow 10 minutes to pass since the last power on of the management console and then verify that the external management console has access to all the Storage Facilities in this storage complex.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
   b. Click **Server and Partition → Server Management**.

   Are all expected processor complexes listed (two 9117 servers should appear for each storage facility)?
   - Yes, continue with the next step.
   - No, verify that all previous steps were completed and that all cables were connected. Go to "MAP7000 Entry point for DS8000 private network problems" on page 855 to check for network problems. If no problem was found, then call your next level of support.
9. Do any 9117 servers show a state of `No Connection`?
   - Yes, go to "MAP7000 Entry point for DS8000 private network problems" on page 855 to check for network problems. If no problem was found, then call your next level of support.
   - No, continue with the next step.
10. Create and send the management console public key-file.
    a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
    b. Click **Service Applications → Service Focal Point**.
    c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
    d. Select the storage facility. On the main menu (top tool bar), choose **Selected → Get HMCs**.
    e. Select the HMC. On the main menu, choose **Selected → Generate HMC Public Key**. Click the **Yes** button to confirm.
    f. A serviceable event with `SRC=BEF0010` should be created immediately.
11. Display open serviceable events in order to determine if a serviceable event with `SRC=BEF00010` was created.
    a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
    b. Click **Service Applications → Service Focal Point**.

c. In the right content area, click **Manage Serviceable Events**. A window that lets you specify selection criteria for serviceable events is displayed.

d. In the Error criteria section, click the down arrow for the reference code (SRC) criteria and look for `BEF00010`. The reference code is listed only if the serviceable event was created.

   Is the reference code `BEF00010` listed?

   - Yes, select the `BEF00010` reference code and click **OK** to display the serviceable event overview, then go to step 10.
   - No, repeat step 10 on page 116 and if a serviceable event is still not created, call the next level of support.

12. Verify that the HMC public key was successfully delivered to the Retain system server.

    a. From the Serviceable Event Overview window, select the Problem #. On the main menu, choose **Selected → View Details**.

    b. In the Field Name column of the serviceable events details, scroll to the Data (EED) Offload status field. Read the Text messages to the right of this field. Select one of the following that applies:

       - Message includes the text `"successfully transmitted problem information or SUBMITTED SUCCESSFULLY"`, go to step 15.
       - Message indicates `Unavailable`, go to step 13.

13. It can take up to one hour for the serviceable event to be called home and then stored away successfully. The serviceable event Data (EED) Offload Status field will be automatically updated when the process is complete. Redisplay the serviceable event details looking for a status of good. Are you running a level of code released prior to October 2005 (Bundle 6.1.600.41)?

    - Yes, go to step 14.
    - No, go to step 15.

14. The call home may have been successful, but the EED field may not be displaying the correct status. You can use the following alternate procedure to check the status:

    a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).

    b. Click **HMC Management → HMC Configuration**.

    c. In the right content area, select **View Console Events**. A list of console events is displayed.

    d. The View Console Events window displays event log text messages.

    e. Look for a Console Event log with text that is similar to:

```
Successfully transmitted problem information:
  EED: /extra/data/vr/23/23.zip
Reporting system:
  rashmc33a Machine type-model/serial: 2107-922/1300310 Problem..."
```

   Is the above console message log text listed?

   - Yes, the call home was successful, return to 22 on page 120.
   - No, the call home has not occurred yet, go to step 15.

15. You can continue the installation at step 16 on page 118 now, but before you leave the customer account you must ensure the call home of the public key is successful. If it is not successful, remote support will not be possible.

Note: If the management console call home tests in the prior section did not complete successfully, manually offload the public key file to a laptop directly connected to the private network and then upload it to IBM. Refer to the article "Retrieving the WebSM Public Key locally" on the DS8000 - Engineering Web site.

16. Will you be installing additional racks, storage enclosures, or other hardware features to this storage facility as part of this installation activity?
    - Yes, the backup of critical console data will occur after all installation activity is complete. Go to step 22 on page 120.
    - No, the backup of critical console data will occur now. Go to step 17.
17. Locate the critical console data back up DVD disc for each HMC on this storage plex. The DVD disc should be in the ship group during an installation or kept in the HMC DVD-RAM drive after installation.

    There are two versions of the DVD disc:
    - Newer version is labeled with the HMC machine type model S/N and "HMC Critical Console Data Backup DVD, Keep in HMC DVD-RAM drive". If you have this version, go to step 19.
    - Older version has no preprinted label, it should have the HMC machine type model S/N hand printed by the service representative. If you have this version, go to the next step.
18. Is the HMC machine type model and S/N printed on the DVD disc?
    - Yes, go to the next step.
    - No, hand print the HMC machine type model and S/N and "HMC Critical Console Data" on the DVD disc. For example: `HMC machine type model S/N: 8837-PLM 75KKTWT8R, HMC Critical Console Data`. Go to the next step.
19. Back up critical console data on each HMC for this storage plex by performing the following steps. Use the DVD disc with the HMC machine type model S/N for this HMC.
    a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
    b. Expand **Licensed Internal Code Maintenance** → **HMC Code Update**.
    c. In the right content area, select **Back up Critical Console Data**.
    d. Select **Back up to DVD on local system** and click **Next**.
    e. Insert a formatted DVD-RAM media into the drive.
    f. Enter a description for the archive data.
    g. Click **OK** to store your critical console data on the DVD-RAM.
20. Use the Network Topology Tool to verify connectivity with all nodes (Ethernet ports) on the DS8000 private network and then save the topology. The following lists examples of nodes.
    - Local HMC ports.
    - HMC ports on second HMC (if installed).
    - Service processor card ports.
    - LPAR (partition) ports on the CEC enclosure I/O backplane assembly or PCI Ethernet card.

    Invoke the Network Topology tool as follows:
    a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
    b. Click **Service Applications** → **Service Focal Point**.

c. In the right content area, select **Service Utilities**, a window displays a list of storage facilities.

d. Select the storage facility, click **Selected** (on top tool bar), and then select **Get Storage Plex**. A window displays the storage plex.

e. Select the storage plex, click **Selected** (on top tool bar), and then select **View Network Topology**.

f. Wait several minutes for the tool to gather and present the results.

g. A window displays with the current network topology (port connections) listed on top, and the saved topology from the last time the tool was run and the Save button was selected. Normally the saved topology should be from results when all nodes on both private networks were fully present and operational.

   Note: The option to save the topology is used after all nodes on both private networks are determined to be present and operational.

h. Determine if all expected nodes are present. Refer to Figure 82, Figure 83 on page 120, and the Notes list.

i. Are any nodes missing or failing?

   - Yes, go to "MAP7000 Entry point for DS8000 private network problems" on page 855 in the DS8000 Service Information Center. To display the MAP, open the service Information Center on the management console (MC), then open the **Isolation MAPs and symbolic FRU procedures** section to locate the MAP.
   - No, go to step 21 on page 120.

The left side of Figure 82 shows an example of a 921 or 93x with a single management console. The right side shows an example of a 9A2 or 9B2 with two management consoles.

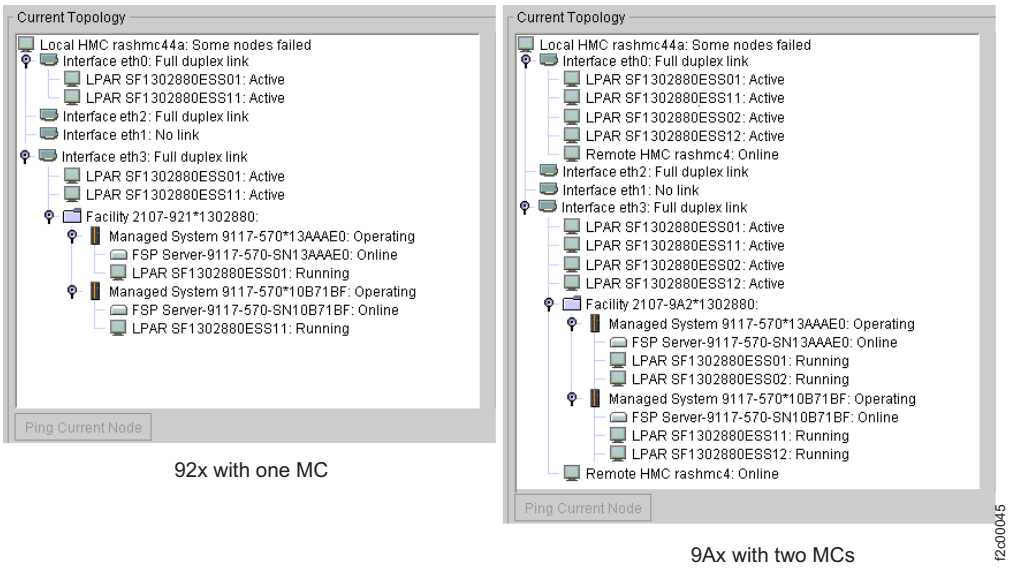


Figure 82. Two examples of the current topology screen

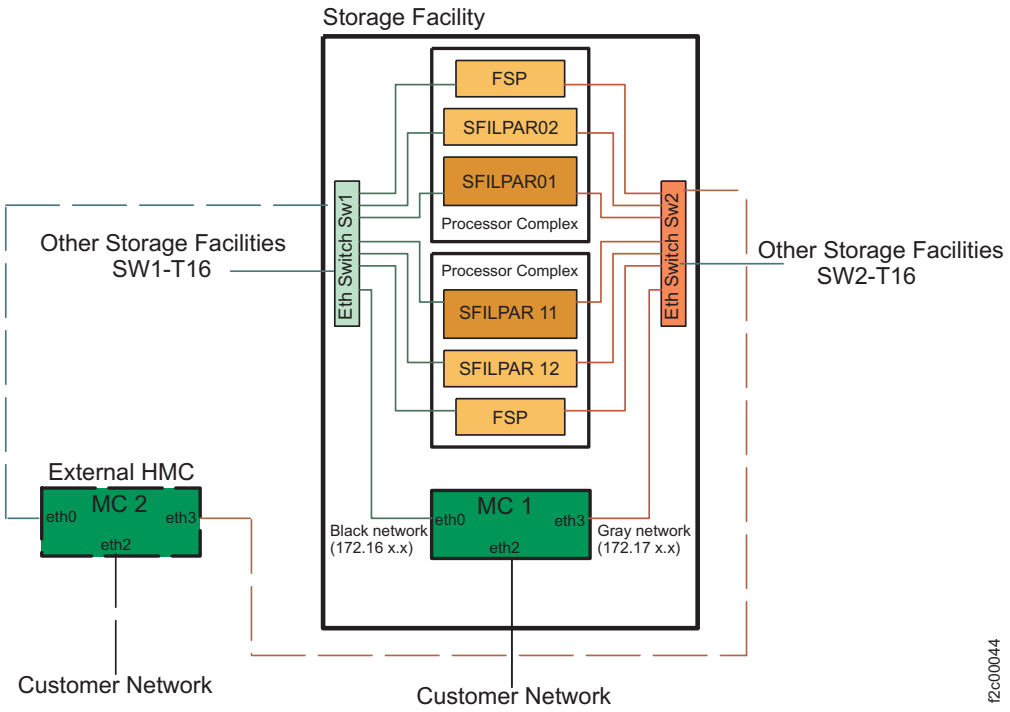


Figure 83. Diagram of the network topology

Notes:

- The tool provides a hierarchical view of the network from the management console which you logged in to.
- The Current Topology view shows the status of **detected** nodes on each of the two DS8000 private networks at the time the tool was launched or when **Refresh** was selected.
- The service processor cards are accessed through one of the two networks, so they will not appear on both. This is normal.
  - The service processor cards are accessed by MC 1 through the GRAY network (default 172.17.xxx.xxx or one of three optional address ranges; to determine the range, see "MAP7005 Determining which private network address range is selected" on page 867). To display the MAP, open the service Information Center on the management console, then open the **Isolation MAPs and Symbolic FRU procedures** section to locate the MAP.
  - The service processor cards are accessed by MC 2 through the BLACK network (default 172.16.xxx.xxx or one of three optional address ranges; to determine the range, see "MAP7005 Determining which private network address range is selected" on page 867.).
- The Storage Facility system status information is displayed along with the associated service processor card, so it will not appear on both networks. This is normal.

21. If there is a second HMC in this storage complex, go to that HMC and save the network topology there also.
22. The installation of the management console is now complete. If you were sent to this topic during the installation of a DS8000, then continue with the remaining steps in that installation topic.

Chapter 6. Installing one expansion rack with I/O enclosures to an existing storage facility

This procedure is a **non-concurrent** installation used only for one expansion rack that already contains I/O enclosures (models 92E, 9AE).

If the rack you are installing does not contain I/O enclosures, you must go to the section Chapter 7, "Installing one expansion rack without I/O enclosures to an existing storage facility," on page 181.

DANGER

HEAVY EQUIPMENT -- PERSONAL INJURY OR EQUIPMENT DAMAGE MAY RESULT IF MISHANDLED (D006)

Attention: The customer should prepare his environment to accept the new product based on the installation planning information provided, with assistance from an IBM Installation Planning Representative (IPR) or IBM authorized service provider. In anticipation of the equipment delivery, the final installation site should be prepared in advance such that professional movers/riggers can transport the equipment to the final installation site within the computer room. If for some reason, this is not possible at the time of delivery, the customer will need to make arrangements to have professional movers/riggers return to finish the transportation at a later date. Only professional movers/riggers should transport the equipment. The IBM authorized service provider will only perform minimal frame repositioning within the computer room, as needed, to perform required service actions. The customer is also responsible for using professional movers/riggers in the case of equipment relocation or disposal.

Beginning the installation

Use the following sections to begin the installation.

Stopping all host activity

To prepare for a non-concurrent installation, all host system activity must be stopped.

1. Ensure the customer stops all host system activity to the existing rack before you continue.
2. Continue with "Ensuring existing rack has no open serviceable events."

Ensuring existing rack has no open serviceable events

Display and repair any open serviceable events on the existing rack that the new rack will be installed to. There must be no unrepaired serviceable events prior to beginning the installation.

1. Log into the management console (HMC) for rack 1.
2. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
3. Open **Service Applications** → **Service Focal Point**.

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4. In the right content area, select **Manage Serviceable Events**, a window displays a list of selection criteria. Ensure the serviceable event status field is set to "Open".
5. You can use the default selection criteria or modify the criteria for your needs. Click **OK**.
6. The Serviceable Event Overview window is displayed. If a serviceable event is listed, repair it before you continue the install. To repair, click **Selected** (from the top tool bar), and then select **Repair**. Follow the guided repair process.

Checking for the latest level of installation instructions

MES instructions are required to install the storage enclosures. The following rack install procedure installs the rack, rack power, and RIO interfaces only.

These installation instructions are provided in two formats:

- Hardcopy: this is shipped with the subsystem and is printed from a PDF file. The PDF file is also available on the *IBM System Storage DS8000 series Service Documents CDROM* or from the DS8000 - Engineering Web site.
- Information Center: This is intended for online viewing. It is available on the *IBM System Storage DS8000 series Service Documents CDROM*, on the management console (HMC) or through the Intranet.

Ensure that you are using the latest version of the installation instructions.

1. If you are performing the installation using hardcopy instructions, then the latest level of the PDF file for printing will be available on the DS8000 - Engineering Web site (https://ssgtech4.sanjose.ibm.com/PFE/Squadrons-S%20PE%20Support.nsf/WVhome). Select **Related Links** → **Information Centers** → **Service**. Scroll to the section on Installation Guides in PDF format.
2. If you are performing the installation using the Information Center, then the latest version will be available on the Intranet. Use the link from the DS8000 - Engineering Web site (https://ssgtech4.sanjose.ibm.com/PFE/Squadrons-S%20PE%20Support.nsf/WVhome). Select **Related Links** → **Information Centers** → **Service**

Checking customer preparations

DANGER

HEAVY EQUIPMENT -- PERSONAL INJURY OR EQUIPMENT DAMAGE MAY RESULT IF MISHANDLED (D006)

1. Verify that the customer has two AC power sources for each rack in the DS8000 storage facility.

   For maximum fault tolerance, use two separate AC power sources.

   Note: The DS8000 is designed for connection to an IT power distribution system. In an IT power distribution system, the neutral conductor is isolated from earth (ground) by an impedance with exposed conductive parts in the installation that is tied directly to earth.

   No service representative action is needed. Information is for compliance with International Electrotechnical Commission Standard 950 for the safety of information technology equipment and electrical business equipment.

2. Verify the customer wall circuit breaker. The customer wall circuit breaker rating that protects each line cord depends on the voltage range as follows:
   - Low-voltage, three-phase installations (200 - 240 V) require wall circuit breakers that have a rating of 50 to 60 A. Do not exceed the wire rating of the facility.
   - High-voltage, three-phase installations (380 - 480 V) require wall circuit breakers that have a rating of 30 to 35 A. Do not exceed the wire rating of the facility.
3. If the DS8000 will be installed on a raised floor:
   a. Review the weight of each rack with the customer to verify that their raised floors have adequate support. An individual rack, fully configured can weigh a maximum of 2880 pounds (1307 kilograms). For details on the DS8000 rack weights, refer to *IBM System Storage DS8000 Introduction and Planning Guide*.
   b. To correctly cool a DS8000, place two floor tiles, that have holes for air flow, directly in the front and the rear of each DS8000 rack (for a total of 4). Also provide tiles with holes, for cable entry, under the rear tailgate.
4. If the DS8000 will not be installed on a raised floor, ensure the customer will provide adequate air flow and temperature around the DS8000.

   Notes:
   a. For information about the temperature requirements of the operating environment, see the *IBM System Storage DS8000 Introduction and Planning Guide*.
   b. The DS8000 rack cooling airflow enters through the front and rear covers and exits through the top and rear covers. The bottom of the DS8000 is sealed.
5. Verify that the customer has ordered, supplied, and routed the following cables to the DS8000 being installed. Routing of the customer cables must not be billed against the installation. If the customer wants the service representative to route the cables, that activity must be coded or billed separately.
   a. ESCON® host cables from the host to the DS8000 host adapters.
   b. Fibre host cables from the host to the DS8000 host adapters.

Preserving customer data

1. The existing customer data will be preserved. However, it is recommended for the customer to backup their existing data as a precaution.
2. Continue the install.

Checking for required microcode

1. Is the new storage facility being installed to an existing storage complex?
   - Yes, ensure the code level of the existing storage complex and management consoles are already at a compatible level or same level as the new code levels. Then go to step 2.
   - No, go to step 3 on page 124.

   Note: Normally, if there are two management consoles, they both must be running the same level of code.
2. Ensure the code level of the existing storage plex and management consoles are already at a compatible level or same level as the new storage facility code levels.

Note: Do not intermix the following bundles within a storage plex without the approval of next level of support.

- bundle 6.1.6xx.xx or prior
- bundle 6.2.0xx.xx or later

3. Determine if there is a required level of microcode available for your storage facility or management console. For IBM personnel, go to DS8000 - Engineering Web site (https://ssgtech4.sanjose.ibm.com/PFE/Squadrons-S%20PE%20Support.nsf/WVhome). For non-IBM personnel, follow the established process to determine the required code level.

   When the web site defines a code level as "required", it means that the storage facility must not be transferred over to the customer without the indicated code level installed.

   When the web site defines a code level as "recommended", it means the IBM service representative can either:

   - Give the storage facility to the customer when the installation is complete.
   - Negotiate with the customer for a more convenient time to update the microcode.

Checking RETAIN for storage facility installation tips

1. Sign on to RETAIN.
2. Select HSF.
3. Search for 2107 Install (p;2107 Install). RETAIN may have information that corrects problems that are not yet addressed by the install instructions.

Unpacking the expansion rack and verifying the ship group is complete

1. Remove the CE Unpacking Instructions from the Customer Engineer envelope taped to the front of the storage facility below the CEC enclosures. Use the CE Unpacking Instructions to unpack the storage facility frame(s) and prepare it for installation.
2. Verify that all items in the ship group were received.
   a. The ship group comes in one or more large boxes on pallets. The customer may not allow the pallet and large box in their machine room. Consequently, you may end up with a pile of parts on the floor.
   b. The side decorative covers that go between the racks are either packed in a separate long narrow box (early version) or are packed in the large ship group box (later version). The side covers for the later version fold in half.
   c. The hardcopy listing of the ship group contents is shipped loose with the other parts inside the large boxes. If it is missing, check if it was accidently discarded along with the pallets and large boxes. An additional copy of the paperwork may be included in the CE Envelope.
   d. The official ship group listing of parts is included in the ship group. Table 51 on page 125 is for reference only.

      Notes:

      - Version 1 part numbers are *not* eligible for use in European Union member states.
      - Version 2 part numbers are eligible for use everywhere including European Union member states.

- Only the most recent part numbers are listed. Your DS8000 or serviceable event FRU list may contain an older part number. The parts ordering system can automatically substitute a later part number as needed.

Table 51. Service ship group part numbers (expansion rack)

Description	Part number	
	Version 1	**Version 2**
Bolt, M8 x 20, interrack spacer	1621545	1621545
Cable, Ethernet, black, 31.0 m	22R1798	22R1798
Cable, Ethernet, gray, 31.0 m	22R1799	22R1799
CD-ROM, Code Bundle	[1]	[1]
CD-ROM, Customer Documents	[1]	[1]
CD-ROM, Service Documents	[1]	[1]
Cover, interrack decorative, side (one-piece)	22R4964	22R4964
Cover, interrack decorative, side (two-piece, hinged)[2]	23R1050[2]	23R1050[2]
Cover, interrack decorative, top	22R4962	22R4962
Drawing, interrack spacer stud	22R5481	22R5481
Label, operator panel warning, translated	22R1789	22R1789
Publication, Service Provider Start Here	22R4228	22R4228
Publication, Installation Guide	[1]	[1]
Publication, Installing an Expansion Rack	[1]	[1]
Publication, Statement of Limited Warranty	22R5940	22R6401
Publication, Waste Equipment (WEEE)	22R5822	22R5822
Spacer stud, interrack	22R5046	22R5046
Tag, "Do Not Operate"	23R0280	23R0280
Tie wrap	07J6655	07J6655
Washer, M8, interrack spacer	84X5850	84X5850
Wheel chocks (set of 4)	08J5557	08J5557

Notes:

1. The part number changes with each release. Call the next level of support.
2. A bracket (23R2044) and two nuts (84X4841) secure the two pieces at the hinge.

3. Place the ship group parts list in the document enclosure (front upper left of rack 1). This list can be used for future removal of the storage facility.

Determine if new expansion rack and existing rack 1 have compatible features

1. Determine the model of the expansion rack being installed. Observe the machine type model serial number label beneath the UEPO red switch on the rack operator panel.
2. Determine the rack expansion feature code for the rack being installed.

   The feature codes are listed on the Product Package Label sheet that is attached to the outside of the shipping carton. Remove the CE Unpacking Instructions from the Customer Engineer envelope taped to the front of the rack below the CEC enclosures.

3. Use Table 52 to determine if the feature of the rack being installed is compatible with the existing rack 1 model. If the sheet is not available, use the description in the second column of the table to determine the feature.

Table 52. Compatible rack models and features

If Rack 1 is model:	Rack 2 must be model and rack position feature code	Rack 3 must be model and rack position feature code
921/931	92E with no I/O enclosures Feature code 0211	None
922/932	92E with four I/O enclosures Feature code 0221	92E with no I/O enclosures Feature code 0222
9A2/9B2	9AE with four I/O enclosures Feature code 0231	9AE with no I/O enclosures Feature code 0232

4. Is the rack being installed compatible with the Rack 1 model?
   - Yes, continue with step 5.
   - No, **stop**, contact the next level of support.
5. Determine if Rack-1 has the extended power line disturbance (PLD) feature 1055 installed.

   Note: All racks in this storage facility must either have the PLD feature installed or not installed. There cannot be an intermix of racks with and without the PLD feature.

   a. At the rear of Rack-1, observe the top rear of a primary power supply (PPS). Refer to Figure 84 on page 127, location Ex-E2. If the feature is not installed, there will be a sheet metal blockout plate as shown. If the feature is installed, there will be a booster power module installed with a cable going to the 208VDC bus bars to the right of the PPS.

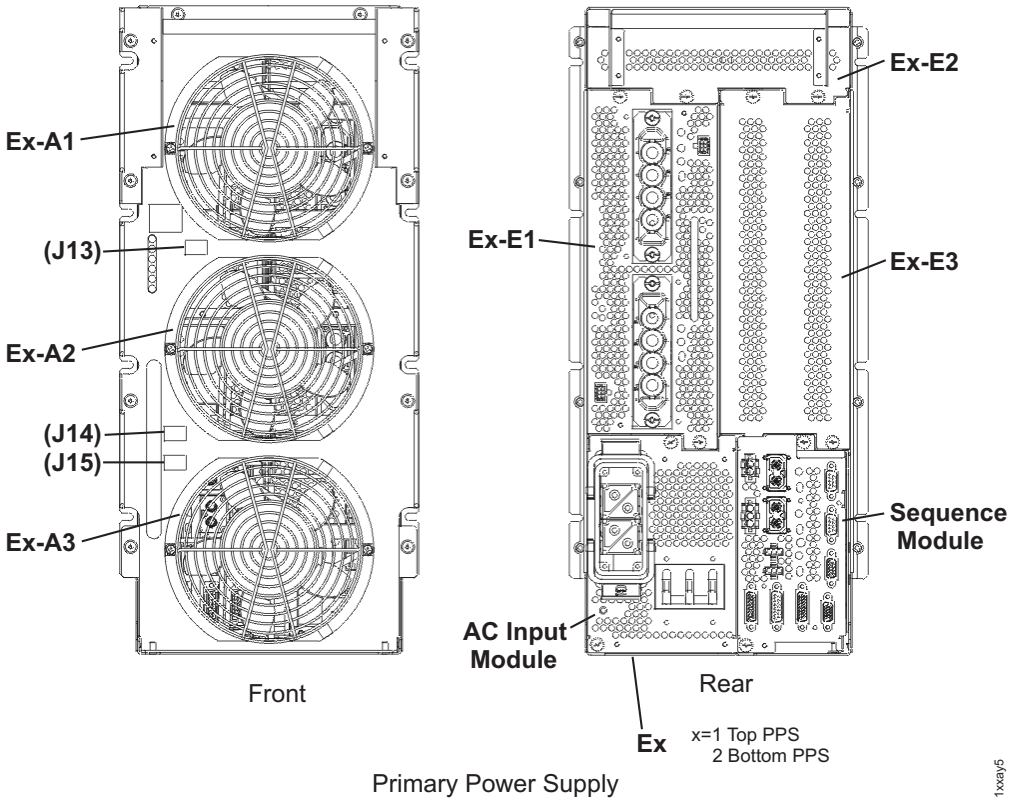


Figure 84. Locations for primary power supplies

6. Is the extended PLD feature 1055 present in Rack-1?
   - Yes, go to step 7.
   - No, go to step 9.
7. Does the expansion rack you are installing have the extended PLD feature present?
   - Yes, go to 8.
   - No, stop the installation and call the next level of support. The extended PLD feature as well as the battery assembly feature will need to be ordered and installed on the expansion rack before the installation of the expansion rack can continue.
8. Ensure the booster power module (Ex-E2 in Figure 84) cable is connected at both ends (to the booster power module and to the bus bar). Do this for both PPSs and then continue with the next step.
9. Does the expansion rack you are installing have the extended PLD feature present?
   - Yes, stop the install and call the next level of support. All racks in this storage facility must either have the PLD feature installed or not installed. There cannot be an intermix of racks with and without the PLD feature.
   - No, continue with "Inspecting for shipping damage" on page 24.

Inspecting for shipping damage

1. Inspect the storage facility for any damage that might have occurred during shipping.

2. If you observe shipping damage or missing items, do not install the storage facility without IBM management approval. Report all observed damage immediately, following existing procedures.

Determining if a safety inspection is required

Find the condition that applies to your expansion rack:

- New expansion rack from IBM. A safety inspection is not required. Continue with "Preparing the existing rack."
- Not a new expansion rack from IBM and was maintained by IBM. A safety inspection is not required. Continue with "Preparing the existing rack."
- Not a new expansion rack from IBM and was not maintained by IBM. A safety inspection is required. Continue with "Safety inspection" in the Service Information Center on the management console or the documentation CD-ROM. Then return here and continue at the next section.

Preparing the existing rack

1. Ensure the HMC power control mode for this DS8000 is set to Manual Power Mode. If it is not in Manual Power Mode, note the current customer setting and then change the setting to Manual Power Mode. At the end of the installation you will be directed to restore the original customer setting.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Service Utilities**. A window opens that displays a list of Machine Type/Machine Serials.
   d. Select a Machine Type/Machine Serial from the list.
   e. Click **Selected** (on top tool bar), then select **Manage Power Control**.
   f. Click the radio button for **Manual Power Mode**.

      Note: This prevents the DS8000 from unexpectedly powering off during this service action if any of the following occur:
      - The HMC is set to power off/on using customer-determined time of day schedules.
      - The remote power control feature is installed and enabled.
      - The customer remotely accesses the HMC to power off the DS8000.
2. Prepare the DS8000 for the add expansion rack process:
   a. Login to a management console (HMC) for rack 1.
   b. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   c. Open **Service Applications** → **Service Focal Point**.
   d. In the right content area, select **Install/Add/Remove Hardware**, a window displays a list of Machine Type/Machine Serial.
   e. Select the Machine Type/Machine Serial that the new rack is being installed to.

      Note: The installation status of the existing rack should display "Install Completed".
   f. Click **Selected** (on top tool bar), then select **Install Expansion Rack**. An Install Expansion Rack screen is displayed.

g. Select **Add an Expansion Rack with I/O Enclosures (Non-Concurrent)** and click **Submit**.

h. A confirmation panel prompts you with the following question ″Were you sent here from the MES or installation instructions″? Click **Yes**.

3. A User Input Message Box is displayed requesting you to enter information in three fields.

   a. Use this step to determine how to enter the information.

Table 53. Required information fields for User Input Message Box

Information field	Format of entry

Enter Rack MTMS
 	
MTMS label is on rack operator panel beneath the red UEPO switch. The label format is:
`Type 2NNN-MMM`
`S/N XX-YYYYY`
	2NNN-MMM*XXYYYYY (Enter in *uppercase*, and without the dash that is on the MTMS label between the XX and YYYYY.)
	• **2NNN** = machine type 2107, 2421, 2422, 2423 or 2424
	• **MMM** = model
	• **XX** = plant of manufacture
	• **YYYYY** = rack serial number
	Note: If the MTMS is entered in lower case, the installation process will hang for several minutes and then fail.

Enter the number of battery enclosures containing battery modules (E10, E11, E12 in Figure 85 on page 130)	0 or 1 or 2 or 3
Enter the number of PPS modules present. See Figure 86 on page 131. • Ex-E1 is always present. • Ex-E2 is optional. The module is installed if there is a cable connector present. The module is not installed if there is a plain sheet metal dummy cover. • Ex-E3 is optional. **IMPORTANT:** – The cables to this module position are always present. – The module is present if it has LEDs and switches. – The module is not present if there are no LEDs and switches.	1 or 2 or 3 Only count positions Ex-E1, Ex-E2, and Ex-E3.

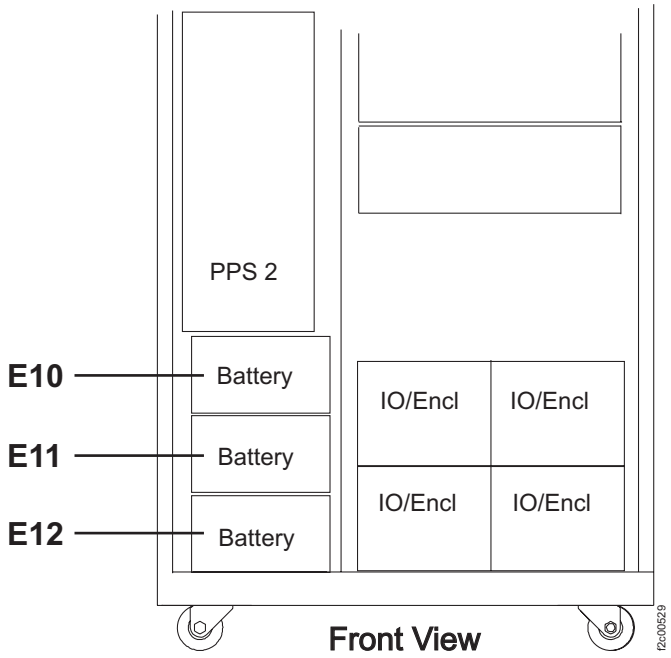


Figure 85. Battery module locations

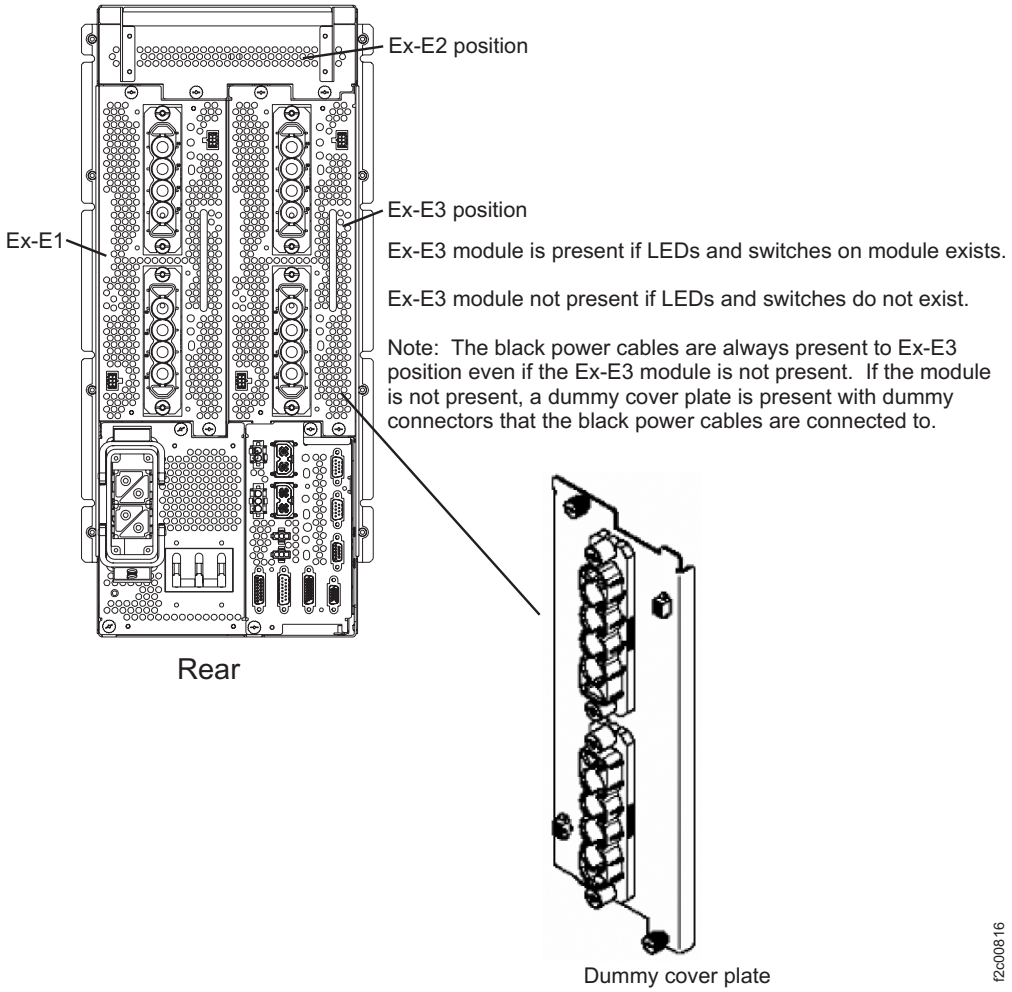


Figure 86. PPS module options

4. After the information is entered, click **OK** to continue.
5. The CEC enclosures will automatically power off. You will be sent back here to continue with the next step.
6. Continue with "Positioning and cabling the rack."

Positioning and cabling the rack

Use the following topics to position and cable the rack.

Removing right end and left rear covers from Rack-1

1. Observe the right end cover (viewed from the front) of Rack-1 to determine which version you have.
   - Older version has two cover retaining brackets as shown in Figure 87 on page 132. Go to the next step.
   - Newer version does not have the two cover retaining brackets as shown in Figure 87 on page 132. Go to step 3 on page 133.
2. Remove the old version of the front right end cover from the rack that the new rack will be installed to as shown in Figure 87 on page 132 and Figure 88 on page 132. Pull the cover near the top sides to release it from the top "hook and

loop" fasteners. Then pull lower down on each side of the cover to release it from the lower "hook and loop" fasteners. Failure to do this may bend the cover.

a. Release the two cover retaining brackets (pull them downward). See Figure 87. The cover is still secured to the frame by multiple "hook and loop" fasteners along each side of the cover.

   Note: Failure to follow the instructions in the following steps might result in a bent cover.

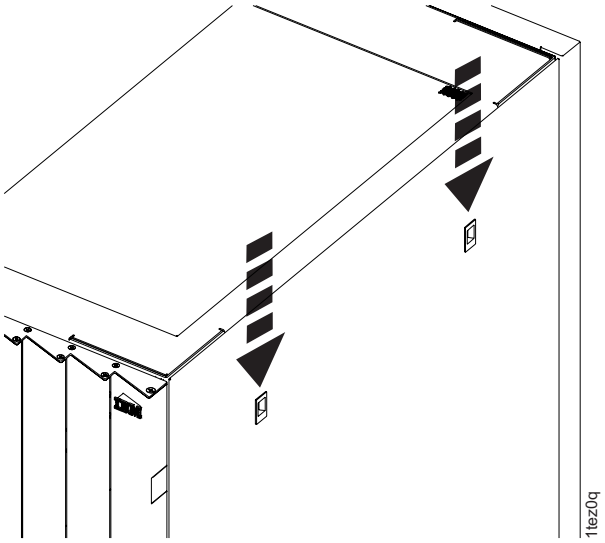


Figure 87. Disengaging the end cover

Attention: Pull lower down on each side of the cover to release it from the lower "hook and loop" fasteners. Failure to do this may bend the cover.

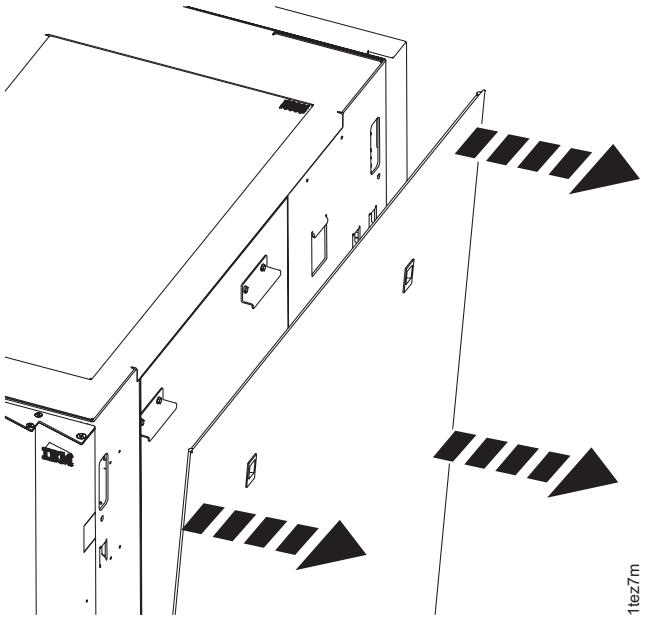


Figure 88. Removing the end cover

b. Pull the upper corners of the cover away from the rack to release the upper “hook and loop” fasteners and apply even pressure working your way down the sides. See Figure 88 on page 132.

c. Further down, pull each side of the cover away from the rack to release the lower “hook and loop” fasteners and remove the cover.

d. Remove the two end cover catch brackets from the rack. They will be reinstalled on the new end rack later.

e. Go to step 4.

3. Remove the new version of the right end cover (viewed from the front) from Rack-1.

   a. Remove the two screws at the top of the end cover, they are not visible from the side of the rack. The cover is still secured to the frame by multiple “hook and loop” fasteners along each side of the cover.

      Note: Failure to follow the instructions in the following steps might result in a bent cover.

      Attention: Pull lower down on each side of the cover to release it from the lower ″hook and loop″ fasteners. Failure to do this may bend the cover.

   b. Pull the upper corners of the cover away from the rack to release the upper ″hook and loop″ fasteners and apply even pressure working your way down the sides. See Figure 88 on page 132.

   c. Further down, pull each side of the cover away from the rack to release the lower ″hook and loop″ fasteners and remove the cover.

   d. Go to the next step.

4. Remove the left rear cover from Rack-1. Refer to Figure 89.

   a. On the upper and lower door hinges, loosen the screw **1** and move the retention plate **2** that prevents the hinge pin **3** from being removed.

   b. Remove the hinge pins, remove the rear cover and place it in a safe location.

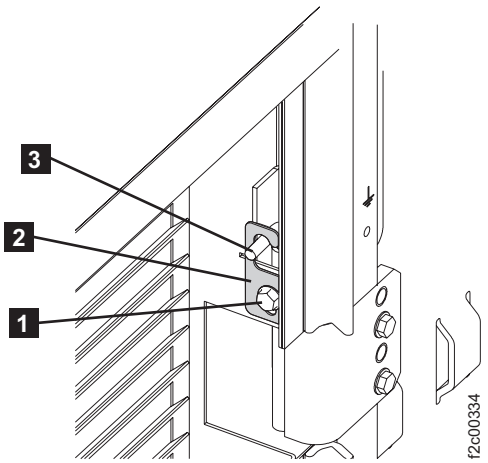


Figure 89. Removing rear left cover on Rack-1

5. Continue with “Checking for FC 1906 earthquake resistance kit” on page 134.

Checking for FC 1906 earthquake resistance kit

The earthquake resistance kit, Feature Code 1906, provides additional hardware to be installed. The kit stiffens the rack from flexing and also ties the rack directly to the concrete floor. The kit can be installed on a raised floor or non-raised floor.

- If the rack is new from IBM, the MES hardware kit for FC 1906 would be shipped with the rack.
- If the rack has been discontinued from another account, and the earthquake resistance kit was originally installed there, the kit would have been removed and shipped separately.

  The original kit included parts to tie-down the rack to a non-raised floor, a low raised floor, and a high raised floor. Parts not used at the original installation may not have been kept and shipped. If you are installing on a different floor type than the original floor type, you may not have all the necessary parts. Call the next level of support.

Important: If FC 1906 is to be installed, the base rack and any attached expansion racks must all have FC 1906 installed.

1. Is the Earthquake Resistance Kit Feature (FC 1906) to be installed on this storage facility?
   - Yes, go to Chapter 9, "Installing the earthquake resistance kit feature FC 1906," on page 239, then return here and continue at the next step.
   - No, continue with the next step.
2. Continue with "Positioning the storage expansion rack."

Positioning the storage expansion rack

If you have questions about floor loading and service clearances of the DS8000 racks, review the Site Requirements for the DS8000 section in the *IBM System Storage DS8000 Introduction and Planning Guide* which is available on the *IBM System Storage DS8000 series Service Documents CDROM*.

1. View the rack number label to determine the rack location. See Figure 90 for the location of the rack number label.

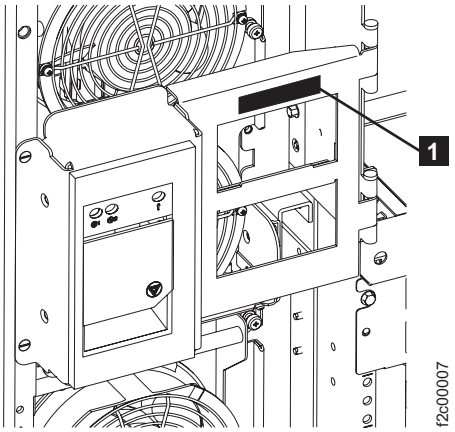


Figure 90. Rack operator panel label

2. Facing the front of Rack-1, all additional expansion racks will be installed to the right. Move the storage expansion rack into position approximately 3″ (75mm) from the existing rack.

3. Ensure the rack operator panel UEPO switch clear access cover is present. Some racks may be shipped with the cover removed and stored in a plastic bag in the document enclosure above the rack operator panel. The cover pivots on two small tabs at the top of the cover. To install the cover engage the left side tab **1** , push the cover gently to the right and then engage the right tab **2** . See Figure 91.

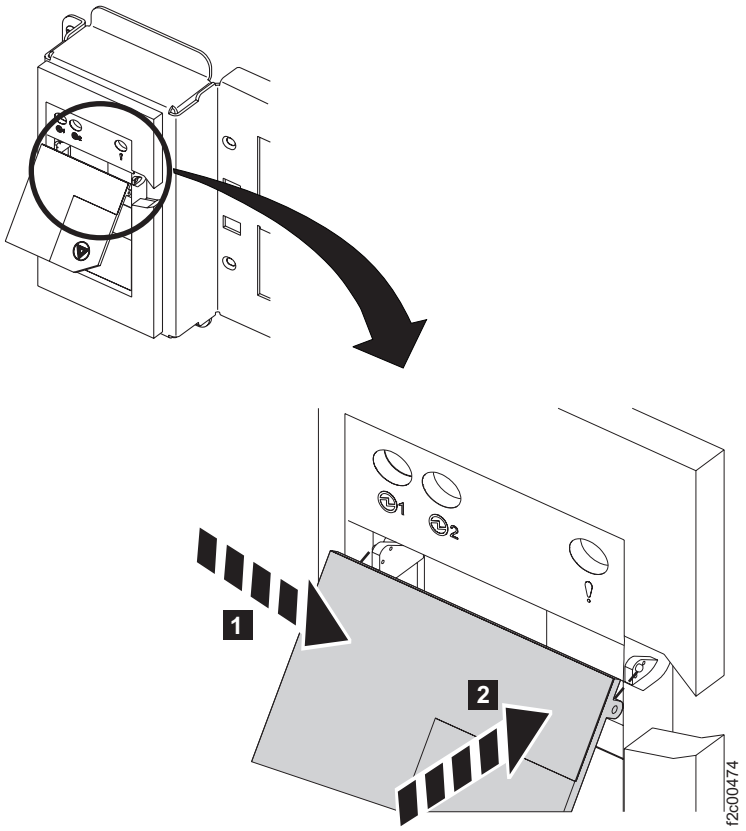


Figure 91. UEPO cover

4. Locate 4 x spacer studs P/N 22R5046, 7 x spacer mounting bolts P/N 1621545, and 7 x M8 washers P/N 84X5850 in the ship group.
5. Install the bottom spacer stud at the rear of the existing rack (Rack 1 or the storage expansion rack that is already installed).
   a. Refer to Figure 92 on page 136. Install a spacer stud **3** in the lower rear left corner of the rack using a mounting bolt **1** and a washer **2** . Leave the bolt loose so that it will be easier to align the spacer stud with the bolt from the new frame.

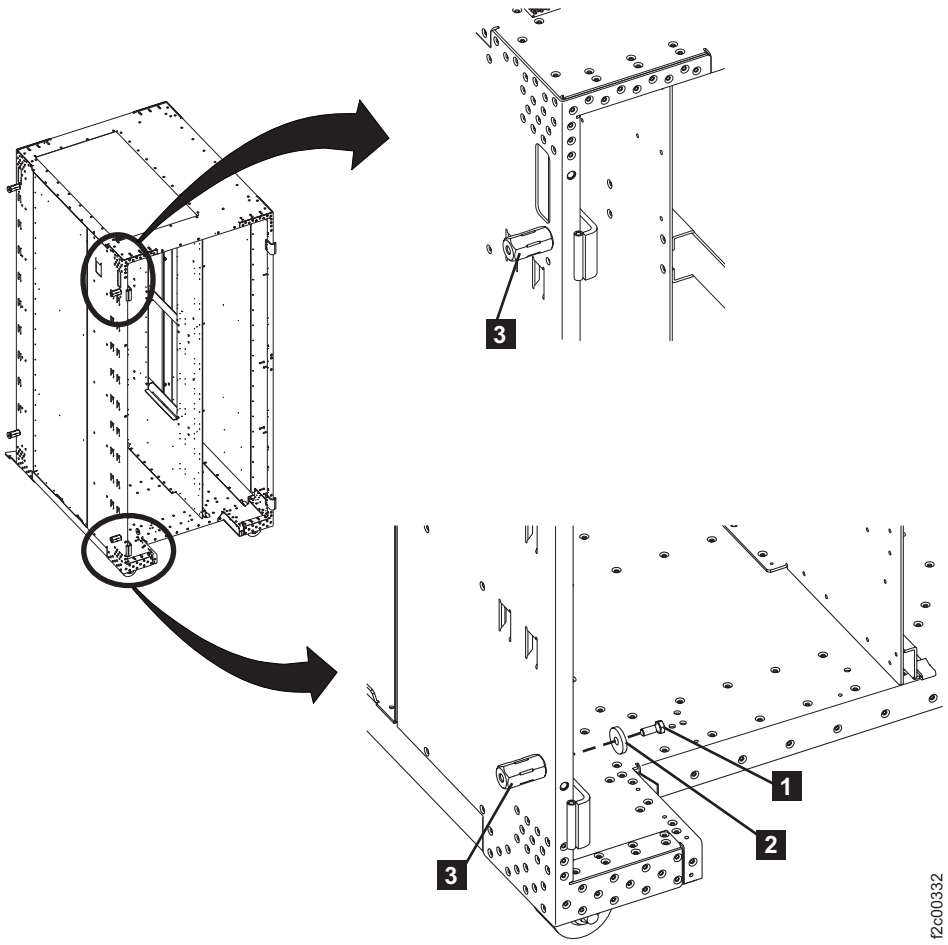


Figure 92. Interrack spacer studs

6. Determine the part number (P/N) of the interrack decorative side covers in your ship group. The P/N is printed near the middle of each side cover. There are two side covers and one top cover in the long narrow shipping box.
   - P/N 22R0786 (original version) go to step 7.
   - P/N 22R4964 (new version) go to step 8.
7. In the upper rear left corner of the existing rack, next to the hinge are two holes, one above the other. Use the upper hole and install a spacer stud **3** using a mounting bolt **1** and a washer **2**, see Figure 92. Do not tighten the bolt fully as some alignment will be needed. You can hold the side cover next to the spacer studs to ensure the spring clips align properly before going to step 9 on page 137.

   Note: On early frames, it may be necessary to remove the rear left top hinge and spacer plate to allow the mounting bolt to be inserted. Reinstall the hinge and plate when the bolt has been tightened.
8. In the upper rear left corner of the existing rack, next to the hinge, there are two holes; one above the other. Use the lower hole and install a spacer stud **3** using a mounting bolt **1** and a washer **2**, see Figure 92. **Do not** tighten the bolt fully as some alignment will be needed. You can hold the side cover next to the spacer studs to ensure the spring clips align properly before going to step 9 on page 137.

Note: On early frames, it may be necessary to remove the rear left top hinge and spacer plate to allow the mounting bolt to be inserted. Reinstall the hinge and plate when the bolt has been tightened.

9. On the rear of the storage expansion rack being installed, perform the following steps to remove the right cover.
   a. Open the rear left machine cover.
   b. Remove and retain the two screws **1** and open the rear right machine cover. Refer to Figure 93.

      Note: The screws must be reinstalled later to prevent non-service personnel from accessing a hazardous section of the machine.

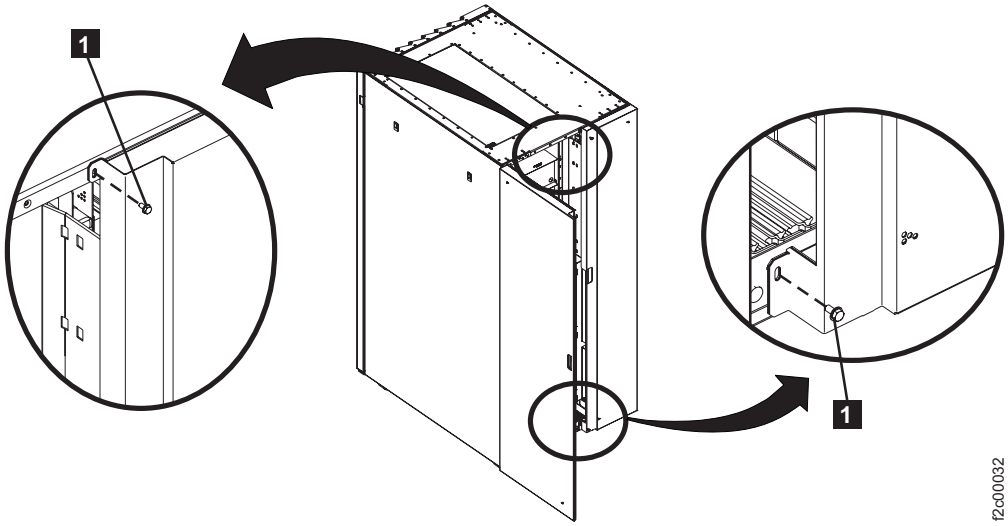


Figure 93. Removing retaining screws on right rear machine cover

   c. On the upper and lower door hinges, loosen the screw **1** and move the retention plate **2** that prevents the hinge pin **3** from being removed. Refer to Figure 94.
   d. Remove the hinge pins, remove the rear cover and place it in a safe location.

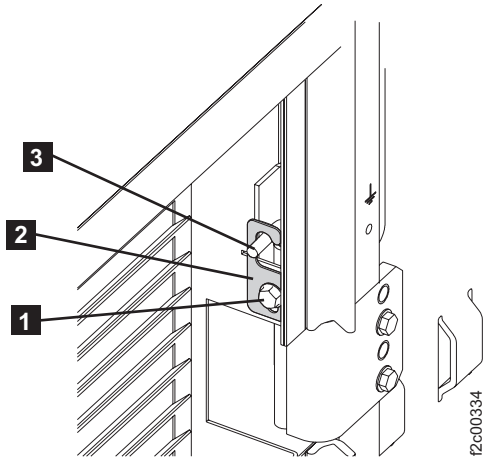


Figure 94. Removing rear left cover on Rack-1

10. Return to the front of the racks. Do not remove any front covers. Install 2 spacer studs on the front left of the storage expansion being installed.
    a. Install a spacer stud in the lower front left corner of the rack using a mounting bolt and a washer. **Do not** tighten the bolt fully as some alignment will be needed.
    b. Install a spacer stud in the upper front left corner of the rack using a mounting bolt and a washer. **If there are two frame holes near the hinge, use the same hole (upper or lower) as you did at the rear of the rack. Do not** tighten the bolt fully as some alignment will be needed.
11. Move the storage expansion rack being installed into its final position.
12. At the rear, secure the storage expansion rack being installed to the existing rack using one bolt and washer in the upper position only. The bolt is screwed into the spacer stud previously installed. Do not tighten the bolt fully.

    Note: It is not possible to install the bolt at the bottom of the rack because the 208VDC bus bars block access.
13. At the front, insert two bolts and washers from the left rack and screw into the spacer studs previously installed in the right rack. When the alignment is correct, tighten all the bolts that have been installed.
14. Install the wedge chocks **1** (located in the ship group) on all four casters. If caster locks are available, engage the caster locks on all casters. Refer to Figure 95.

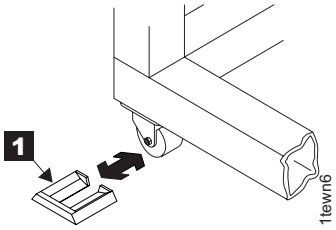


Figure 95. Wedge chocks

15. Continue at the next section.

Reinstalling the right end cover on the right-most rack

The right end cover was previously removed in the task “Removing the right end cover from the existing rack”.

1. Which version of the Rack-1 end cover do you have?
   - Old version has two cover retaining brackets. Go to the next step.
   - New version has two screws at the top of the cover. Go to step 3.
2. Install the two cover catch brackets from Rack 1 on the expansion rack. Install the right end cover (removed earlier) on the expansion rack, then go to step 4.

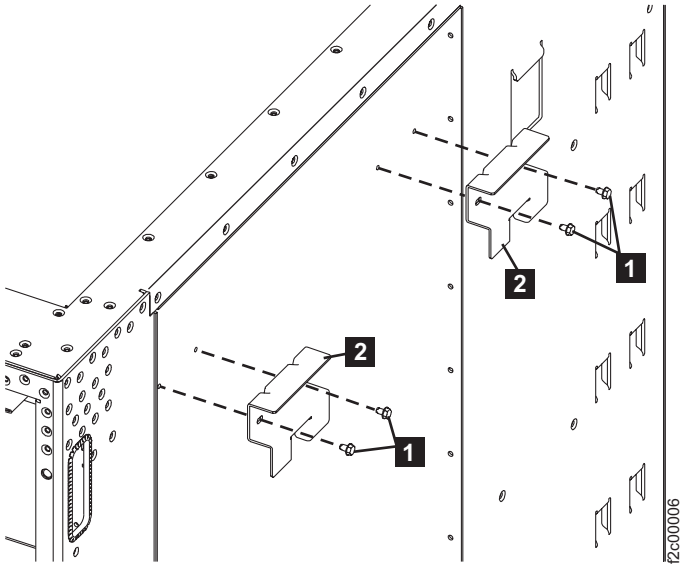


Figure 96. Removing/replacing right end cover

3. Does the expansion rack have the two screw holes in the top of the rack for the right end cover?
   - Yes, install the right end cover (removed earlier) on the expansion rack securing it with the two top screws.
   - No, call the next level of support. You will need to order the old version right end cover, retaining brackets and screws. Continue the installation without the right end cover.
4. Continue at the next section.

Checking for weight reduction feature

The weight reduction feature removes storage enclosures and/or battery modules to reduce the total rack weight. These parts are then shipped on a separate pallet and must be reinstalled.

1. Was the weight reduction feature (FC 0200) ordered for this storage expansion rack?

   Note: If FC 0200 was ordered, the storage enclosures will have been removed in manufacturing and shipped separately.

   - Yes, go to Chapter 8, "Installing hardware removed by weight reduction feature FC 0200," on page 231. Return here and continue when the storage enclosures have been reinstalled.
   - No, continue with the next step.
2. Continue with "Disconnecting some FC-AL cables."

Disconnecting some FC-AL cables

Note: Some FC-AL cables must be disconnected to isolate each storage enclosure. If these cables are left connected, in later steps the storage enclosures will be discovered too early in the installation process which may cause problems that require the next level of support. The storage enclosures will be physically cabled and logically installed one at a time.

1. **You must disconnect** all blue FC-AL cables connected to T3 and T4 connectors of both FCIC cards in each storage enclosure in the expansion rack being

installed, see Figure 97. Squeeze the top of the connector to release it. The cables will be reconnected in a later step.

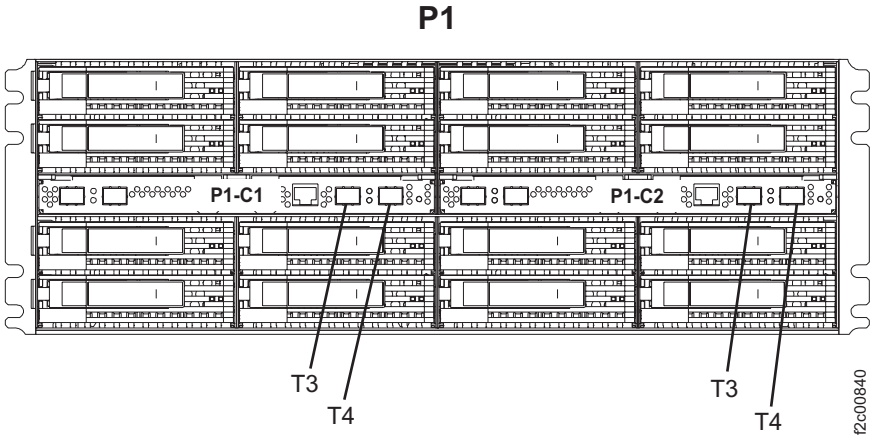


Figure 97. Storage enclosure connections

2. **You must disconnect** all blue FC-AL cables connected to the device adapter card connectors in the four I/O enclosures at the bottom of the expansion rack being installed. They will be reconnected in a later step.

   Refer to Figure 98 on page 141, the I/O enclosures are XI1, XI2, XI3, XI4.

   Figure 99 on page 141 shows the device adapter cards (T1, T2, T3, and T4) are in slot 3 or 6 of each I/O enclosure.

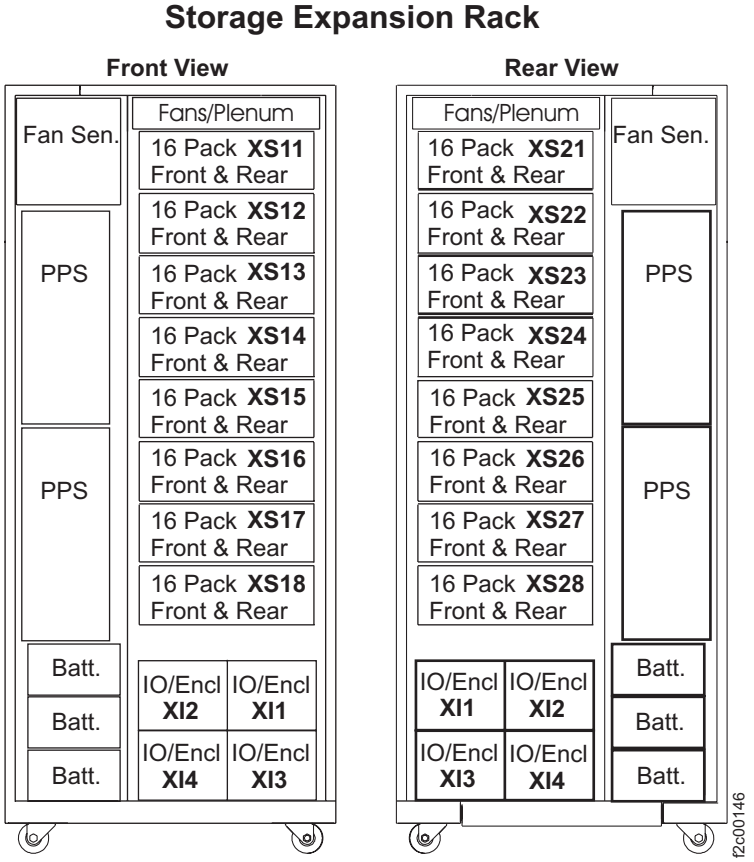


Figure 98. Storage expansion rack

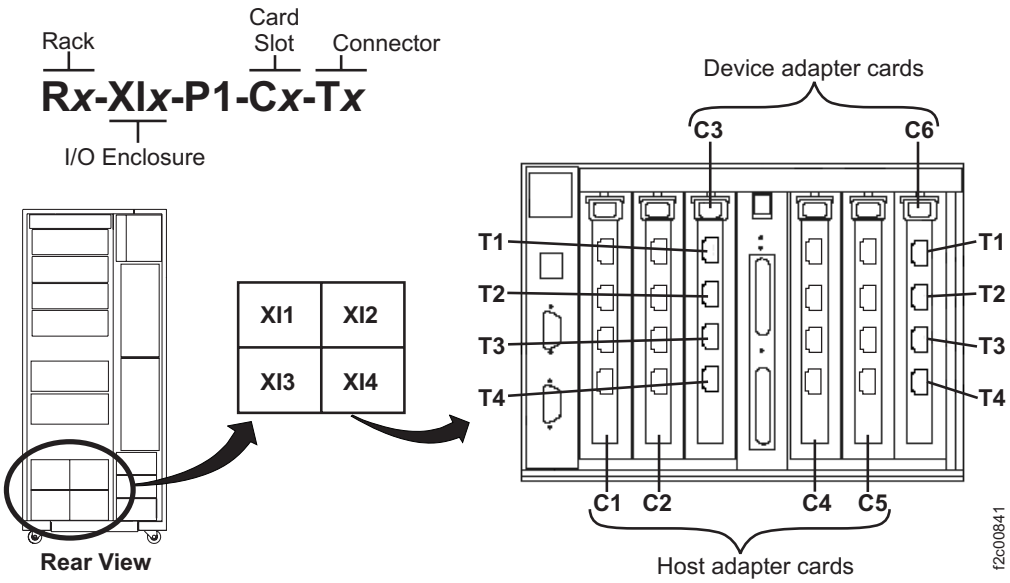


Figure 99. I/O enclosure locations (rear)

3. Continue with "Routing and connecting power control, RIO, and SPCN cables" on page 142.

Routing and connecting power control, RIO, and SPCN cables

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous.

To avoid shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet. Ensure outlet supplies proper voltage and phase rotation according to the system rating plate.**
- **Connect any equipment that will be attached to this product to properly wired outlets.**
- **When possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
- **Connect and disconnect cables as described below when installing, moving, or opening covers on this product or attached devices.**

To disconnect:

1. **Turn everything OFF (unless instructed otherwise).**
2. **Remove power cords from the outlet.**
3. **Remove signal cables from connectors.**
4. **Remove all cables from devices.**

To connect:

1. **Turn everything OFF (unless instructed otherwise).**
2. **Attach all cables to devices.**
3. **Attach signal cables to connectors.**
4. **Attach power cords to outlet.**
5. **Turn device ON.**

(D005)

1. There are two versions of the Air baffle, determine which one you have:
   - Early version - one piece of sheet metal that must be removed before the 208VDC bus bar gate to the right of the baffle can be swung to the open position. Go to the next step.
   - Later version - sheet metal with a flexible plastic cutout at the right rear (see **3** in the figure that follows). The plastic cutout bends out of the way when the 208VDC bus bar gate is swung open. Go to step 3 on page 143.
2. Remove the two screws **1** and take out the Air baffle **2**. Retain the parts for later re-installation.

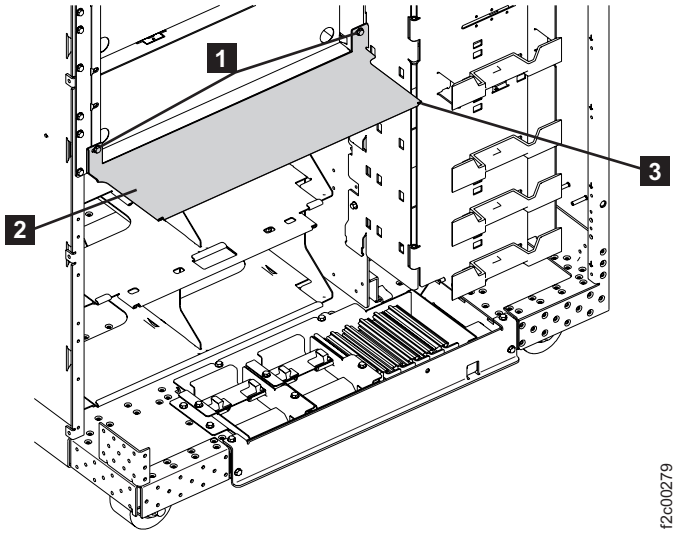


Figure 100. Air baffle

3. Remove the two screws **1** and pivot the 208VDC bus bar gate to the service position **2**, as shown in Figure 101.

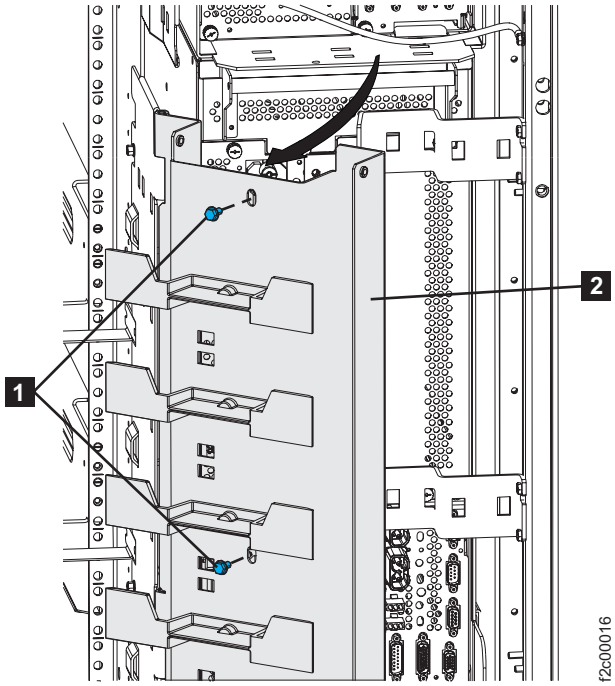


Figure 101. 208VDC bus bar gate service position

4. Remove the tailgate frame bracket. Remove two screws **2** as shown in Figure 102 on page 144. Loosen but do not remove the two top screws **1**. Slide the bracket out.

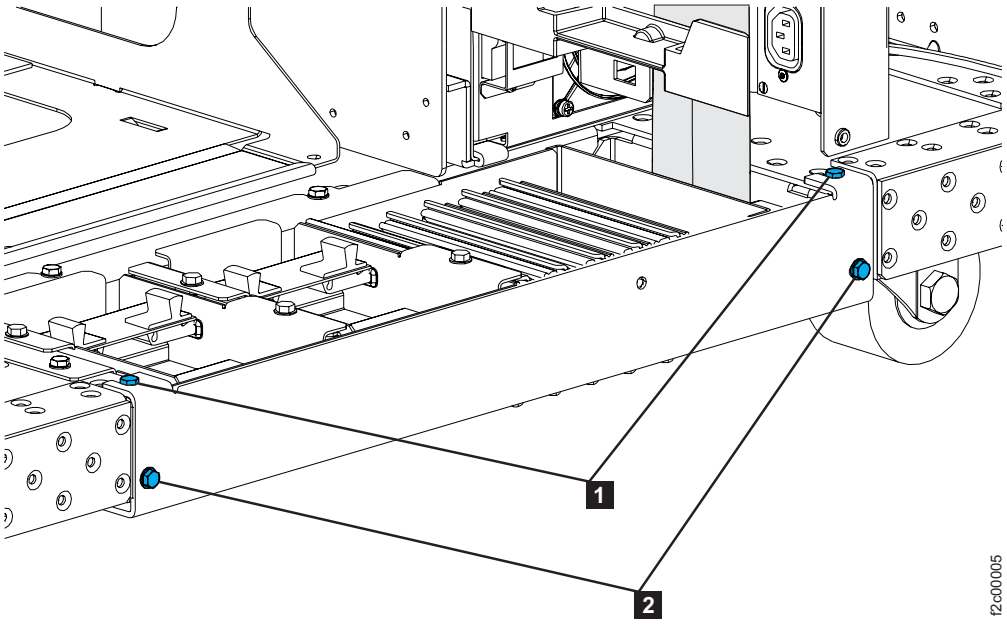


Figure 102. Tailgate frame bracket

5. Locate the two power control cables that are coiled in the top right rear of the expansion rack.
6. Route but do not connect the expansion rack power control cables to the RPC cards.
   a. Route the power control cables through the hole at the top rear right side to the RPC cards in Rack-1.

      If this rack is *not* Rack-2, the cables will need to be routed through all the intermediate racks between this one and Rack 1.

      Note: On early production racks, the cables may be labeled with "Base Rack". On later production racks, they will be labeled with"Rack 1".
7. Connect the power control cables into the RPC connector as indicated in Table 54 and Figure 103 on page 145.

   Note: On some early production storage expansion racks, the cables were labeled "RPC-0" and "RPC-1".

   The cable labeled "RPC-0" must be connected to RPC1.

   The cable labeled "RPC-1" must be connected to RPC2.

   Important: Do not cross the cables between the RPC cards. This could result in an unscheduled power drop during repair activities. If the RPC number labeling is not clear, trace the cables back to the PPS.
   - The cable to RPC1 originates from connector J1 on both PPSs.
   - The cable to RPC2 originates from connector J2 on both PPSs.
   - Some cables are color coded. Later versions may have a gray label for RPC1 and a yellow label for RPC2.

Table 54. Rack numbers and RPC connector locations

Rack Number being installed	2	3	4	5	6	7
RPC 1 and RPC 2 connector	J203	J205	J207	J209	J211	J213

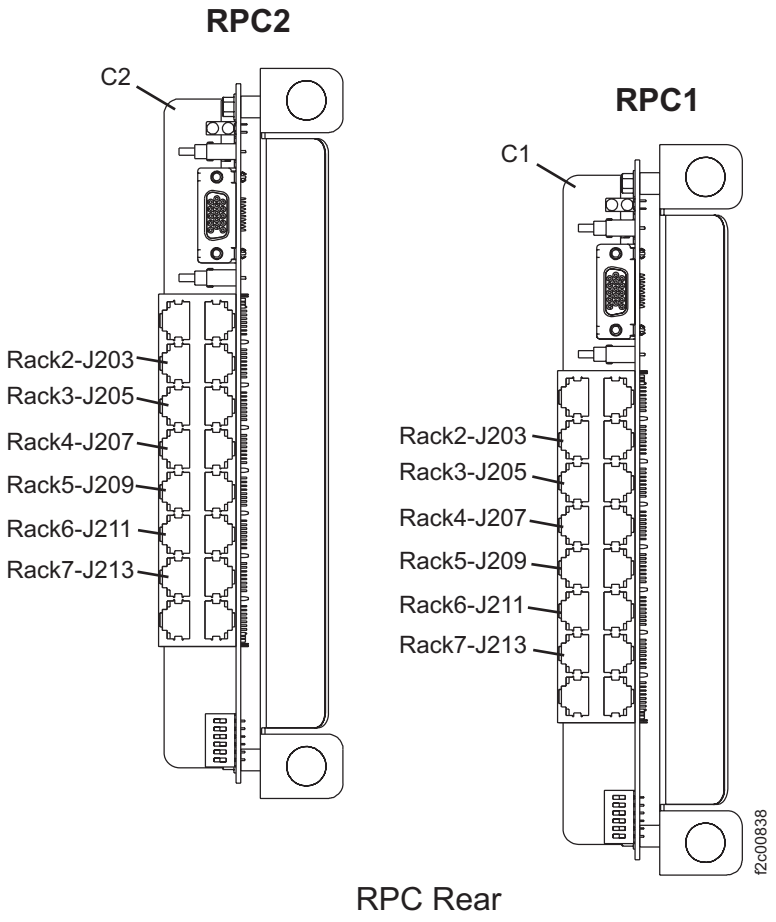


Figure 103. RPC card locations

8. Prepare the tailgate in the new and existing racks.
   a. For the earlier version of the tailgate design, remove the cable retention clamps **3** , as appropriate. Do this by removing the screws **1** from the underside and releasing the retention pins **2** . See Figure 104 on page 146.

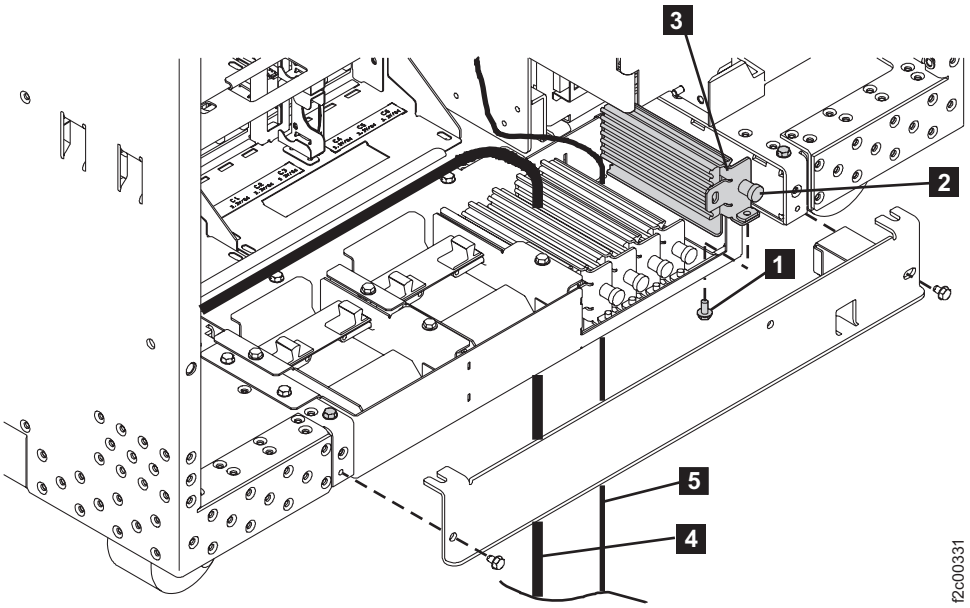


Figure 104. RIO & SPCN cable (remove or install)

b. For the later version tailgate design (4 cable slots to the left and 2 cable slots to the right), no additional preparation is needed.

9. This step shows an overview of the rack to rack routing of the RIO and SPCN cables. Do not route or connect the cables until directed in later steps.

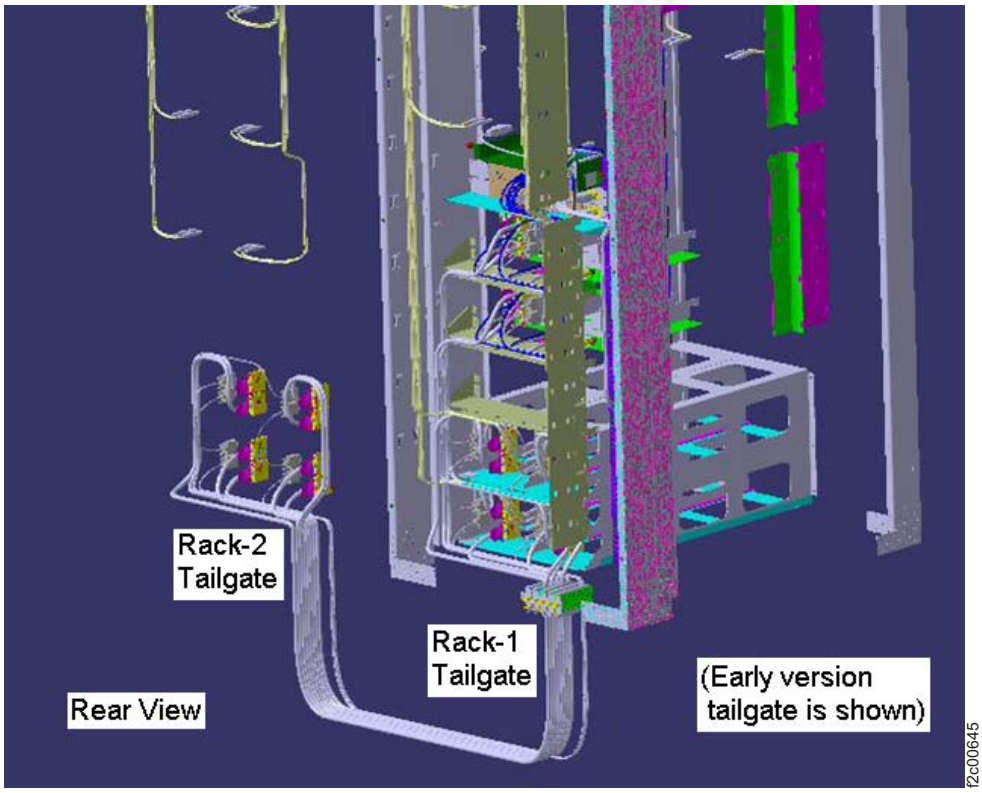


Figure 105. Mechanical routing of the RIO and SPCN cables (rack-to-rack)

- On a raised floor, the cables are routed down through the tile cutouts and underneath the floor.
- On a non-raised floor, the cables are routed beneath the racks.

10. Locate the thick black RIO cables that will be coiled near the tailgate and uncoil them. Locate the destination labels that are attached to the cables and identify which rack and I/O enclosure the cables need to be routed to. Refer to Figure 106.

    Note: On early production racks the cables may be labeled with "Base Rack" or "Expansion Rack". On later production racks they will be labeled with the Rack number.

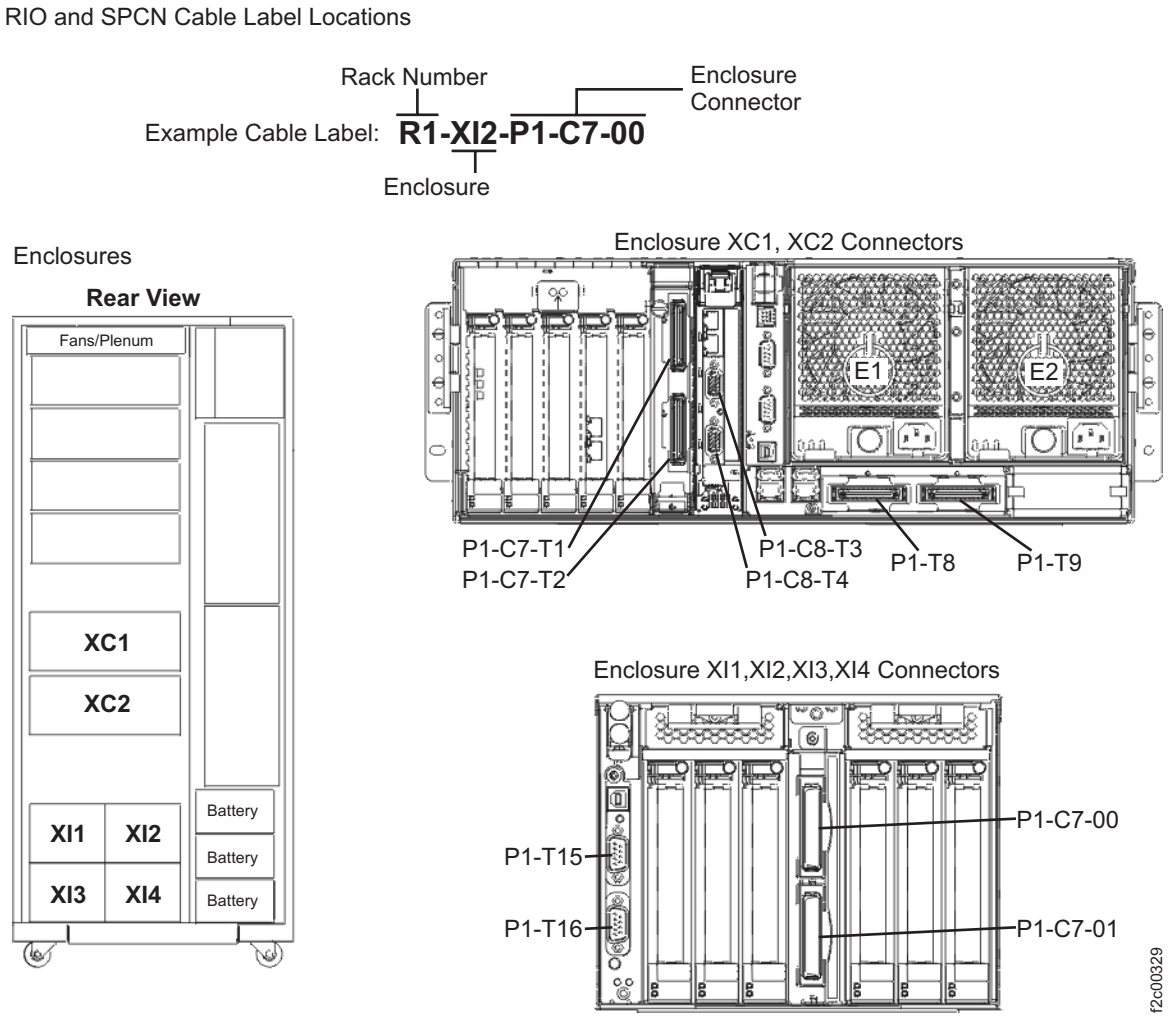


Figure 106. RIO and SPCN cable label locations

11. Route the RIO cables, but do not connect them.

    For cable routing inside of the rack, see Figure 107 on page 148.

    a. If you have the earlier version of the tailgate (all 5 cable slots to right of the tailgate), route all RIO cables through slot 3. See Figure 107 on page 148.

    b. If you have the later version of the tailgate (4 cable slots to the left and 2 cable slots to the right), route the RIO cables as follows:

1) Route the RIO cables for the left side of the rack through the tailgate slot 1. See Figure 108 on page 149
2) Route the RIO cables for the right side of the rack through the tailgate slot 6. See Figure 108 on page 149.

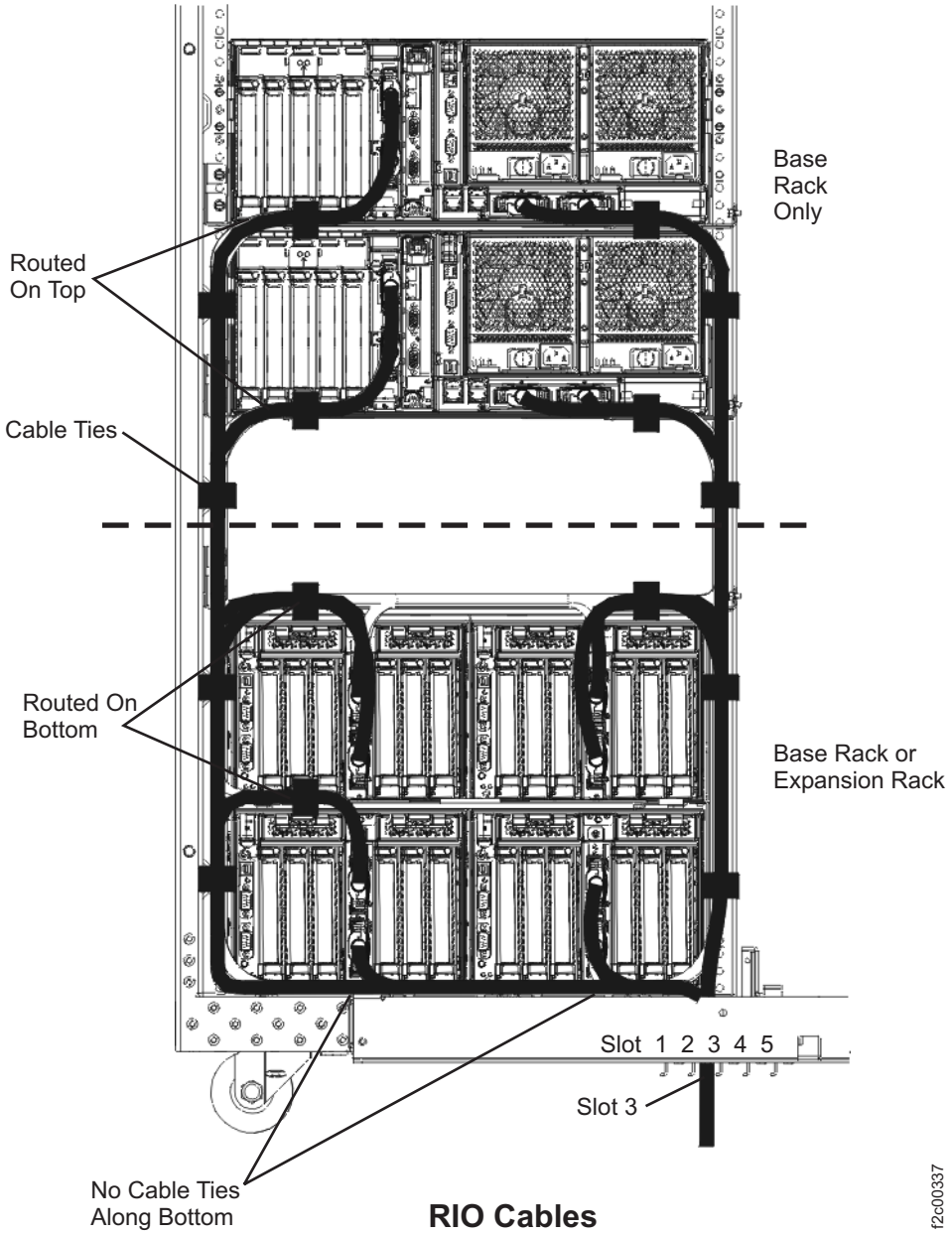


Figure 107. RIO cable routing (early version tailgate)

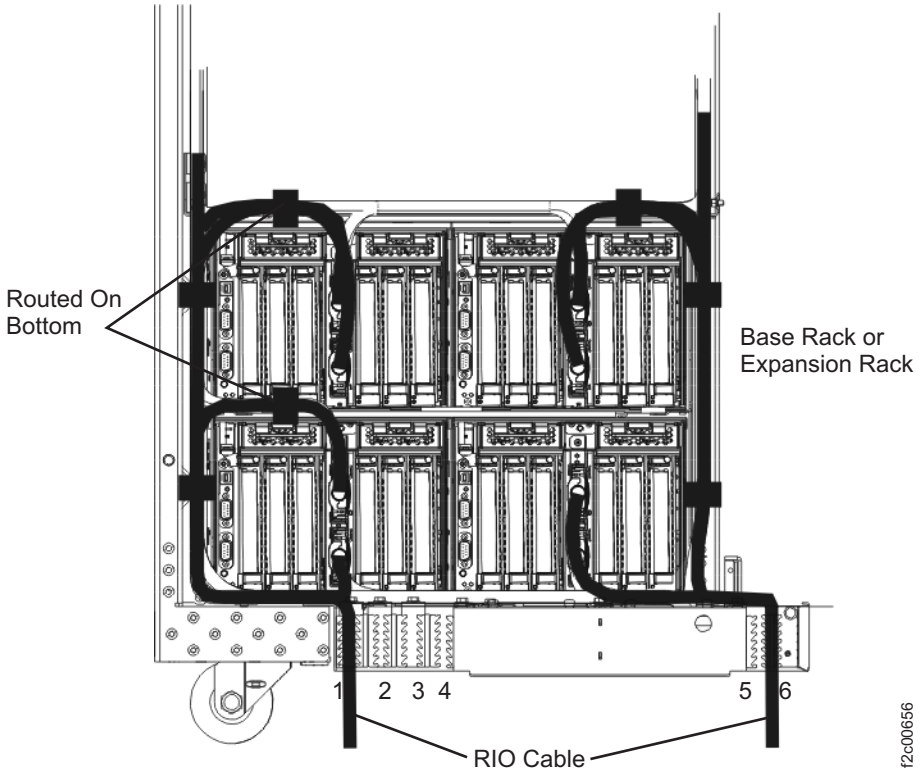


Figure 108. RIO cable routing through the tailgate (later version tailgate)

12. Locate the thin brown SPCN cables that will be coiled near the tailgate and uncoil them. Locate the destination labels that are attached to the cables and identify to which rack and I/O enclosure the cables need to be routed.

    Note: On early production racks the cables may be labeled with "Base Rack" or "Expansion Rack". On later production racks they will be labeled with the Rack number.

13. Route the SPCN cables, but do not connect them.

    For cable routing inside of the rack, see Figure 109 on page 150.

    a. If you have the earlier version of the tailgate (all five cable slots on the right end of the tailgate), route all of the SPCN cables through the tailgate slot 5. See Figure 109 on page 150.

    b. If you have the later version of the tailgate (four cable slots on the left and two cable slots on the right), route the SPCN cables as follows:

        1) Route the SPCN cables for the left side of the rack through the tailgate slot 2. See Figure 110 on page 151.

        2) Route the SPCN cables for the right side of the rack through the tailgate slot 5. See Figure 110 on page 151

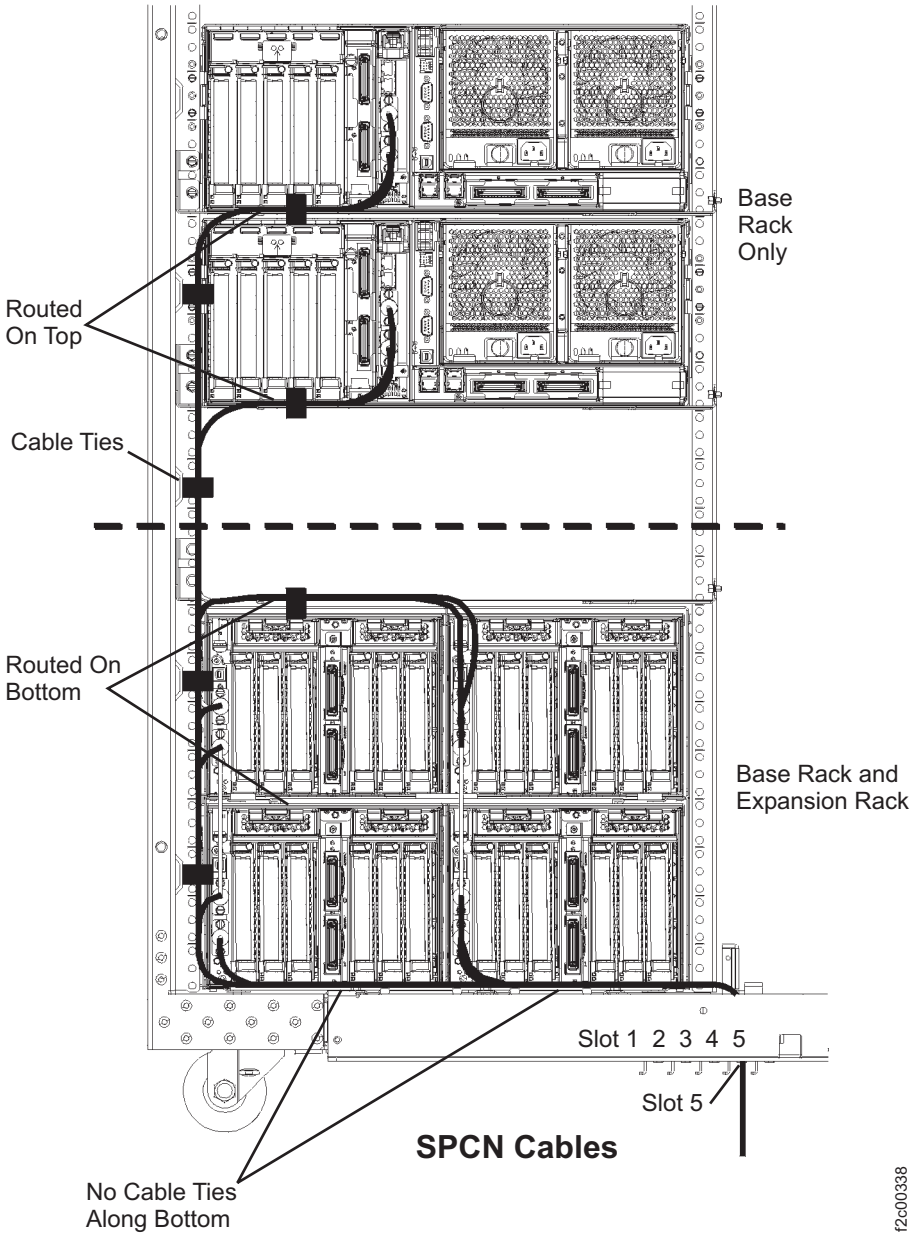


Figure 109. SPCN cable routing (early version of tailgate)

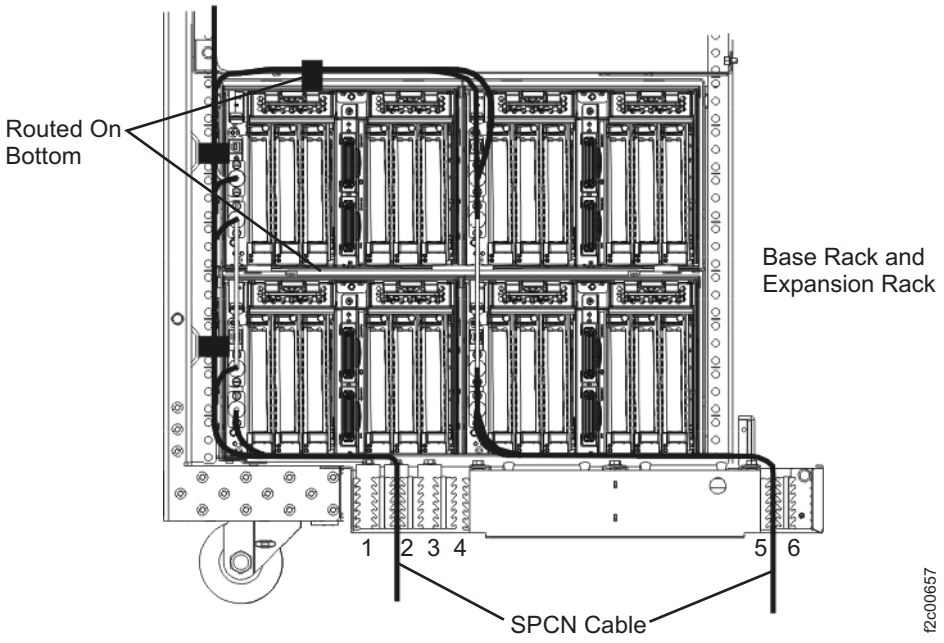


Figure 110. SPCN cable routing through the tailgate (later version tailgate)

14. This step has you connect each expansion rack RIO and SPCN cable to the connector location specified on the destination label. The cables will be connected one at a time to ensure they are not cross connected.
    a. Read the destination label on the expansion rack cable that will be connected.
    b. Use Figure 106 on page 147 to find the location that the expansion rack cable will be connected to.
    c. Read the destination label on the existing cable that will be disconnected so the expansion rack cable can be connected in its place.
    d. Ensure that the destination label location code on the existing cable and the expansion rack cable are the same.
    e. Unfasten the cable retention straps and disconnect the existing cable from the connector.

       Note: To disconnect a RIO cable, gently push in on the RIO cable, then gently pull the blue release handle towards you, and then pull the cable connector free of the sheet metal guide bracket.
    f. Connect the expansion rack cable.
    g. Repeat the previous steps for *each* RIO and SPCN cable.

       After all cables have been connected, continue with the next step.
    h. Both ends of each cable were disconnected in the previous steps. You must now remove those cables and store them above the I/O enclosures in the base rack. The cables can also be stored in the document enclosure at the front upper left of the rack. The cables will be reinstalled if the expansion rack is ever removed.
    i. Fasten the cable retention straps.
15. Reinstall the tailgate cable retention clamps to secure the RIO and SPCN cables in the tailgate.
16. Continue with "Installing the interrack decorative covers kit" on page 152.

Installing the interrack decorative covers kit

1. Locate the interrack decorative covers kit. It contains two side interrack covers and one top interrack cover. There are two versions of the interrack decorative covers kit.
   - Early version - the covers are packaged in a long narrow cardboard box normally taped to the expansion rack. The side interrack covers are one piece. Go to step 3.
   - Later version - the covers are packaged in the large ship group box. Each side interrack cover is in two pieces that are hinged together. Go to the next step.
2. Assemble each of the side interrack covers as follows:
   a. Open the hinged side interrack cover **1** so that it is straight. See the following figure.
   b. Loosen the two nuts **2** on the threaded studs next to the hinge points.
   c. Slide the plate **3** so that it engages both studs.
   d. Tighten both nuts.

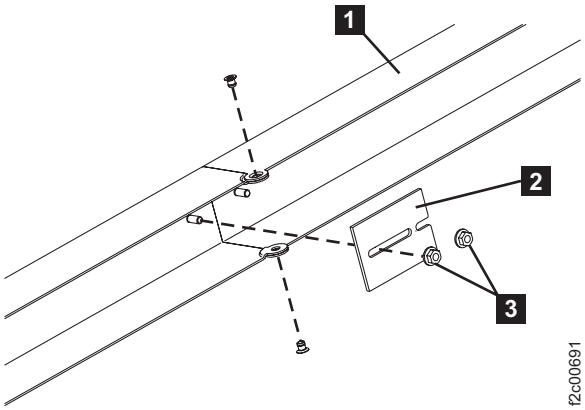


Figure 111. Assembling the later version of the interrack decorative side covers

3. Install each of the two interrack side covers **1** by pushing the cover into place over the interrack spacing studs. Take care not to interfere with any interrack cables. See Figure 112 on page 153.
4. Install the top interrack cover **2** by pressing it down squarely. The spring clips should hold the cover in place. See Figure 112 on page 153.

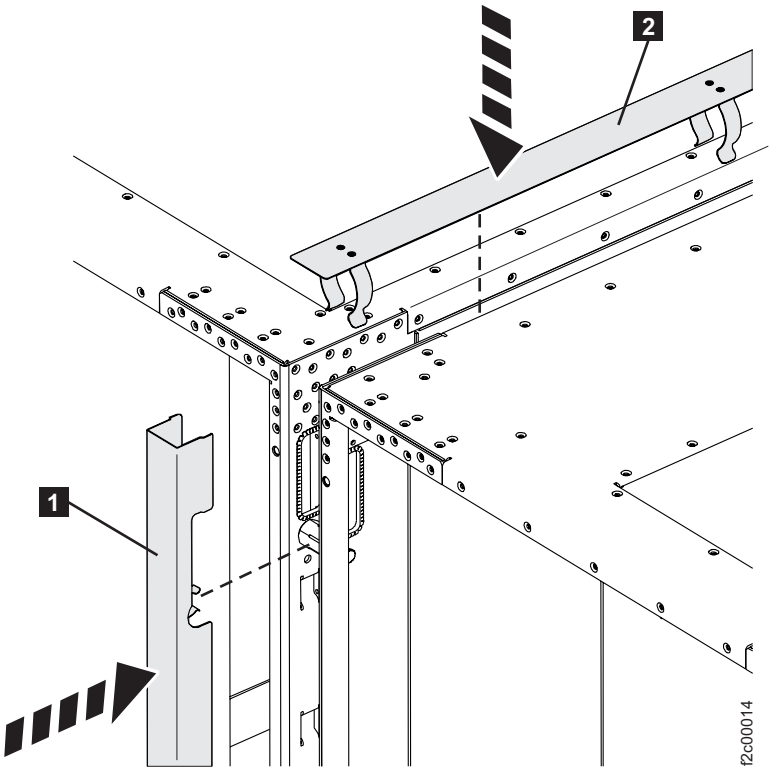


Figure 112. Installing the interrack decorative covers

5. Continue with "Performing the power and safety checks."

Performing the power and safety checks

Preparing to check DS8000 and customer power

DANGER

Lethal voltages are present in this area of the machine.

You will need the following tools to perform the power safety checks:

- For resistance checks, IBM analog ohmmeter P/N 00P7029 (Mastech Model 7040).
- For voltage checks, IBM digital multimeter P/N 8496278 (Fluke Model 179).
- For probing, high voltage test probe tips P/N 43L0951.

Note: Use listed P/N or equivalent approved by IBM.

Steps

1. Read the Danger notice and requirements above.
2. Continue with "Routing the mainline power cables."

Routing the mainline power cables

1. Uncoil the mainline power cables from the ship group.

2. The mainline power cable that connects to PPS-1 (upper) is longer than the mainline power cable that connects to PPS-2 (lower). Use the cable label and part number (P/N) to identify the longer cable.

Table 55. Cable label and part number

Feature Code	P/N of shorter cable	P/N of longer cable
1090 - 3 phase 60A non EMEA	22R1190	22R2222
1091 - 3 phase 60A EMEA	22R3794	22R3795
1092 - 3 phase 60A Japan	22R1191	22R2224
1093 - 3 phase 60A Chicago	22R1188	22R1189

3. Ensure the 208VDC bus bar gate **4** is in the open position. Refer to Figure 113 on page 155.
4. Route and connect the mainline power cables. Refer to Figure 113 on page 155 to complete the following steps:
   a. Route the longer mainline power cable up through the tailgate as shown and connect it to PPS-1 (upper).
   b. Route the cable in between the 5/12V DDM "Y " power cables that connect the PPS-2 (lower) to the 5/12V bus bars as shown.

      Note: To make this easier, you can temporarily disconnect the right most connectors of the "Y" cables by removing the 4 screws **2** and moving the power cable **1** out of the way. The screws are not captive, so do not let them fall when they are removed.
   c. Use a "hook and loop" fastener cable tie to fasten the upper cable to the bracket **3** .
   d. Route the shorter mainline power cable up through the tailgate as shown and connect it to PPS-2 (lower).

   Notes:
   - If this is on a raised floor, route the cables down through the floor cutout and near the customer power connectors.
   - If this is not on a raised floor, route the cables underneath the frame behind the rear caster so they exit to the side. The cables must not exit the rack in the front or rear service areas.

   CAUTION:
   Do not connect the mainline power cables to customer power until instructed to do so.

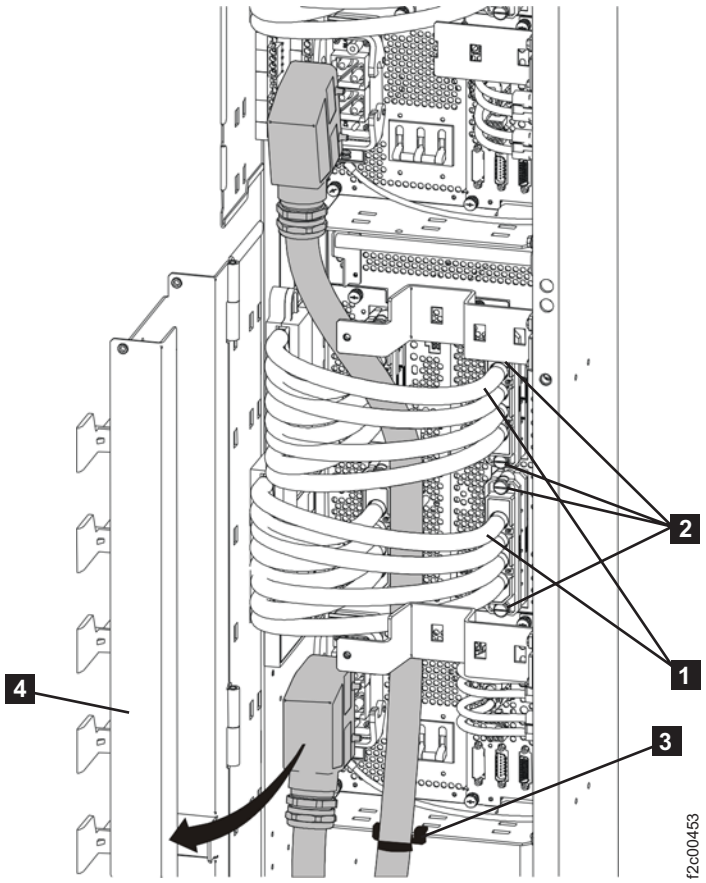


Figure 113. Routing the mainline power cables

Determining mainline power cable type (plug in or wired)

1. Locate the customer end of the mainline power cables from all the DS8000 frames that you are installing.
2. Determine if the customer end of the mainline power cables are for plug- in or wired installations.
   - Plug-in: The mainline power cable has a plug at both ends. Go to "Checking customer power for a plug-in mainline power cable."
   - Wired: The mainline power cable has a plug at one end and loose wires at the other end. Go to "Checking customer power for a ″wired″ mainline power cable" on page 159.

Checking customer power for a plug-in mainline power cable

Repeat the following sections for both mainline power cables in each rack being installed.

Checking power system ground continuity and voltage (plug in)

Attention: Use an IBM-approved analog multimeter. Do not use a digital meter.

1. Switch off the customer circuit breaker that supplies AC voltage to the mainline power cables.

CAUTION:
Do not connect the mainline power cables until instructed to do so.

2. **Attention:** Attach a "Do Not Operate" tag (S229-0237) and the safety lockout padlock to each customer circuit breaker that was switched off.
3. Verify the MAIN LINE circuit breaker **1** (CB00) on the rear of each primary power supply is set to Off (down). Refer to Figure 114.

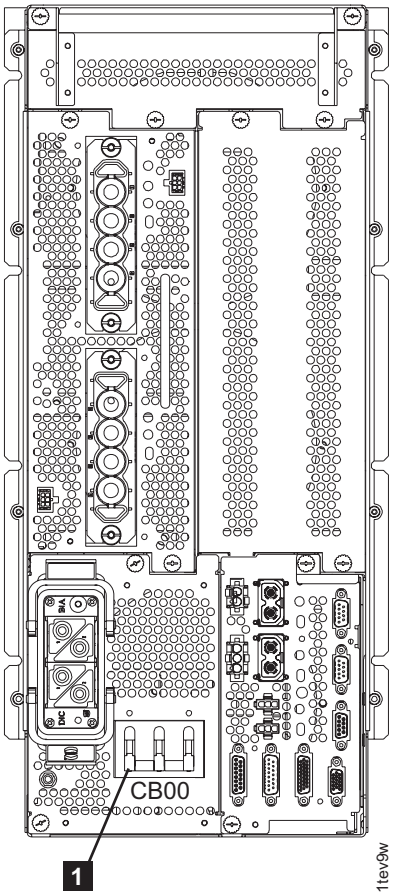


Figure 114. Rear view of PPS showing CB00

4. Verify the DS8000 mainline power cables are not connected to the customer power.
5. Prepare the multimeter to measure 0.1 ohm or less resistance. Place one lead of the multimeter on the ground pin of the male plug on the mainline power cable. Place the other lead on the conductive metal of its primary power supply enclosure. Refer to Figure 115 on page 157 for the location of the ground pin. Do this for each mainline power cable.

   Is there more than 0.1 ohm of resistance?

   - Yes, go to MAP2330 Repair rack ground continuity. To display the MAP, open the service Information Center on the management console, then open the **Isolation MAPs and Symbolic FRU procedures** section to locate the MAP.
   - No, go to "Checking customer receptacle ground pin continuity with customer CB off (plug-in)" on page 157.

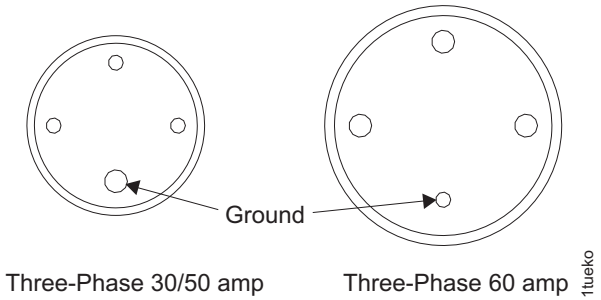


Figure 115. Three-phase amp

Checking customer receptacle ground pin continuity with customer CB off (plug-in)

1. Prepare the multimeter to measure 1.0 V ac or less. Measure the voltage at the customer's AC power outlet between the ground pin and the building ground.

   Is the voltage less than 1.0 V ac?

   - Yes, go to step 3.
   - No, continue with the following step.
2. Voltage is present at a customer outlet with the customer circuit breakers off.

   DANGER

   Inform the customer that, even though the circuit breaker is off, voltage higher than 1.0 V ac is measured at the failing customer voltage outlet pins. Do not continue until the voltage is less than 1.0 V ac. (1003)

3. Prepare the multimeter to measure 1.0 ohm or less of resistance.
4. Measure the resistance between the customer AC power outlet ground pin and the building ground. Refer to Figure 116 for the location of the ground pin.

   Is the resistance 1.0 ohm or less?

   - Yes, continue with "Checking customer receptacle voltage pins with customer CB off (plug in)" on page 158.
   - No, inform the customer. **Do not continue until the resistance is 1.0 ohm or less.**

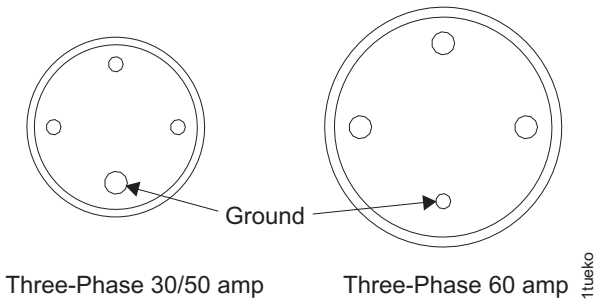


Figure 116. Three-phase amp

Checking customer receptacle voltage pins with customer CB off (plug in)

Prepare the multimeter to measure 1.0 V ac or less. Measure the voltage between each pair of voltage pins (**A**, **B**, and **C**) on the customer outlet. Also, measure the voltage between each voltage pin and ground pin on the customer outlet. Did any voltage measure more than 1.0 V ac? Refer to Figure 117 for the location of the voltage pins.

- Yes, inform the customer that one or more voltage pins on the customer receptacle measured greater than 1.0 V ac even though the circuit breaker is off. **Do not continue until the voltage is less than 1.0 V ac.**
- No, continue with the next task, "Checking customer receptacle voltage pins with customer CB on (plug in)."

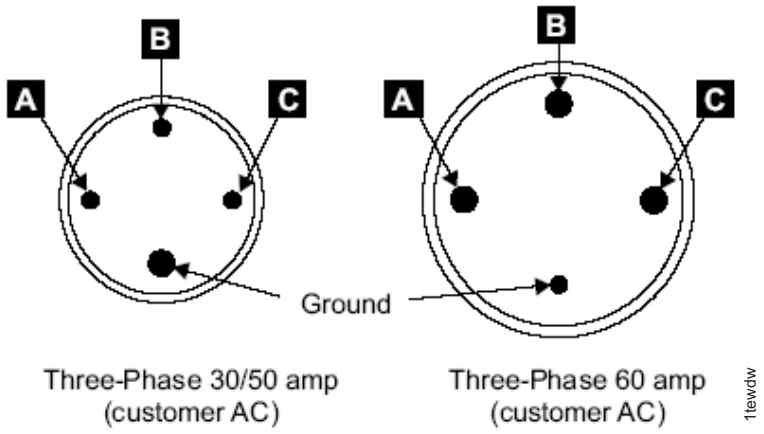


Figure 117. Measuring voltage between each pair of pins

Checking customer receptacle voltage pins with customer CB on (plug in)

1. Remove the "Do Not Operate" tag and the lockout padlock from each customer mainline AC voltage circuit breaker and then switch on the customer circuit breaker.
2. Prepare the multimeter to read line voltage AC.

   DANGER

   Dangerous voltages may be present. Do not touch the internal parts (pins and connectors) of the customer receptacle.

3. Measure the voltage between the ground pin and each voltage pin (**A** , **B** , and **C**) on the customer outlet. Refer to Figure 118 on page 159 for the location of the voltage pins.

   Are the voltages within 10% of each other?

   - Yes, continue with the next step.
   - No, inform the customer that the voltages are not correct. **Do not continue until the voltages are correct.**
4. Locate the DS8000 information label located near the top of the left side panel at the rear of the storage facility. Measure the voltage between each pair of voltage pins (**A** to **B** , **B** to **C** , and **C** to **A**) on the customer outlet.

Refer to Figure 118 for the location of the voltage pins. Verify that the customer AC input voltage that you just measured matches the machine input voltage information on the label.

Do the voltages correspond with the label?

- Yes, continue with "Connecting the mainline power cables on the racks (plug in)."
- No, **do not continue with the installation**. Contact the marketing representative to confirm that the DS8000 was ordered with the correct power input feature.

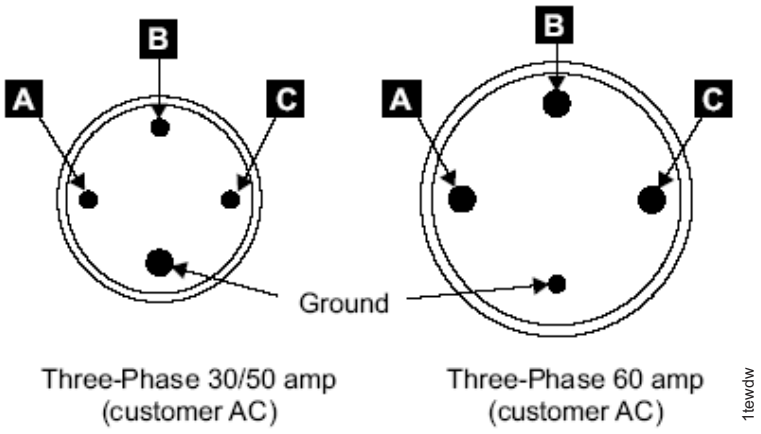


Figure 118. Measuring voltage between each pair of pins

Connecting the mainline power cables on the racks (plug in)

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (D004)

1. Switch the customer circuit breaker to Off for the mainline power cables.

   Attention: Attach a "Do Not Operate" tag (S229-0237) and the safety lockout padlock to each circuit breaker.
2. Verify the mainline circuit breaker (CB00) on the rear of each primary power supply is set to Off (down).
3. Connect each storage facility mainline power cable plug to the customer AC outlet.
4. Continue with "Checking the expansion rack switch settings" on page 164.

Checking customer power for a ″wired″ mainline power cable

Use the following power sections to check the customer's power for a wired mainline power cable.

Checking power system ground continuity and voltage (wired)

Attention: Use an IBM-approved analog multimeter. Do not use a digital meter.

1. Switch off the customer circuit breaker that supplies the AC voltage to the mainline power cables.

   CAUTION:
   Do not connect the mainline power cables until instructed to do so.
2. **Attention:** Attach a "Do Not Operate" tag (S229-0237) and the safety lockout padlock to each customer circuit breaker that was switched off. Refer to the *Electrical Safety for IBM Customer Engineers*.
3. Verify the MAIN LINE circuit breaker **1** (CB00) on the rear of each primary power supply is set to Off (down). Refer to Figure 119.

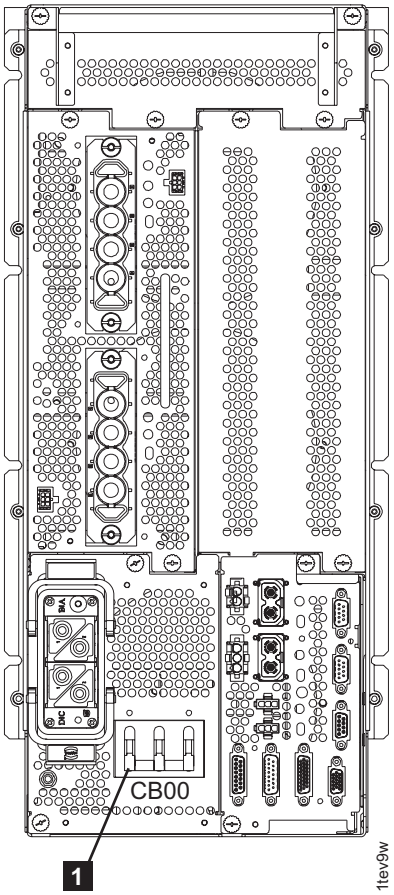


Figure 119. Rear view of PPS showing CB00

4. Verify the DS8000 mainline power cables are not connected to the customer power.
5. Connect the DS8000 mainline power cable to each primary power supply (PPS) input power connector.

   Note: Ensure that you connect the long mainline power cord to the upper primary supply and the short mainline power cord to the lower primary supply.
6. Prepare the multimeter to measure 0.1 ohm or less resistance. Place one lead of the multimeter on the green and yellow wire at the customer end of each mainline power cable. Place the other lead on the conductive metal of each PPS enclosure. Refer to Figure 120 on page 161.

   Is there more than 0.1 ohm of resistance?

- Yes, go to "MAP2330 Repair rack ground continuity" on page 618.
- No, continue with the next step.

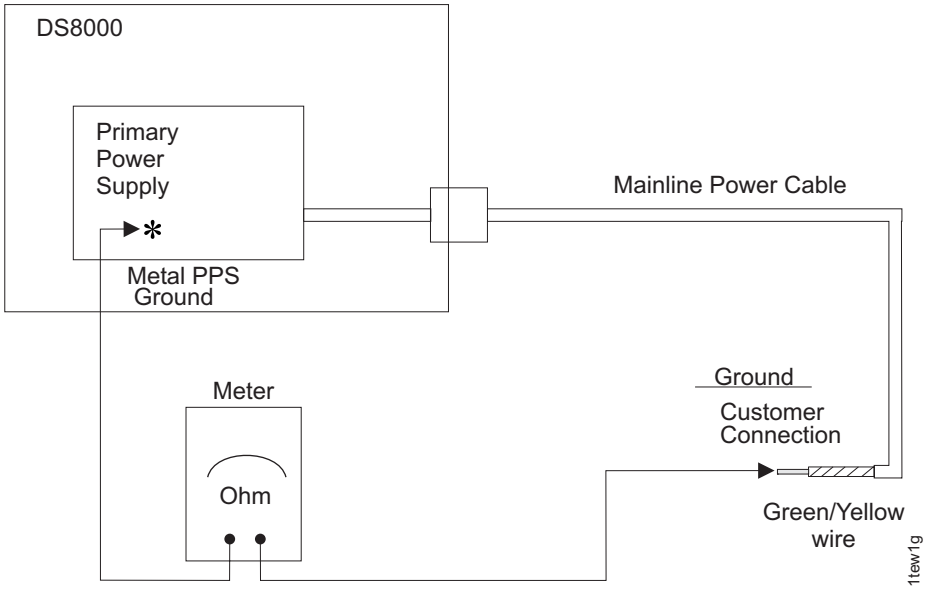


Figure 120. Prepare multimeter to measure ohm resistance

7. Disconnect the DS8000 mainline power cables from each PPS input power connector.
8. Instruct the customer to call a licensed electrician to connect each wired mainline power cable to the customer mainline power source.

   Attention: For EMEA installations, provide the following information to the electrician.

   EMEA Electrician Information

   The mainline power cord of this machine must be connected to the customer's mainline power source by a licensed electrician. The mainline power cable cannot be modified in any way.

   - For 3-phase machines:

     This machine must be connected to a 3-phase AC power. The mainline power cable is a four-conductor cable with the following color code:

     – L1 (phase 1) = black
     – L2 (phase 2) = blue
     – L3 (phase 3) = brown
     – PE (ground) = green/yellow

   Note: The connection to the AC power must be made without neutral, the blue wire must be used as a phase.
9. Continue with "Checking customer ground continuity with customer CB off (wired)."

Checking customer ground continuity with customer CB off (wired)

1. Prepare the multimeter to measure 1.0 V ac or less. Measure the voltage on the female ground pin on each mainline power cable and building ground. Refer to Figure 121 on page 162.

Is the voltage less than 1.0 V ac?

- Yes, go to step 3.
- No, continue at the following step.

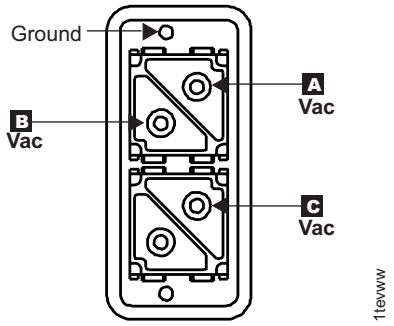


Figure 121. Mainline power cable connector

2. Voltage is present at a customer outlet with the customer circuit breakers off.

   DANGER

   Inform the customer that even though the circuit breaker is off, voltage higher than 1.0 V ac is measured at the failing customer voltage outlet pins.

   Do not continue until the voltage is less than 1.0 V ac.

3. Prepare the multimeter to measure 1.0 ohm or less of resistance.
4. Measure the resistance between the female connector ground pin on each mainline power cable and the building ground.

   Is the resistance 1.0 ohm or less?

   - Yes, continue with "Checking customer voltage with customer CB off (wired)."
   - No, inform the customer. **Do not continue until the resistance is 1.0 ohm or less**.

Checking customer voltage with customer CB off (wired)

1. Prepare the multimeter to measure 1.0 V ac or less.
2. Measure the voltage between each pair of voltage pins on the female connector on each mainline power cable. Also, measure the voltage between each voltage pin (**A**, **B**, and **C**) and the ground pin on each mainline power cable. Refer to Figure 122 on page 163.

   Did any voltage measure more than 1.0 V ac?

   - Yes, inform the customer that one or more voltage pins on the customer supply measured greater than 1.0 V ac even though the circuit breaker is off. **Do not continue until the voltage is less than 1.0 V ac.**
   - No, continue with "Checking customer voltage with customer CB on (wired)" on page 163.

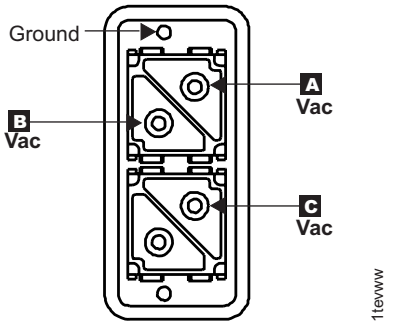


Figure 122. Mainline power cable connector

Checking customer voltage with customer CB on (wired)

1. Remove the "Do Not Operate" tag and the lockout padlock from each customer mainline AC voltage circuit breaker and then switch on the customer circuit breaker.
2. Prepare the multimeter to read line voltage AC.

   DANGER

   Dangerous voltages may be present. Do not touch the internal parts (pins and connectors) of the customer receptacle.

3. Measure the voltage between the ground pin and each voltage pin (**A** , **B** , and **C**) on each mainline power cable. Refer to Figure 123.

   Are the voltages within 10% of each other?

   - Yes, continue with the next step.
   - No, inform the customer that the voltages are not correct. **Do not continue until the voltages are correct.**

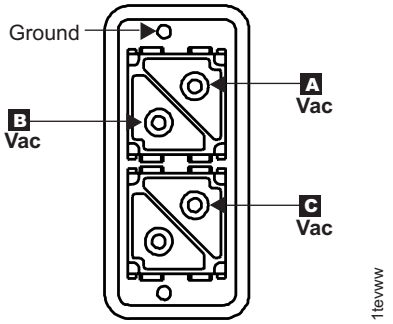


Figure 123. Mainline power cable connector

4. Locate the DS8000 information label located on the top of the left side panel at the rear of the storage facility. Measure the voltage between each pair of voltage pins (**A** to **B** , **B** to **C** , and **C** to **A**) on each mainline power cable. Refer to Figure 123. Verify that the customer AC input voltage that you just measured matches the machine input voltage information on the label.

   Does the voltage measured match the voltage on the DS8000 information label?

   - Yes, continue with "Connecting the mainline power cables on the racks (wired)" on page 164.

- No, **do not continue with the installation.** Contact the marketing representative to confirm that the DS8000 was ordered with the correct power input feature.

Connecting the mainline power cables on the racks (wired)

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (D004)

1. Switch the customer circuit breaker to Off for the mainline power cables.

   Attention: Attach a "Do Not Operate" tag (S229-0237) and the safety lockout padlock to each circuit breaker.
2. Verify the mainline circuit breaker (CB00) on the rear of each primary power supply is set to Off (down).
3. Connect each storage facility mainline power cable plug to the PPS then continue with "Checking the expansion rack switch settings."

Checking the expansion rack switch settings

1. Verify the setting of the following switches on each expansion rack. Each rack has:
   - One UEPO switch
   - Two PPSs
   - Zero to three battery enclosures

Table 56. Switch settings and locations for expansion racks

Switch	Setting	Location	Figure reference
Battery enclosure circuit breakers CB0 and CB1.	On (up)	On each battery assembly (rear of rack)	2 in Figure 124 on page 165
UEPO red switch	Off (down)	Rack operator panel (front of rack) **Note:** Press the recessed switch towards the bottom. It will appear flat when off.	n/a

Figure 124 on page 165 shows the rear view of the rack:

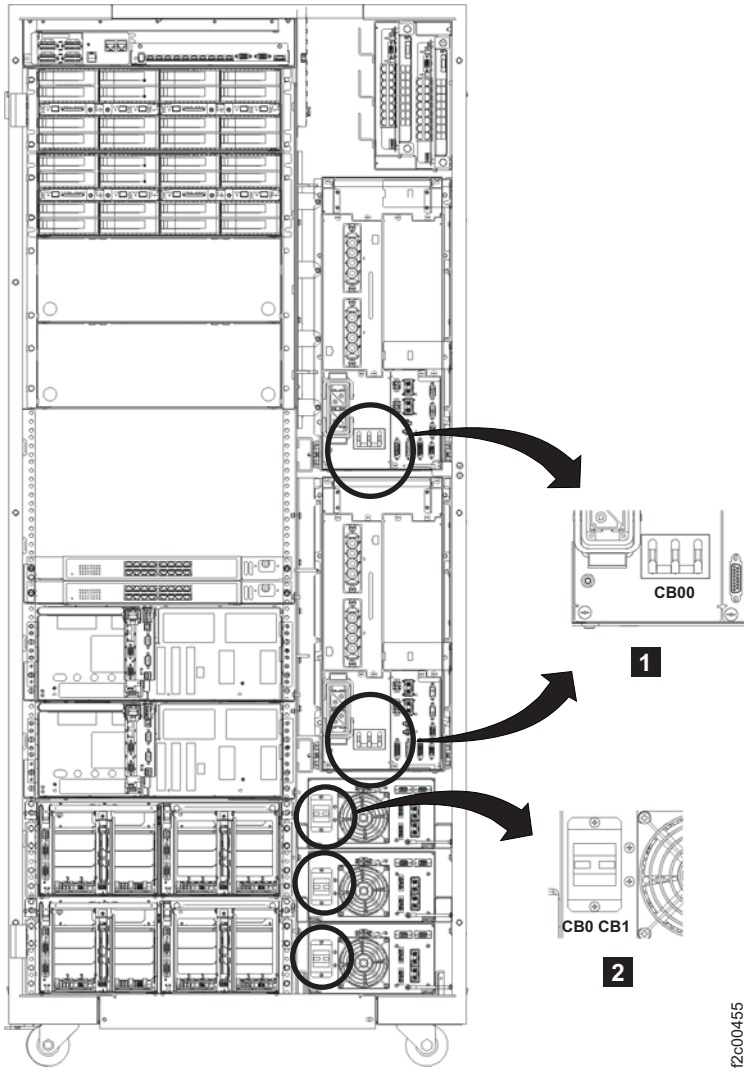


Figure 124. Rack rear view

2. Continue verifying the rack switch setting on the expansion rack.

Table 57. Switch settings and locations for expansion rack PPS sequencer module

Switch	Setting	Location	Figure reference
Primary power supply circuit breaker CB00	Off (down)	On each PPS, on the AC input power module (rear of rack)	1 in Figure 124
Primary power supply three sequencer module enable/disable switches	Enabled (up)	Three switches on each PPS (rear of rack)	1 in Figure 125 on page 166
Enable/disable switches on the PPS 5/12 V DDM power module	Enabled (up)	Two switches on each PPS (rear of rack)	1 in Figure 126 on page 167

Figure 125 on page 166 shows the enable disable switches for the primary power supply sequencer module.

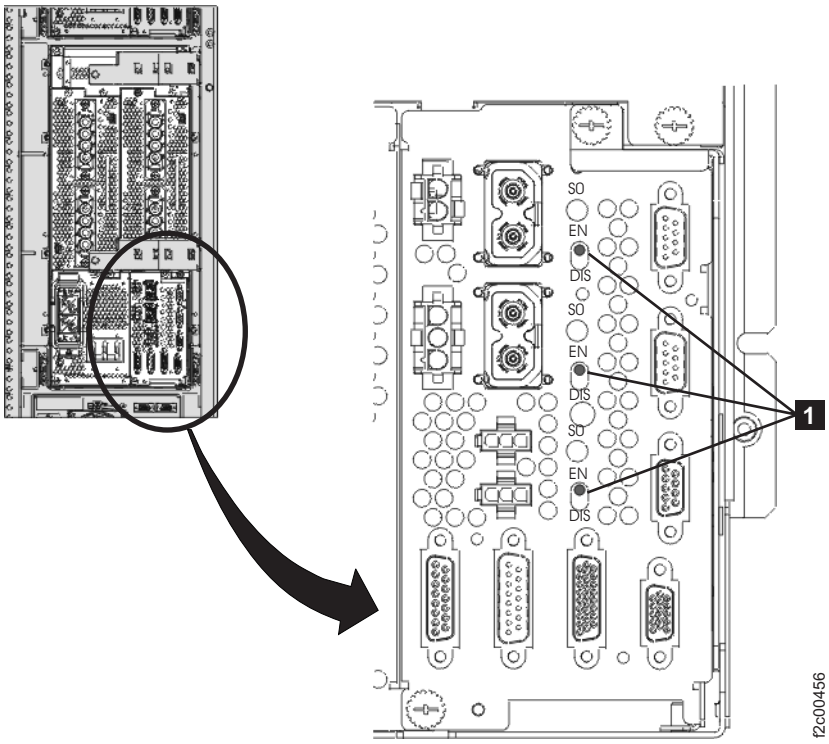


Figure 125. PPS sequencer module and LED enable/disable switch

Figure 126 on page 167 shows the enable disable switches for the primary power supply DDM.

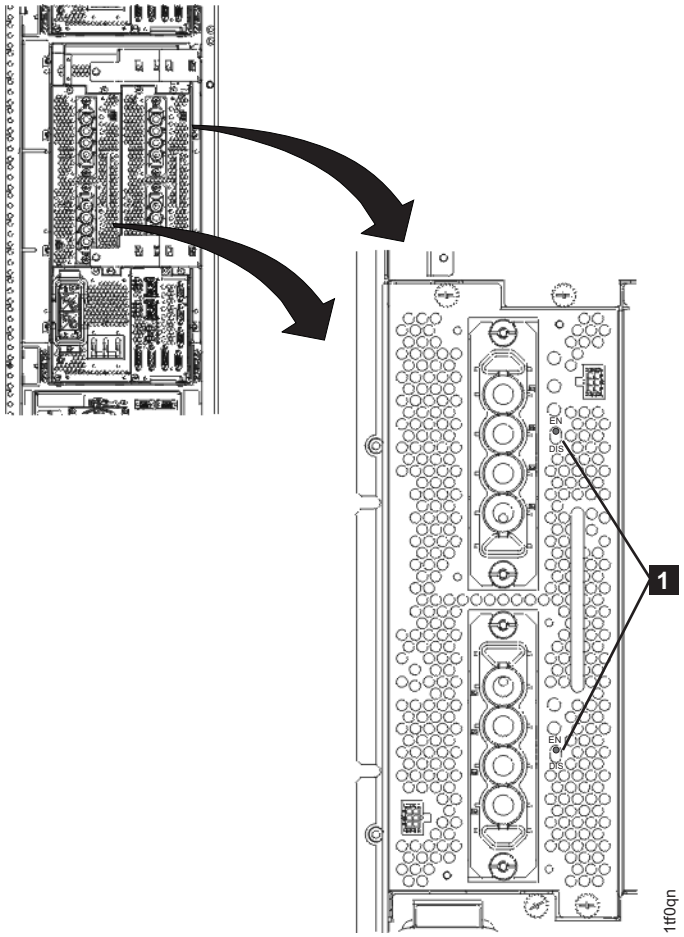


Figure 126. Enable/disable switches on a 5/12 V DDM power module (PPS)

3. Continue with "Checking the operation of the rack UEPO switch."

Checking the operation of the rack UEPO switch

1. Remove the "Do Not Operate" tag and the lockout padlock from each customer mainline AC voltage circuit breaker that supplies power to the rack that you are installing.
2. Switch on each customer circuit breaker.
3. Switch the MAINLINE CB00, on the rear of each primary power supply to On (up).
4. Observe the six vertical LED indicators at the front of each primary power supply (to the left of the fans).

   Use Table 58 to find the condition that applies.

   Note: The Rack-1 UEPO switch must be in the On position.

Table 58. LED indicators when MAINLINE CB00 is on

AC INPUT GOOD	UEPO LOOP GOOD	PPS Display Panel	Action
On	Off	Ignore	Normal condition, continue with the next step

Table 58. LED indicators when MAINLINE CB00 is on (continued)

AC INPUT GOOD	UEPO LOOP GOOD	PPS Display Panel	Action
On	On	Ignore	UEPO fault, go to MAP21F0 UEPO loop good LED should be off
Off	Off	Ignore	Input power fault, go to MAP2050 Loss of AC Input to a single primary power supply. **Note:** If both PPSs are failing, then repeat the customer voltage checks done previously.

5. In the rack being installed, push a thin paper clip through the small hole in the operator panel to reset the UEPO red switch to the On (up) position.

   Note: The expansion rack will automatically begin to power on.

   Use Table 59 to find the condition that applies.

Table 59. LED indicators when UEPO switch is on

AC INPUT GOOD	UEPO LOOP GOOD	PPS Display Panel	Action
On	On	Blank, U0 or XC **Note:** Some levels of PPS firmware will cause an XC error code to be displayed. This is a false error. The condition will remain until the DDM power supply is turned on in a later step. No action is required. Continue with the next step.	Normal condition, continue with the next step.
On	On	Error code	Go to MAP21A0 PPS fault isolation during install.
On	Off	N/A	UEPO fault, go to MAP21E0 UEPO Loop Good LED should be on.

6. Swing the 208VDC bus bar gate back into its non-service position. Reinstall and tighten the two retaining screws.
7. If you removed the air baffle **2** earlier to allow the 208VDC bus bar to swing open, reinstall it. See Figure 127 on page 169.

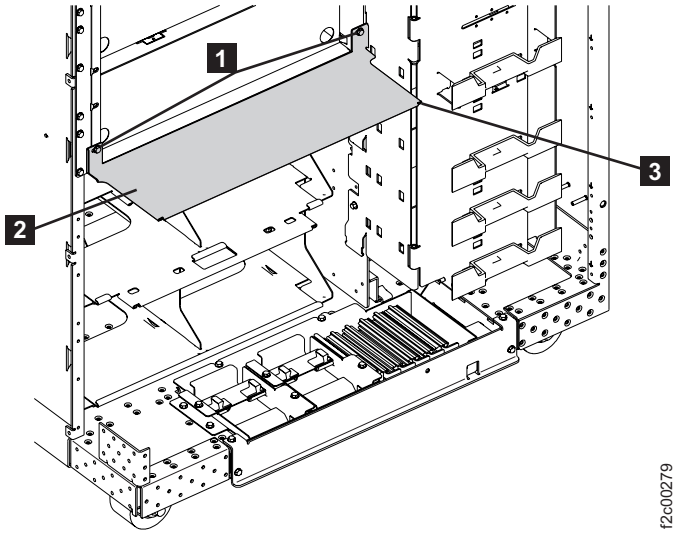


Figure 127. Air baffle

8. Continue with "Continuing the installation at the management console."

Continuing the installation at the management console

You will use the management console to continue with the installation. The racks will be automatically powered on during this phase of the installation process.

DANGER

The storage facility will be powered on automatically during this procedure. Hazardous voltages will be present. Ensure that all safety covers are in place and that normal safety precautions are taken.

1. Return to the HMC screen and click **Next**. Follow the on-screen instructions:
   a. **Do not** log off or reboot the management console.
   b. The racks will be automatically powered on and the installation process will continue.
   c. Check the WebSM GUI every 10 minutes and respond to any pop-up messages from the Installation process that may appear.
   d. If a problem occurs, an Error Detected pop-up screen is displayed. Find the error code displayed in the second line of the exception information. For example `ActivateException:2nnn-xxx`. The 2nnn value is the machine type. The *xxx* value defines the specific error. Go to "MAP1400 HMC is reporting an installation error prior to serviceable events being created" on page 531 to repair the problem.

      Following is an example of **Error detected** test message displayed:

      ```
      Exception text(0): com.imb..hwmca.fw.service.
      statetransition.EffectorException:com.ibm.hwmca.fw.service.
      managedsystem.ActivateException: 2107-075 The systemLevelActivate
      CA - Rack 2 PPS-0The expected number of batteries: 1 does not
      match actual number found: 0. com.ibm.esshmc.sfw.effector.
      MmSystemLevelActivate.fire(MmSystemLevelActivate.java:123)
      ```

   e. A message displays that indicates the install has completed. You will be returned here to continue with step 2.

2. Display and repair any open serviceable events for hardware or code problems. Ignore serviceable events for status conditions such as statesave, PE-package, call home, and so on.
3. Display the storage facility image (SFI) state for each LPAR.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Service Applications** → **Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   d. Select the storage facility.
   e. On the main menu (top toolbar), click **Selected** → **Get Storage Facility Images**.
   f. Select the storage facility image.

      Note: Some models of storage facility have two storage facility images.
   g. On the main menu (top toolbar), click **Selected** → **Change/Show SFI State**. The following is an example of a storage facility image with a normal status.

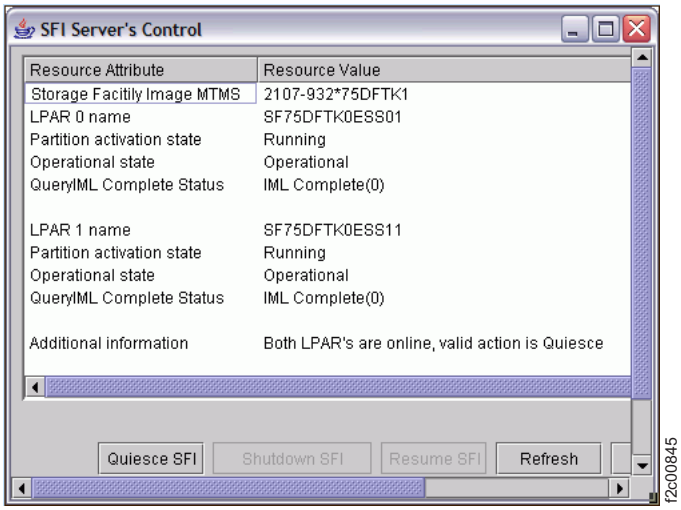


Figure 128. SFI Server's Control

4. Continue with the next section.

Installing and testing the storage enclosures

Use the procedures in this section to logically install and test the storage enclosures in this expansion rack.

Do not proceed with this section until you have verified there are no serviceable events for hardware or code problems.

1. This step is an overview of a device adapter (DA) pair. A DA pair is two device adapter cards, each in a different I/O enclosure but sharing the same storage enclosures.

   An example of a storage enclosure pair are storage enclosures XS11 and XS21 in Figure 129 on page 172.

Note: On the HMC as well as in Table 60, they are referred to as S11 and S21.

2. Determine the number of storage enclosure pairs in the expansion rack that will be installed to each DA pair in this expansion rack.
   a. In Table 60 column 3, put a check mark in front of each storage enclosure pair that is present in the expansion rack.
   b. In Table 60 column 4, write down the number of storage enclosure pairs for each DA pair.

Table 60. Storage enclosures pairs per DA pair

DA pair ID (from HMC)	DA pair (location code of I/O enclosure and slots) Figure 129 on page 172 and Figure 130 on page 172	Storage enclosure pairs (Location from HMC / Location on Figure 129 on page 172)	Record the number of storage enclosure pairs present for each DA pair ID
6	I/O enclosure XI3 Slot C3 I/O enclosure XI4 Slot C6	___ S11 and S21 / XS11 & XS21 ___ S12 and S22 / XS12 & XS22	
4	I/O enclosure XI1 Slot C3 I/O enclosure XI2 Slot C6	___ S13 and S23 / XS13 & XS23 ___ S14 and S24 / XS14 & XS24	
7	I/O enclosure XI3 Slot C6 I/O enclosure XI4 Slot C3	___ S15 and S25 / XS15 & XS25 ___ S16 and S26 / XS16 & XS26	
5	I/O enclosure XI1 Slot C6 I/O enclosure XI2 Slot C3	___ S17 and S27 / XS17 & XS27 ___ S18 and S28 / XS18 & XS28	

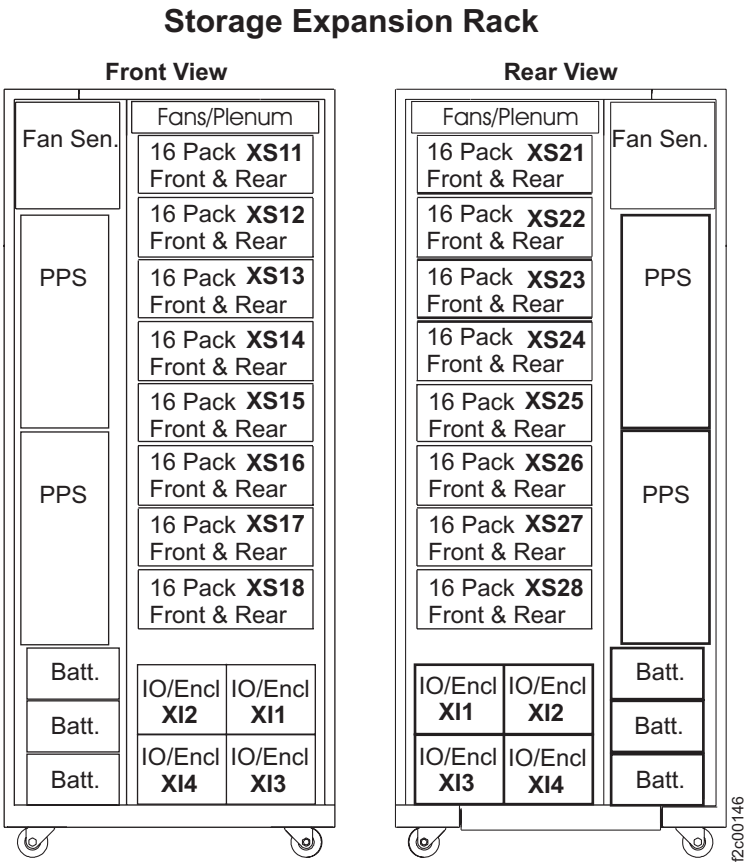


Figure 129. Storage expansion rack

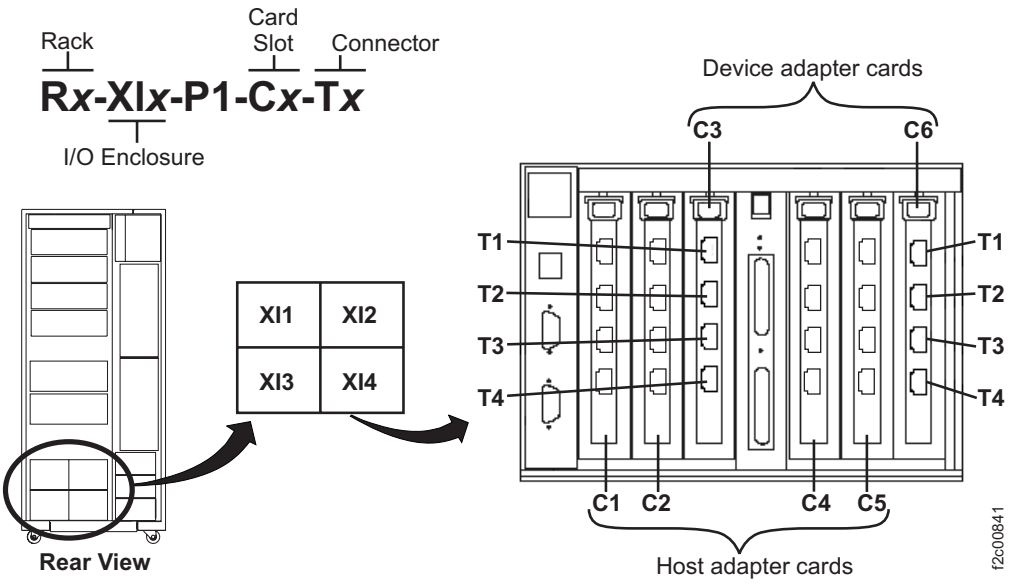


Figure 130. I/O enclosure locations (rear)

3. You are installing one or more pairs of storage enclosures. The management console will prompt you for the physical location for one storage enclosure at a time. The management console continues to redisplay the screens until all the storage enclosures have been installed.

Note: The HMC process will display the physical location of the next storage enclosure to be installed.

a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).

b. Open **Service Applications** → **Service Focal Point**.

c. In the right content area, select **Install/Add/Remove Hardware**, a window displays a list of storage facilities.

d. Select the storage facility, click **Selected** (on top tool bar), and then select **Install Storage Enclosure or DDMs**. A window displays asking if you were sent from the installation instructions. Click **Yes**.

e. A window displays prompting you what to install. Select **Install Storage Enclosures** and then click **Submit**.

f. If rack 1 is a Model 9A2 or 9B2, a window may open that prompts for the storage facility image to assign the storage enclosures to. Select the storage facility image and then click **Submit**.

Note:

The storage facility serial number ends in 0.
The first storage facility image serial number ends in 1.
The second storage facility image serial number ends in 2.

g. A window displays a listing of DA pairs available for additional storage enclosures, select the DA Pair and click **OK**.

h. A window displays a listing of the possible numbers of storage enclosure pairs that can be installed. Refer to Table 60 on page 171 column 4 for each DA pair ID. Select the number to install and click **OK**.

i. A window displays a listing of the physical location code of the one storage enclosure to be installed. **DO NOT CLICK** the Next button until directed in a later step.

j. When the HMC screen directs you to return to these installation instructions, go to the next step.

4. The HMC screen has returned you here with a storage enclosure location code displayed for the expansion rack being installed.

   The storage enclosure location code displayed by the HMC is of the format ″Rx-Sxx″. The storage enclosure physical location code in Figure 129 on page 172 is of the format ″XSxx″. They both refer to the same location.

   a. Using the displayed location code, refer to Figure 129 on page 172 to determine the location of the storage enclosure in the rack.

   b. Ensure the FC-AL cables (four total) are connected to the T1 & T2 connectors on both FCIC cards in the storage enclosure being installed. The other end of these four cables are not yet connected.

5. This step connects the four FC-AL cables for each storage enclosure to a DA pair or other storage enclosure. Two FC-AL cables come from each FCIC card in the storage enclosure.

   Note: Do not connect any other FC-AL cable until directed.

   a. Find the location code displayed by the HMC in column one of Table 61 on page 174 or Table 62 on page 174.

   b. Use columns two, three and four to determine the physical location to connect the other end of the four blue FC-AL cables.

   c. Refer to Figure 129 on page 172 and Figure 130 on page 172 to find the location of the enclosure for the other end of the cables.

d. Each end of the FC-AL cable is prelabeled with either the physical location code and connector location or just the connector location it connects to.
e. Find and connect the four cables determined using columns 2 through 4 in Table 61 or Table 62.
f. Go to the next step.

Table 61. FC-AL cable connection to device adapter cards

Physical location of storage enclosure displayed on HMC screen:	Physical location to connect the four FC-AL cables to:		
	Rack	**Device adapter card pair in I/O enclosures and slots Figure 130 on page 172**	**Device adapter card connectors Figure 130 on page 172**
Rx-S11	New expansion rack	I/O enclosure XI3 Slot C3 I/O enclosure XI4 Slot C6	T1 & T2 (Top two connectors)
Rx-S13	New expansion rack	I/O enclosure XI1 Slot C3 I/O enclosure XI2 Slot C6	T1 & T2 (Top two connectors)
Rx-S15	New expansion rack	I/O enclosure XI3 Slot C6 I/O enclosure XI4 Slot C3	T1 & T2 (Top two connectors)
Rx-S17	New expansion rack	I/O enclosure XI1 Slot C6 I/O enclosure XI2 Slot C3	T1 & T2 (Top two connectors)
Rx-S21	New expansion rack	I/O enclosure XI3 Slot C3 I/O enclosure XI4 Slot C6	T3 & T4 (Bottom two connectors)
Rx-S23	New expansion rack	I/O enclosure XI1 Slot C3 I/O enclosure XI2 Slot C6	T3 & T4 (Bottom two connectors)
Rx-S25	New expansion rack	I/O enclosure XI3 Slot C6 I/O enclosure XI4 Slot C3	T3 & T4 (Bottom two connectors)
Rx-S27	New expansion rack	I/O enclosure XI1 Slot C6 I/O enclosure XI2 Slot C3	T3 & T4 (Bottom two connectors)

Table 62. FC-AL cable connection to other storage enclosures

Physical location of storage enclosure displayed on HMC screen:	Physical location to connect the four FC-AL cables to:		
	Rack	**Storage enclosure Figure 129 on page 172**	**FCIC cards & connectors Figure 130 on page 172**
Rx-S12	New rack	Storage enclosure XS11	P1-C1-T3 P1-C2-T4

Table 62. FC-AL cable connection to other storage enclosures (continued)

Physical location of storage enclosure displayed on HMC screen:	Physical location to connect the four FC-AL cables to:		
	Rack	Storage enclosure Figure 129 on page 172	FCIC cards & connectors Figure 130 on page 172
Rx-S14	New rack	Storage enclosure XS13	P1-C1-T3 P1-C2-T4
Rx-S16	New rack	Storage enclosure XS15	P1-C1-T3 P1-C2-T4
Rx-S18	New rack	Storage enclosure XS17	P1-C1-T3 P1-C2-T4
Rx-S22	New rack	Storage enclosure XS21	P1-C1-T3 P1-C2-T4
Rx-S24	New expansion rack	Storage enclosure XS23	P1-C1-T3 P1-C2-T4
Rx-S26	New expansion rack	Storage enclosure XS25	P1-C1-T3 P1-C2-T4
Rx-S28	New expansion rack	Storage enclosure XS27	P1-C1-T3 P1-C2-T4

6. Return to the HMC and click **Next**.
   a. You will be sent back to the installation instructions to repeat steps 4, 5, 6, and 7 for each storage enclosure being installed on this DA pair.
   b. When all storage enclosures on this DA pair have been installed, go to the next step.
7. No action is required as the HMC initializes the storage facility image the storage enclosures are being installed to.

   The HMC displays:

   Task in Progress...**Powering on the FRU(s)**
   Verification Progress...**Verification progress:**
   Task in Progress...**Activating the system** (could take 20 minutes or more)
   Task in Progress...**Verifying system**
   Verification Progress...**Verification progress:**
   Task in Progress...**Activating applications(s)**

   When the HMC is finished, it displays:

   Service action is complete
   Service action is ending...

   The HMC directs you back to the installation instructions, go to the next step.
8. Continue with "Finish install and cleanup" on page 178.

Completing the installation

Use the following procedures to complete the installation.

Route and connect the host cables

1. Ask the customer to supply a diagram or output from the DS8000 Storage Manager to define the connectivity between the DS8000 host card ports and system host card ports.

2. Label the ESCON and fibre host cables from each customer host adapter.
3. Route the cables to the rear of the appropriate storage facility frame.

   Note: To allow correct connection and disconnection of external cables, label cables using the customer's current cable-identification plan and the labels provided by your customer.
4. In the tailgate, squeeze the black release levers **2**, pivot the retention bracket up and then remove it.

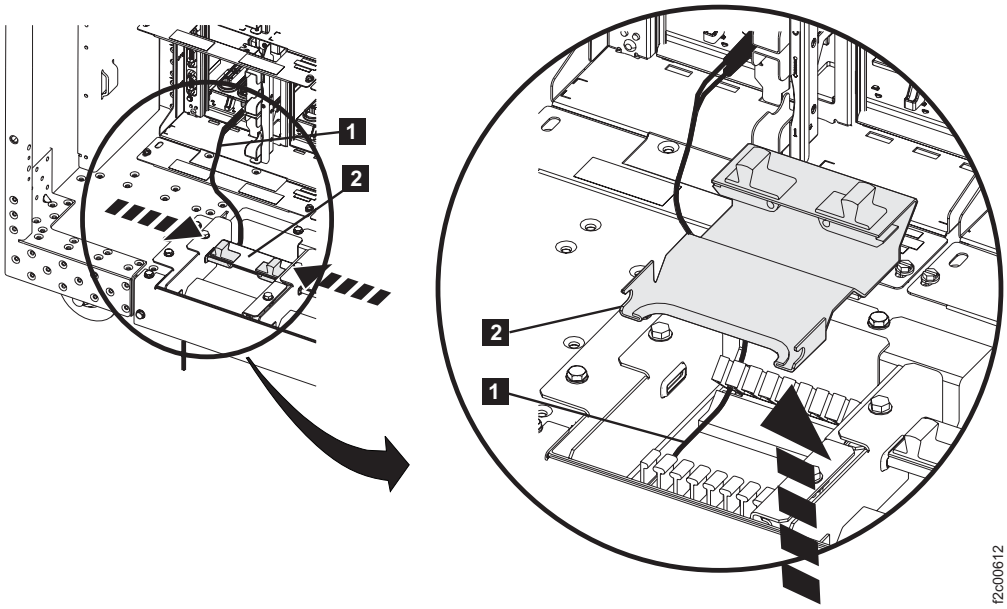


Figure 131. Tailgate cable and fibre channel cable retention

5. Identify the I/O enclosure that contains the host card and port to which the host cables from the host will be attached. See Figure 132 on page 177.

   Note: The syntax of the location code shown on the ICAT configuration tool might differ slightly from that shown in Figure 132 on page 177. For the device adapter card connectors, the syntax might be R*x*-I*x*-C*x*-T*x* (the backplane identifier of P1 is missing and I*x* is equivalent to XI*x*).

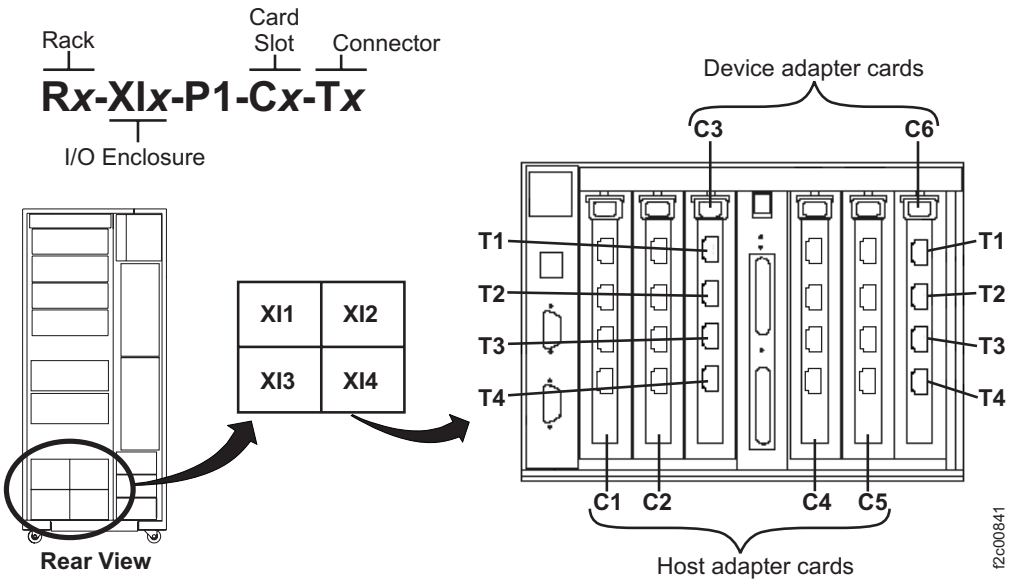


Figure 132. Location codes for device adapter and host adapter cards

6. Feed the host cables up through the tailgate and route them to the destination I/O enclosure and host card and plug them in.

   Notes:

   - Save the wrap tools removed from each Fibre or ESCON host card. The wrap tool can be used as a dust cover and also a wrap tool for diagnosis and repair.
   - There are two types of fibre channel cards:
     - Short wave
     - Long wave

7. Secure the host cables in the cable guide by pressing them into the slots.
8. Reinstall the retention bracket removed earlier.
9. Reinstall the tailgate bracket(s) in all frames using the screws **2** removed earlier. Tighten all four screws **1** and **2**. See Figure 133 on page 178

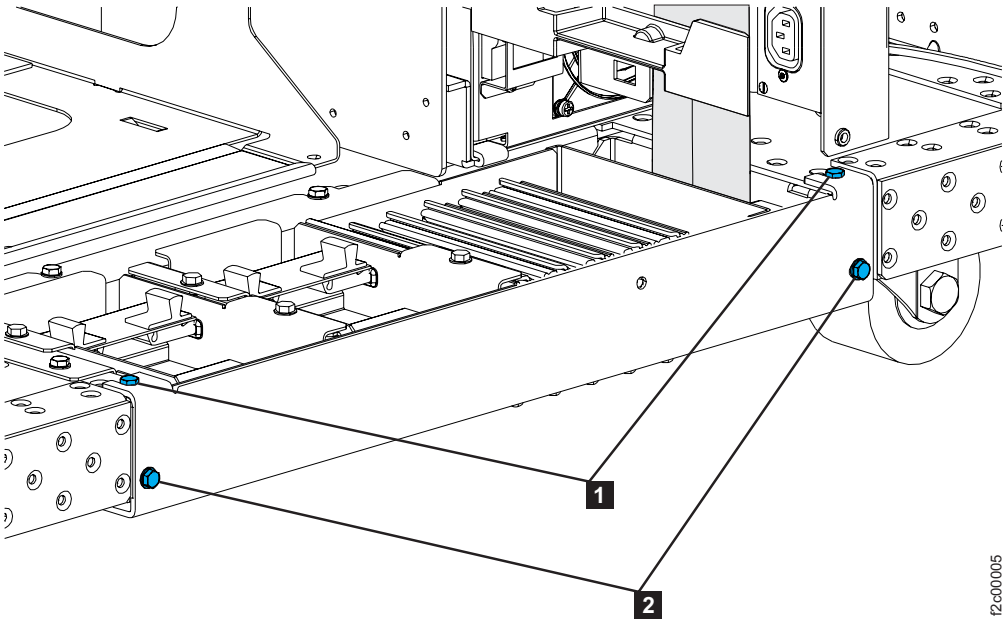


Figure 133. Tailgate frame bracket

Finish install and cleanup

1. Display and repair any open serviceable events.
2. Will you be installing additional racks, storage enclosures, or other hardware features to this storage facility as part of this installation activity?
   - Yes, the backup of critical console data will occur after all installation activity is complete. Go to step 6 on page 179.
   - No, the backup of critical console data will occur now. Go to the next step.
3. Locate the critical console data back up DVD disc for each HMC on this storage plex. The DVD disc should be in the ship group during an installation or kept in the HMC DVD-RAM drive after installation.

   There are two versions of the DVD disc:
   - Newer version is labeled with the HMC machine type model S/N and "HMC Critical Console Data Backup DVD, Keep in HMC DVD-RAM drive". If you have this version, go to 5.
   - Older version has no preprinted label, it should have the HMC machine type model S/N hand printed by the service representative. If you have this version, go to the next step.
4. Is the HMC machine type model and S/N printed on the DVD disc?
   - Yes, go to the next step.
   - No, hand print the HMC machine type model and S/N and "HMC Critical Console Data" on the DVD disc. For example: `HMC machine type model S/N: 8837-PLM 75KKTWT8R, HMC Critical Console Data`. Go to the next step.
5. Perform the following steps to back up critical console data on each HMC for this storage plex. Use the DVD disc with the HMC machine type model S/N for this HMC.
   a. Log into the management console (HMC) for rack 1.
   b. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).

c. Open **Licensed Internal Code Maintenance → HMC Code Update**.
d. In the right content area, select **Back up Critical Console Data**.
e. Select **Back up to DVD on local system** and click **Next**.
f. Insert a formatted DVD-RAM media into the drive.
g. Enter a description for the archive data.
h. Click **OK** to store your critical console data on the DVD-RAM.
i. Leave the HMC Critical Console Data backup DVD in the HMC DVD-RAM drive. It is automatically updated once a week.

6. If used during this installation, store the customer-provided configuration worksheets in the rack 1 document enclosure (front upper right of rack).
7. Use the View Storage Facility Status utility to ensure there are no unreported or unexpected problems or conditions.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications → Service Focal Point**.
   c. In the right content area, select **Service Utilities**, a window opens that displays a list of storage facilities.
   d. Select a storage facility, click **Selected** (on top tool bar), and then select **View Storage Facility State**.
   e. A window opens that lists passed/failed status for 25 or more system checks. You can display the details for each system check. For more information and options, go to "MAP1100 View storage facility state (end of call)" on page 446.
8. If you have storage enclosures to install, return to "Installing and testing the storage enclosures" on page 170 to begin the storage enclosure installation process, and then return here and continue at the next step.
9. Monitor the certify DDM process for completion. It was started automatically for all DDMs being installed
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications → Service Focal Point**.
   c. In the right content area, select **Service Utilities**, a window displays a list of Storage Facilities.
   d. Select the Storage Facility that is being installed from the list. Click **Selected** from the top tool bar, and then select **Certify DDM**.
   e. When the certify DDM process is complete, inform the customer that the storage facility is now available for configuration.
10. Ensure the HMC power control mode for this storage facility is returned back to the original customer setting. (This was set to Manual Power Mode in step 1 of "Preparing the existing rack.")

    Note: This will return the storage facility power control to normal operation.
11. Refer to the pack/unpack instructions for return/discard information. Discard the shipping material locally.
12. The expansion rack is now regarded as "Installation complete".
    a. Update the account records to show the install is complete.
    b. Record any additional time to install features, ECs, MESs to the correct service code. Do not charge the additional time to the storage facility installation.

c. Go to the next step.

13. The on-site service actions are now complete.

Chapter 7. Installing one expansion rack without I/O enclosures to an existing storage facility

This procedure is a **concurrent** installation used only for one expansion rack that does not contain I/O enclosures (models 92E, 9AE).

If the rack you are installing contains I/O enclosures, you must go to the section Chapter 6, "Installing one expansion rack with I/O enclosures to an existing storage facility," on page 121.

DANGER

HEAVY EQUIPMENT -- PERSONAL INJURY OR EQUIPMENT DAMAGE MAY RESULT IF MISHANDLED (D006)

Attention: The customer should prepare his environment to accept the new product based on the installation planning information provided, with assistance from an IBM Installation Planning Representative (IPR) or IBM authorized service provider. In anticipation of the equipment delivery, the final installation site should be prepared in advance such that professional movers/riggers can transport the equipment to the final installation site within the computer room. If for some reason, this is not possible at the time of delivery, the customer will need to make arrangements to have professional movers/riggers return to finish the transportation at a later date. Only professional movers/riggers should transport the equipment. The IBM authorized service provider will only perform minimal frame repositioning within the computer room, as needed, to perform required service actions. The customer is also responsible for using professional movers/riggers in the case of equipment relocation or disposal.

Beginning the installation

Use the following sections to begin the installation.

Ensuring existing rack has no open serviceable events

Display and repair any open serviceable events on the existing rack that the new rack will be installed to. There must be no unrepaired serviceable events prior to beginning the installation.

1. Log into the management console (HMC) for rack 1.
2. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
3. Open **Service Applications** → **Service Focal Point**.
4. In the right content area, select **Manage Serviceable Events**, a window displays a list of selection criteria. Ensure the serviceable event status field is set to "Open".
5. You can use the default selection criteria or modify the criteria for your needs. Click **OK**.

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6. The Serviceable Event Overview window is displayed. If a serviceable event is listed, repair it before you continue the install. To repair, click **Selected** (from the top tool bar), and then select **Repair**. Follow the guided repair process.

Checking for the latest level of installation instructions

MES instructions are required to install the storage enclosures. The following rack install procedure installs the rack, rack power, and RIO interfaces only.

These installation instructions are provided in two formats:

- Hardcopy: this is shipped with the subsystem and is printed from a PDF file. The PDF file is also available on the *IBM System Storage DS8000 series Service Documents CDROM* or from the DS8000 - Engineering Web site.
- Information Center: This is intended for online viewing. It is available on the *IBM System Storage DS8000 series Service Documents CDROM*, on the management console (HMC) or through the Intranet.

Ensure that you are using the latest version of the installation instructions.

1. If you are performing the installation using hardcopy instructions, then the latest level of the PDF file for printing will be available on the DS8000 - Engineering Web site (https://ssgtech4.sanjose.ibm.com/PFE/Squadrons-S%20PE%20Support.nsf/WVhome). Select **Related Links** → **Information Centers** → **Service**. Scroll to the section on Installation Guides in PDF format.
2. If you are performing the installation using the Information Center, then the latest version will be available on the Intranet. Use the link from the DS8000 - Engineering Web site (https://ssgtech4.sanjose.ibm.com/PFE/Squadrons-S%20PE%20Support.nsf/WVhome). Select **Related Links** → **Information Centers** → **Service**

Considerations if advanced software features are already installed

If this storage facility already has advanced features installed, read the following information and advise the customer.

The following are examples of Advanced Function Software feature codes 07*xx*:

FC0700 Point in time Copy (PTC)

FC0740 Remote Mirror Copy (RMC)

FC0760 Remote Mirror for Z series

FC0780 Parallel Access Volumes (PAV)

When you increase the storage capacity (installing more DDMs), it is also necessary to upgrade the Advanced Function Software (if installed) to match the new storage capacity except for CoD storage.

When CoD storage is activated, it will also disable the Advanced Function unless the customer activates a new upgrade license. Refer to *IBM System Storage DS8000 Introduction and Planning Guide*.

Checking customer preparations

DANGER

HEAVY EQUIPMENT -- PERSONAL INJURY OR EQUIPMENT DAMAGE MAY RESULT IF MISHANDLED (D006)

1. Verify that the customer has two AC power sources for each rack in the DS8000 storage facility.

   For maximum fault tolerance, use two separate AC power sources.

   Note: The DS8000 is designed for connection to an IT power distribution system. In an IT power distribution system, the neutral conductor is isolated from earth (ground) by an impedance with exposed conductive parts in the installation that is tied directly to earth.

   No service representative action is needed. Information is for compliance with International Electrotechnical Commission Standard 950 for the safety of information technology equipment and electrical business equipment.
2. Verify the customer wall circuit breaker. The customer wall circuit breaker rating that protects each line cord depends on the voltage range as follows:
   - Low-voltage, three-phase installations (200 - 240 V) require wall circuit breakers that have a rating of 50 to 60 A. Do not exceed the wire rating of the facility.
   - High-voltage, three-phase installations (380 - 480 V) require wall circuit breakers that have a rating of 30 to 35 A. Do not exceed the wire rating of the facility.
3. If the DS8000 will be installed on a raised floor:
   a. Review the weight of each rack with the customer to verify that their raised floors have adequate support. An individual rack, fully configured can weigh a maximum of 2880 pounds (1307 kilograms). For details on the DS8000 rack weights, refer to *IBM System Storage DS8000 Introduction and Planning Guide*.
   b. To correctly cool a DS8000, place two floor tiles, that have holes for air flow, directly in the front and the rear of each DS8000 rack (for a total of 4). Also provide tiles with holes, for cable entry, under the rear tailgate.
4. If the DS8000 will not be installed on a raised floor, ensure the customer will provide adequate air flow and temperature around the DS8000.

   Notes:

   a. For information about the temperature requirements of the operating environment, see the *IBM System Storage DS8000 Introduction and Planning Guide*.
   b. The DS8000 rack cooling airflow enters through the front and rear covers and exits through the top and rear covers. The bottom of the DS8000 is sealed.
5. Verify that the customer has ordered, supplied, and routed the following cables to the DS8000 being installed. Routing of the customer cables must not be billed against the installation. If the customer wants the service representative to route the cables, that activity must be coded or billed separately.
   a. ESCON host cables from the host to the DS8000 host adapters.
   b. Fibre host cables from the host to the DS8000 host adapters.

Checking for required microcode

1. Is the new storage facility being installed to an existing storage complex?
   - Yes, ensure the code level of the existing storage complex and management consoles are already at a compatible level or same level as the new code levels. Then go to step 2.
   - No, go to step 3.

   Note: Normally, if there are two management consoles, they both must be running the same level of code.
2. Ensure the code level of the existing storage plex and management consoles are already at a compatible level or same level as the new storage facility code levels.

   Note: Do not intermix the following bundles within a storage plex without the approval of next level of support.
   - bundle 6.1.6xx.xx or prior
   - bundle 6.2.0xx.xx or later
3. Determine if there is a required level of microcode available for your storage facility or management console. For IBM personnel, go to DS8000 - Engineering Web site (https://ssgtech4.sanjose.ibm.com/PFE/Squadrons-S%20PE%20Support.nsf/WVhome). For non-IBM personnel, follow the established process to determine the required code level.

   When the web site defines a code level as "required", it means that the storage facility must not be transferred over to the customer without the indicated code level installed.

   When the web site defines a code level as "recommended", it means the IBM service representative can either:
   - Give the storage facility to the customer when the installation is complete.
   - Negotiate with the customer for a more convenient time to update the microcode.

Checking RETAIN for storage facility installation tips

1. Sign on to RETAIN.
2. Select HSF.
3. Search for 2107 Install (p;2107 Install). RETAIN may have information that corrects problems that are not yet addressed by the install instructions.

Unpacking the expansion rack and verifying the ship group is complete

1. Remove the CE Unpacking Instructions from the Customer Engineer envelope taped to the front of the storage facility below the CEC enclosures. Use the CE Unpacking Instructions to unpack the storage facility frame(s) and prepare it for installation.
2. Verify that all items in the ship group were received.
   a. The ship group comes in one or more large boxes on pallets. The customer may not allow the pallet and large box in their machine room. Consequently, you may end up with a pile of parts on the floor.
   b. The side decorative covers that go between the racks are either packed in a separate long narrow box (early version) or are packed in the large ship group box (later version). The side covers for the later version fold in half.

c. The hardcopy listing of the ship group contents is shipped loose with the other parts inside the large boxes. If it is missing, check if it was accidently discarded along with the pallets and large boxes. An additional copy of the paperwork may be included in the CE Envelope.
d. The official ship group listing of parts is included in the ship group. Table 63 is for reference only.

Notes:

- Version 1 part numbers are *not* eligible for use in European Union member states.
- Version 2 part numbers are eligible for use everywhere including European Union member states.
- Only the most recent part numbers are listed. Your DS8000 or serviceable event FRU list may contain an older part number. The parts ordering system can automatically substitute a later part number as needed.

Table 63. Service ship group part numbers (expansion rack)

Description	Part number	
	Version 1	**Version 2**
Bolt, M8 x 20, interrack spacer	1621545	1621545
Cable, Ethernet, black, 31.0 m	22R1798	22R1798
Cable, Ethernet, gray, 31.0 m	22R1799	22R1799
CD-ROM, Code Bundle	[1]	[1]
CD-ROM, Customer Documents	[1]	[1]
CD-ROM, Service Documents	[1]	[1]
Cover, interrack decorative, side (one-piece)	22R4964	22R4964
Cover, interrack decorative, side (two-piece, hinged)[2]	23R1050[2]	23R1050[2]
Cover, interrack decorative, top	22R4962	22R4962
Drawing, interrack spacer stud	22R5481	22R5481
Label, operator panel warning, translated	22R1789	22R1789
Publication, Service Provider Start Here	22R4228	22R4228
Publication, Installation Guide	[1]	[1]
Publication, Installing an Expansion Rack	[1]	[1]
Publication, Statement of Limited Warranty	22R5940	22R6401
Publication, Waste Equipment (WEEE)	22R5822	22R5822
Spacer stud, interrack	22R5046	22R5046
Tag, "Do Not Operate"	23R0280	23R0280
Tie wrap	07J6655	07J6655
Washer, M8, interrack spacer	84X5850	84X5850
Wheel chocks (set of 4)	08J5557	08J5557

Notes:

1. The part number changes with each release. Call the next level of support.
2. A bracket (23R2044) and two nuts (84X4841) secure the two pieces at the hinge.

3. Place the ship group parts list in the document enclosure (front upper left of rack 1). This list can be used for future removal of the storage facility.

Determine if new expansion rack and existing rack 1 have compatible features

Determine if new and existing racks have compatible features.

1. Determine the model of the expansion rack being installed. Observe the machine type model serial number label beneath the UEPO red switch on the rack operator panel.
2. Determine the rack expansion feature code for the rack being installed.

   The feature codes are listed on the Product Package Label sheet that is attached to the outside of the shipping carton. Remove the CE Unpacking Instructions from the Customer Engineer envelope taped to the front of the rack below the CEC enclosures.
3. Use the following table to determine if the feature of the rack being installed is compatible with the existing Rack-1 model. The feature listed in the first column should also be on the Product Package Label sheet that is attached to the outside of the shipping carton. Later machines will also have a copy of the Product Package Label in the document enclosure (front upper left of rack). If the sheet is not available, use the description in the second column of the table to determine the feature.

Table 64. Compatible rack models and features

If Rack 1 is model:	Rack 2 must be model and rack position feature code	Rack 3 must be model and rack position feature code
921/931	92E with no I/O enclosures Feature code 0211	None
922/932	92E with four I/O enclosures Feature code 0221	92E with no I/O enclosures Feature code 0222
9A2/9B2	9AE with four I/O enclosures Feature code 0231	9AE with no I/O enclosures Feature code 0232

4. Is the rack being installed compatible with the Rack 1 model?
   - Yes, continue with step 5.
   - No, **stop**, contact the next level of support.
5. Determine if Rack-1 has the extended power line disturbance (PLD) feature 1055 installed.
   a. At the rear of Rack-1, observe the top rear of a primary power supply (PPS). Refer to Figure 134 on page 187, location Ex-E2. If the feature is not installed, there will be a sheet metal blockout plate as shown. If the feature is installed, there will be a module installed with cables going to the 208VDC bus bars to the right of the PPS.

   Note: All racks in this storage facility must either have the PLD feature installed or not installed. There cannot be an intermix of racks with and without the PLD feature.

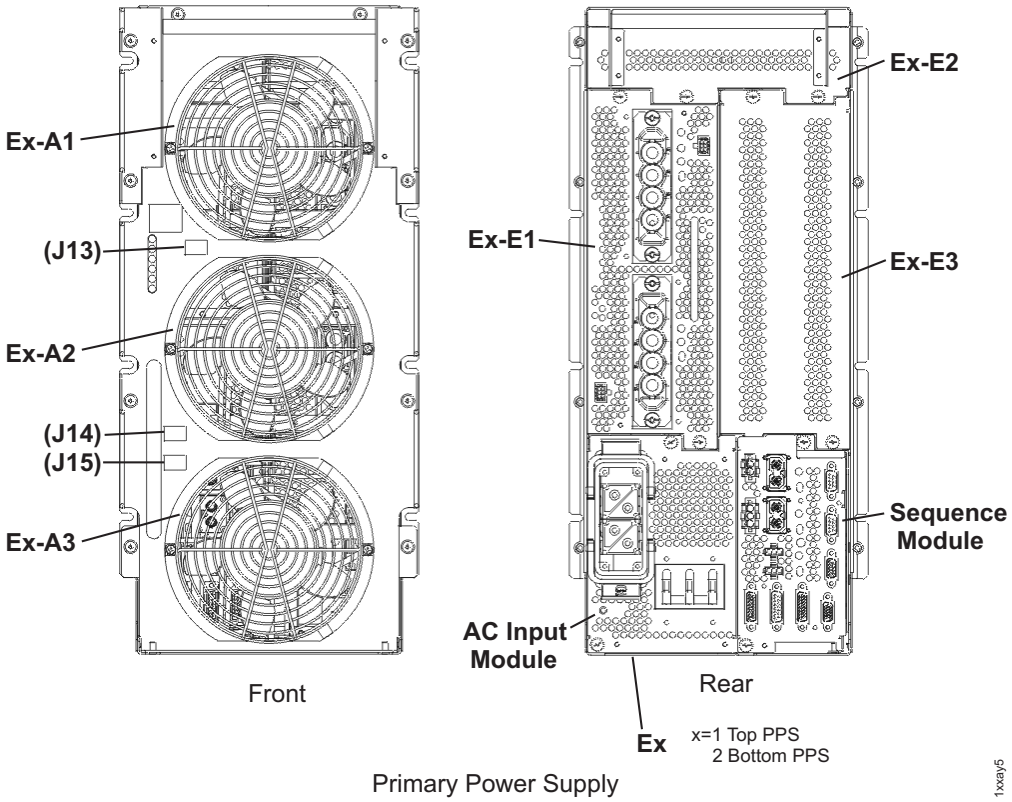


Figure 134. Locations for primary power supplies

6. Is the extended PLD feature 1055 present in Rack-1?
   - Yes, go to step 7.
   - No, go to step 8.
7. Does the expansion rack you are installing have the extended PLD feature present?
   - Yes, go to step 9.
   - No, stop the installation and call the next level of support. The extended PLD feature as well as the battery assembly feature will need to be ordered and installed on the expansion rack before the installation of the expansion rack can continue.
8. Does the expansion rack you are installing have the extended PLD feature present?
   - Yes, stop the installation and call the next level of support. All racks in this storage facility must either have the PLD feature installed or not installed. There cannot be an intermix of racks with and without the PLD feature.
   - No, go to step 9.
9. Count the number of device adapter cards in Rack-1 (for example: 4, 6, or 8). Device adapter cards will be in slot 3 or 6 of the four I/O enclosures as illustrated in Figure 135 on page 188.

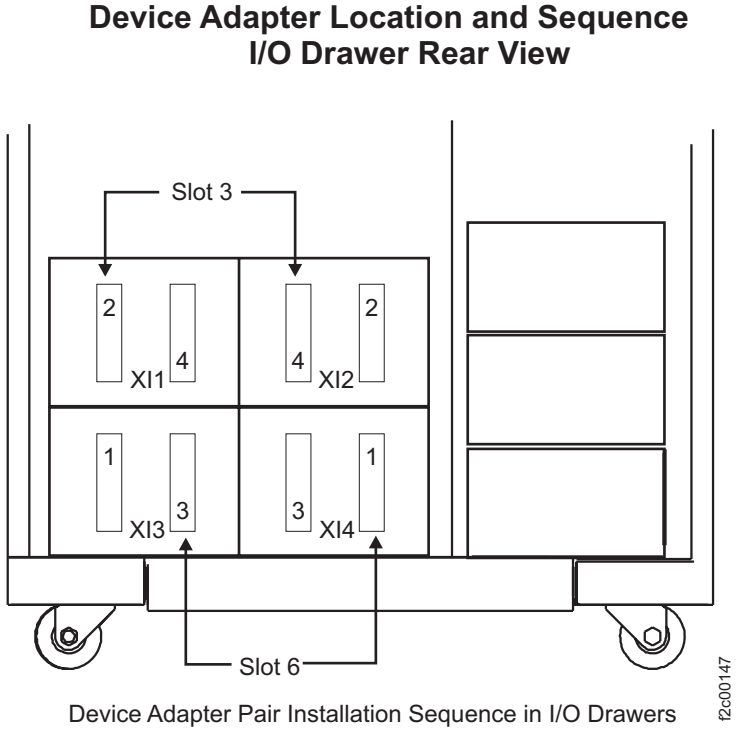


Figure 135. Device adapter location and sequence

10. Count the total number of storage enclosures (2 to 16) in the expansion rack being installed. Only count storage enclosures with DDMs present, do not count empty positions where storage enclosures are not yet present.
    - If there are 2 or 4 storage enclosures, Rack-1 must have six device adapter cards installed. (Three device adapter card pairs.)
    - If there are 3 to 16 storage enclosures, Rack-1 must have eight device adapter cards installed. (Four device adapter card pairs.)

    Does Rack-1 have enough device adapter cards?
    - Yes, continue with "Checking customer preparations" on page 183.
    - No, stop the installation and go to the next step.
11. Check with the customer to determine if they have purchased FC30x1 Device Adapters to be installed.

    Has the customer purchased FC30x1 Device Adapters?
    - Yes, refer to the Device Adapter MES Install Instructions for installation procedures.
    - No, call the next level of support.

Inspecting for shipping damage

1. Inspect the storage facility for any damage that might have occurred during shipping.
2. If you observe shipping damage or missing items, do not install the storage facility without IBM management approval. Report all observed damage immediately, following existing procedures.

Determining if a safety inspection is required

Find the condition that applies to your DS8000:

- New DS8000 from IBM. A safety inspection is not required. Continue with "Preparing the existing rack."
- Not a new DS8000 from IBM and was maintained by IBM. A safety inspection is not required. Continue with "Preparing the existing rack."
- Not a new DS8000 from IBM and was not maintained by IBM. A safety inspection is required. Continue with Chapter 56, "Safety inspection," on page 2153 in the Service Information Center.

Preparing the existing rack

1. Ensure the HMC power control mode for this DS8000 is set to Manual Power Mode. If it is not in Manual Power Mode, note the current customer setting and then change the setting to Manual Power Mode. At the end of the installation you will be directed to restore the original customer setting.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Service Utilities**. A window opens that displays a list of Machine Type/Machine Serials.
   d. Select a Machine Type/Machine Serial from the list.
   e. Click **Selected** (on top tool bar), then select **Manage Power Control**.
   f. Click the radio button for **Manual Power Mode**.

      Note: This prevents the DS8000 from unexpectedly powering off during this service action if any of the following occur:
      - The HMC is set to power off/on using customer-determined time of day schedules.
      - The remote power control feature is installed and enabled.
      - The customer remotely accesses the HMC to power off the DS8000.
2. Prepare the DS8000 for the add expansion rack process:
   a. Log into the management console (HMC) for rack 1.
   b. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   c. Open **Service Applications** → **Service Focal Point**.
   d. In the right content area, select **Install/Add/Remove Hardware**, a window displays a list of Machine Type/Machine Serial.
   e. Select the Machine Type/Machine Serial that the new rack is being installed to.
   f. Click **Selected** (on top tool bar), then select **Install Expansion Rack**.
   g. An Install Expansion Rack screen is displayed. Select **Install Rack with no I/O Enclosures (Concurrent)** and click **Submit**.
   h. Click **Continue** and follow the on screen guidance.
3. A User Input Message Box is displayed requesting you to enter information in three fields.
   a. Use Table 65 on page 190 to determine how to enter the information.
   b. After the information has been entered, the installation process will return you to this topic to continue at the next step.

      A User Input Message Box is displayed that requests you to enter the following information:

Table 65. Required information fields for User Input Message Box

Information field	Format of entry

Enter Rack MTMS
 	
MTMS label is on rack operator panel beneath the red UEPO switch. The label format is:
`Type 2NNN-MMM`
`S/N XX-YYYYY`
	2NNN-MMM*XXYYYYY (Enter in *uppercase*, and without the dash that is on the MTMS label between the XX and YYYYY.)
	• **MMM** = model
	• **XX** = plant of manufacture
	• **YYYYY** = rack serial number
	Note: If the MTMS is entered in lower case, the installation process will hang for several minutes and then fail.

Enter the number of battery enclosures containing battery modules (E10, E11, E12 in Figure 136 on page 191)	0 or 1 or 2 or 3
Enter the number of PPS modules present. See Figure 137 on page 192. • Ex-E1 is always present. • Ex-E2 is optional. The module is installed if there is a cable connector present. The module is not installed if there is a plain sheet metal dummy cover. • Ex-E3 is optional. **IMPORTANT:** – The cables to this module position are always present. – The module is present if it has LEDs and switches. – The module is not present if there are no LEDs and switches.	1 or 2 or 3 Only count positions Ex-E1, Ex-E2, and Ex-E3.

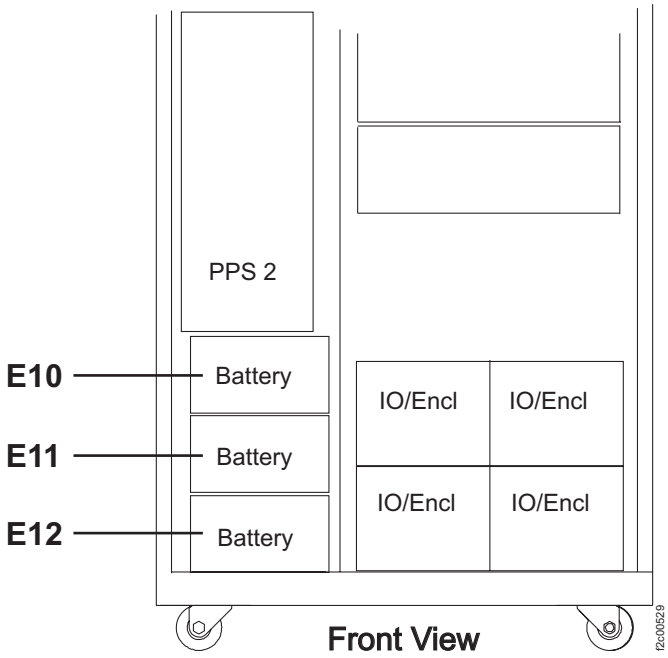


Figure 136. Battery module locations

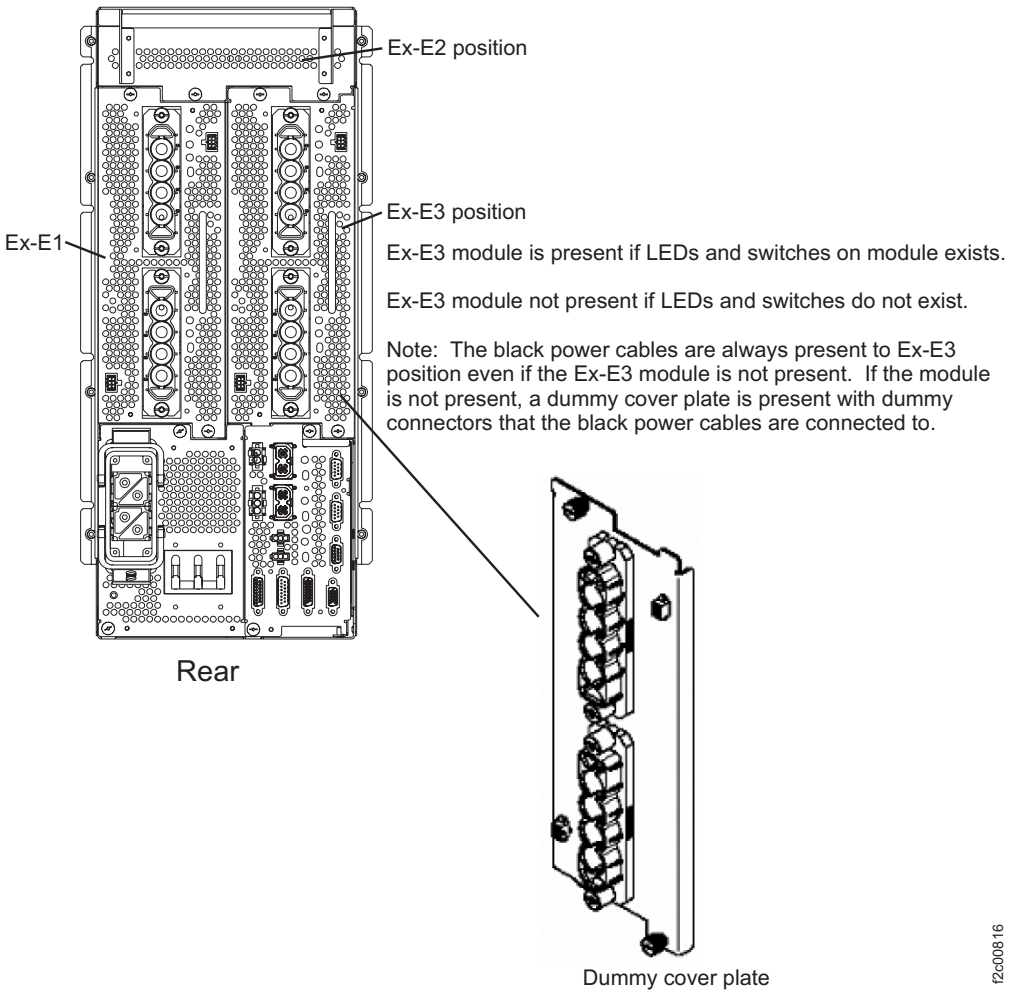


Figure 137. PPS module options

4. You have been returned to this step from the HMC expansion rack install process screen. Continue with "Positioning and preparing the rack."

Positioning and preparing the rack

Removing right end and left rear covers from Rack-1

1. Observe the right end cover (viewed from the front) of Rack-1 to determine which version you have.
   - Older version has two cover retaining brackets as shown in Figure 138 on page 193. Go to the next step.
   - Newer version does not have the two cover retaining brackets as shown in Figure 138 on page 193. Go to step 3 on page 194.
2. Remove the old version of the front right end cover from the rack that the new rack will be installed to as shown in Figure 138 on page 193 and Figure 139 on page 193. Pull the cover near the top sides to release it from the top "hook and loop" fasteners. Then pull lower down on each side of the cover to release it from the lower "hook and loop" fasteners. Failure to do this may bend the cover.

a. Release the two cover retaining brackets (pull them downward). See Figure 138. The cover is still secured to the frame by multiple "hook and loop" fasteners along each side of the cover.

   Note: Failure to follow the instructions in the following steps might result in a bent cover.

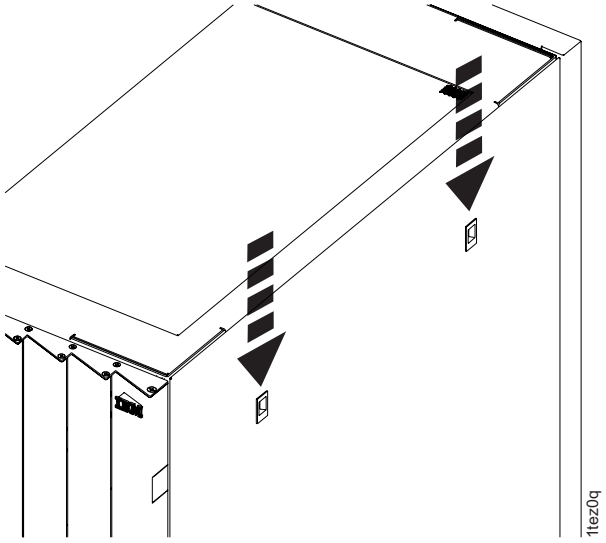


Figure 138. Disengaging the end cover

Attention: Pull lower down on each side of the cover to release it from the lower "hook and loop" fasteners. Failure to do this may bend the cover.

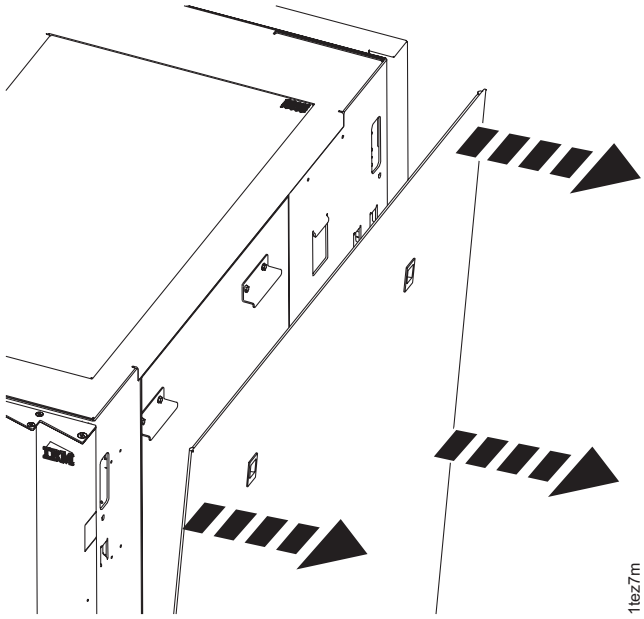


Figure 139. Removing the end cover

b. Pull the upper corners of the cover away from the rack to release the upper "hook and loop" fasteners and apply even pressure working your way down the sides. See Figure 139.

c. Further down, pull each side of the cover away from the rack to release the lower “hook and loop” fasteners and remove the cover.
d. Remove the two end cover catch brackets from the rack. They will be reinstalled on the new end rack later.
e. Go to step 4.

3. Remove the new version of the right end cover (viewed from the front) from Rack-1.
   a. Remove the two screws at the top of the end cover, they are not visible from the side of the rack. The cover is still secured to the frame by multiple “hook and loop” fasteners along each side of the cover.

      Note: Failure to follow the instructions in the following steps might result in a bent cover.

      Attention: Pull lower down on each side of the cover to release it from the lower ″hook and loop″ fasteners. Failure to do this may bend the cover.
   b. Pull the upper corners of the cover away from the rack to release the upper ″hook and loop″ fasteners and apply even pressure working your way down the sides. See Figure 139 on page 193.
   c. Further down, pull each side of the cover away from the rack to release the lower ″hook and loop″ fasteners and remove the cover.
   d. Go to the next step.
4. Remove the left rear cover from Rack-1. Refer to Figure 140.
   a. On the upper and lower door hinges, loosen the screw **1** and move the retention plate **2** that prevents the hinge pin **3** from being removed.
   b. Remove the hinge pins, remove the rear cover and place it in a safe location.

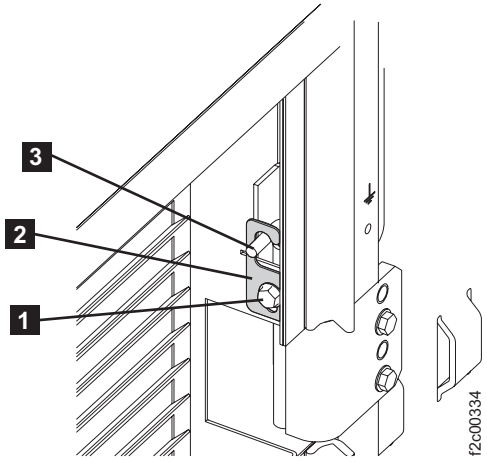


Figure 140. Removing rear left cover on Rack-1

5. Continue with “Checking for FC 1906 earthquake resistance kit.”

Checking for FC 1906 earthquake resistance kit

The earthquake resistance kit, Feature Code 1906, provides additional hardware to be installed. The kit stiffens the rack from flexing and also ties the rack directly to the concrete floor. The kit can be installed on a raised floor or non-raised floor.

- If the rack is new from IBM, the MES hardware kit for FC 1906 would be shipped with the rack.
- If the rack has been discontinued from another account, and the earthquake resistance kit was originally installed there, the kit would have been removed and shipped separately.

  The original kit included parts to tie-down the rack to a non-raised floor, a low raised floor, and a high raised floor. Parts not used at the original installation may not have been kept and shipped. If you are installing on a different floor type than the original floor type, you may not have all the necessary parts. Call the next level of support.

Important: If FC 1906 is to be installed, the base rack and any attached expansion racks must all have FC 1906 installed.

1. Is the Earthquake Resistance Kit Feature (FC 1906) to be installed on this storage facility?
   - Yes, go to Chapter 9, "Installing the earthquake resistance kit feature FC 1906," on page 239, then return here and continue at the next step.
   - No, continue with the next step.
2. Continue with "Positioning the storage expansion rack".

Positioning the storage expansion rack

If you have questions about floor loading and service clearances of the DS8000 racks, review the Site Requirements for the DS8000 section in the *IBM System Storage DS8000 Introduction and Planning Guide* which is available on the *IBM System Storage DS8000 series Service Documents CDROM*.

1. View the rack number label to determine the rack location. See Figure 141 for the location of the rack number label.

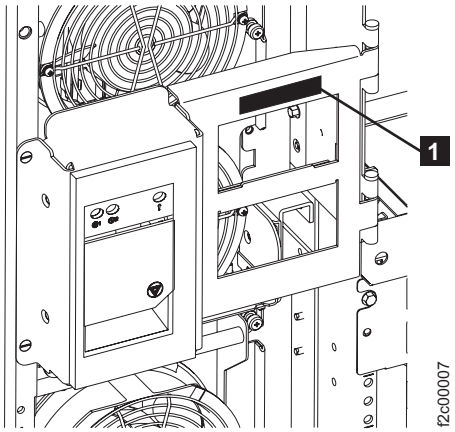


Figure 141. Rack operator panel label

2. Facing the front of Rack-1, all additional expansion racks will be installed to the right. Move the storage expansion rack into position approximately 3″ (75mm) from the existing rack.
3. Ensure the rack operator panel UEPO switch clear access cover is present. Some racks may be shipped with the cover removed and stored in a plastic bag in the document enclosure above the rack operator panel. The cover pivots on two small tabs at the top of the cover. To install the cover engage

the left side tab **1**, push the cover gently to the right and then engage the right tab **2**. See Figure 142.

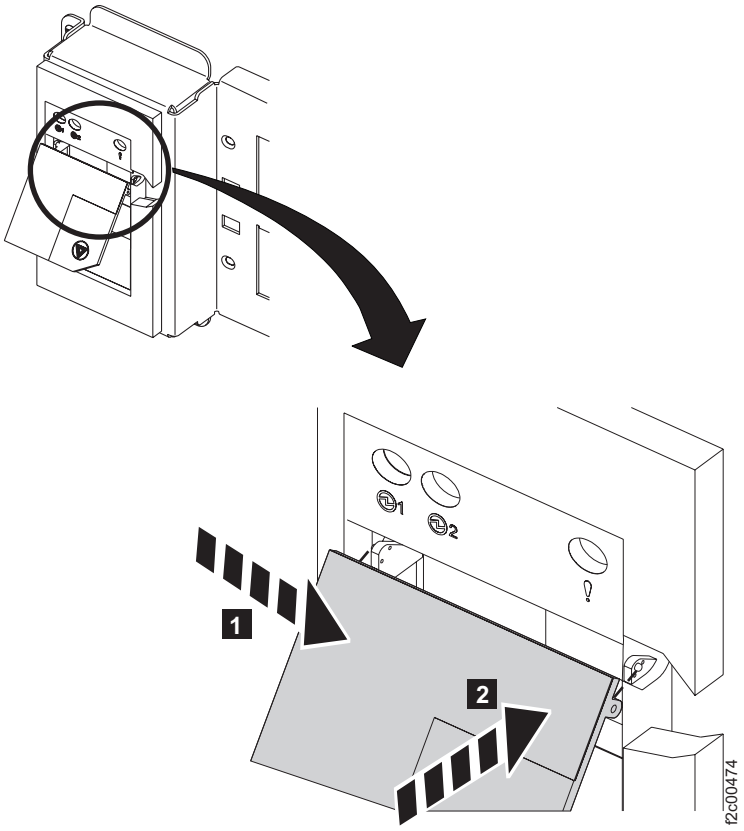


Figure 142. UEPO cover

4. Locate 4 x spacer studs P/N 22R5046, 7 x spacer mounting bolts P/N 1621545, and 7 x M8 washers P/N 84X5850 in the ship group.
5. Install the bottom spacer stud at the rear of the existing rack (Rack 1 or the storage expansion rack that is already installed).
   a. Refer to Figure 143 on page 197. Install a spacer stud **3** in the lower rear left corner of the rack using a mounting bolt **1** and a washer **2**. Leave the bolt loose so that it will be easier to align the spacer stud with the bolt from the new frame.

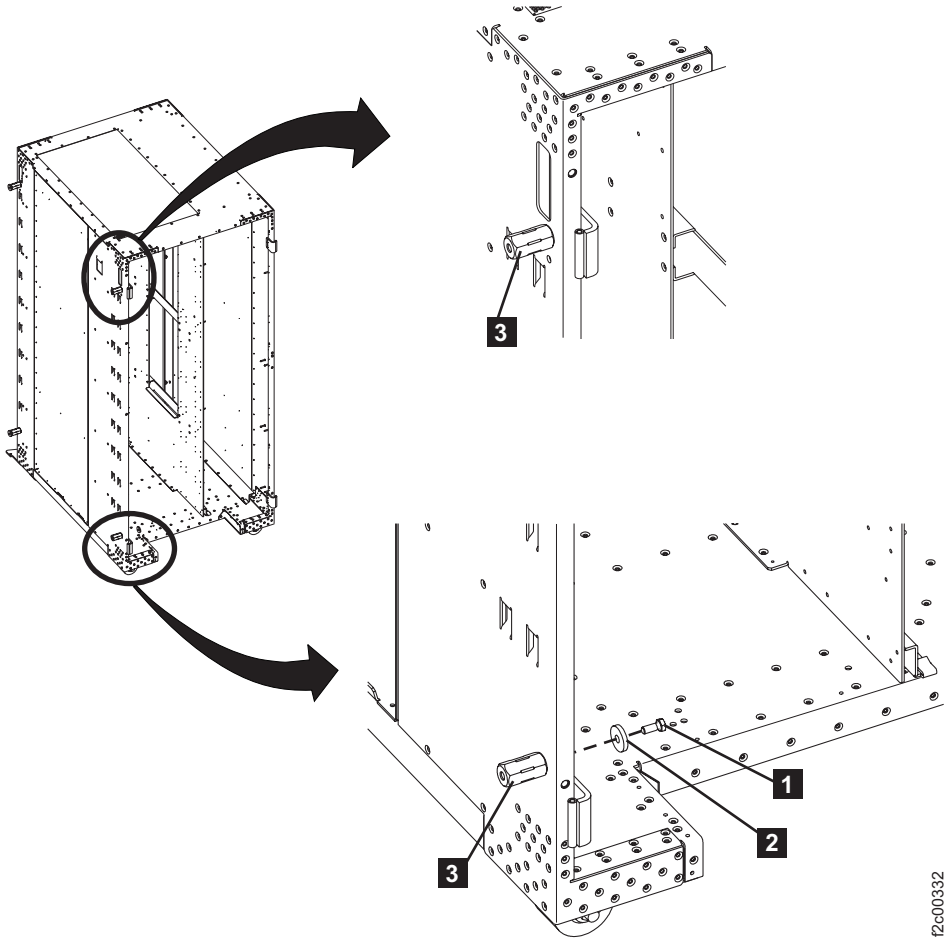


Figure 143. Interrack spacer studs

6. Determine the part number (P/N) of the interrack decorative side covers in your ship group. The P/N is printed near the middle of each side cover. There are two side covers and one top cover in the long narrow shipping box.
   - P/N 22R0786 (original version) go to step 7.
   - P/N 22R4964 (new version) go to step 8.
7. In the upper rear left corner of the existing rack, next to the hinge are two holes, one above the other. Use the upper hole and install a spacer stud **3** using a mounting bolt **1** and a washer **2**, see Figure 143. Do not tighten the bolt fully as some alignment will be needed. You can hold the side cover next to the spacer studs to ensure the spring clips align properly before going to step 9 on page 198.

   Note: On early frames, it may be necessary to remove the rear left top hinge and spacer plate to allow the mounting bolt to be inserted. Reinstall the hinge and plate when the bolt has been tightened.
8. In the upper rear left corner of the existing rack, next to the hinge, there are two holes; one above the other. Use the lower hole and install a spacer stud **3** using a mounting bolt **1** and a washer **2**, see Figure 143. **Do not** tighten the bolt fully as some alignment will be needed. You can hold the side cover next to the spacer studs to ensure the spring clips align properly before going to step 9 on page 198.

Note: On early frames, it may be necessary to remove the rear left top hinge and spacer plate to allow the mounting bolt to be inserted. Reinstall the hinge and plate when the bolt has been tightened.

9. On the rear of the storage expansion rack being installed, perform the following steps to remove the right cover.
   a. Open the rear left machine cover.
   b. Remove and retain the two screws **1** and open the rear right machine cover. Refer to Figure 144.

      Note: The screws must be reinstalled later to prevent non-service personnel from accessing a hazardous section of the machine.

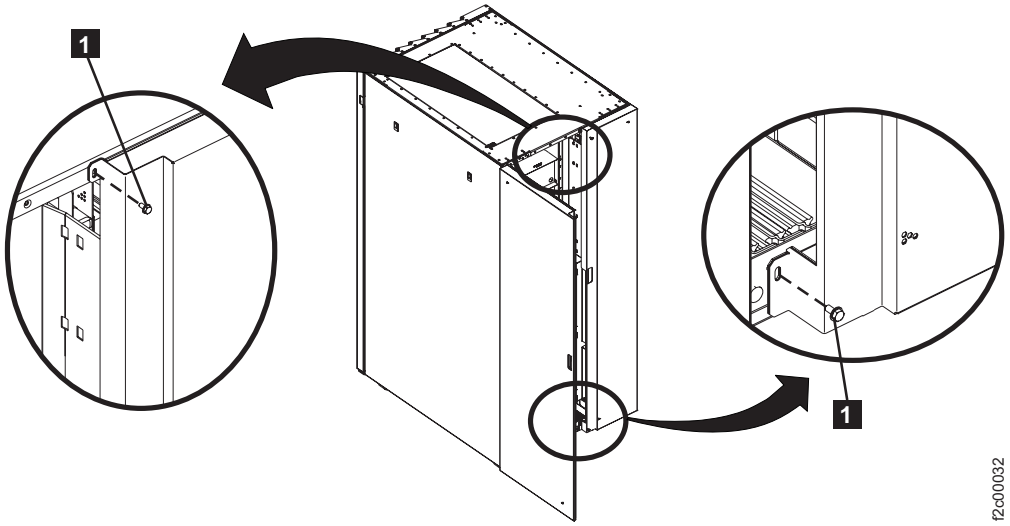


Figure 144. Removing retaining screws on right rear machine cover

   c. On the upper and lower door hinges, loosen the screw **1** and move the retention plate **2** that prevents the hinge pin **3** from being removed. Refer to Figure 145.
   d. Remove the hinge pins, remove the rear cover and place it in a safe location.

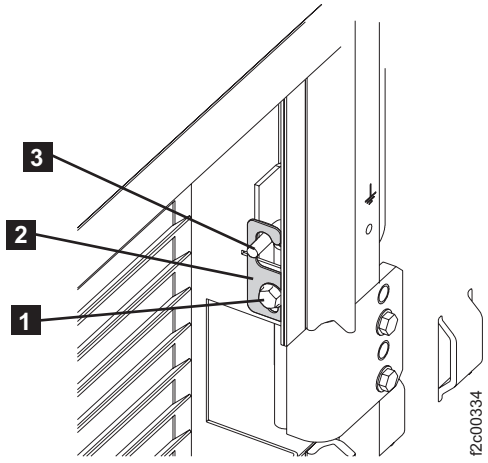


Figure 145. Removing rear left cover on Rack-1

10. Return to the front of the racks. Do not remove any front covers. Install 2 spacer studs on the front left of the storage expansion being installed.
    a. Install a spacer stud in the lower front left corner of the rack using a mounting bolt and a washer. **Do not** tighten the bolt fully as some alignment will be needed.
    b. Install a spacer stud in the upper front left corner of the rack using a mounting bolt and a washer. **If there are two frame holes near the hinge, use the same hole (upper or lower) as you did at the rear of the rack. Do not** tighten the bolt fully as some alignment will be needed.
11. Move the storage expansion rack being installed into its final position.
12. At the rear, secure the storage expansion rack being installed to the existing rack using one bolt and washer in the upper position only. The bolt is screwed into the spacer stud previously installed. Do not tighten the bolt fully.

    Note: It is not possible to install the bolt at the bottom of the rack because the 208VDC bus bars block access.
13. At the front, insert two bolts and washers from the left rack and screw into the spacer studs previously installed in the right rack. When the alignment is correct, tighten all the bolts that have been installed.
14. Install the wedge chocks **1** (located in the ship group) on all four casters. If caster locks are available, engage the caster locks on all casters. Refer to Figure 146.

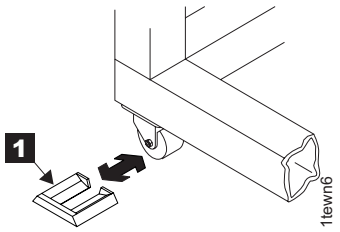


Figure 146. Wedge chocks

15. Continue at the next section.

Reinstalling the right end cover on the right-most rack

The right end cover was previously removed in the task "Removing the right end cover from the existing rack".

1. Which version of the Rack-1 end cover do you have?
   - Old version has two cover retaining brackets. Go to the next step.
   - New version has two screws at the top of the cover. Go to step 3.
2. Install the two cover catch brackets from Rack 1 on the expansion rack. Install the right end cover (removed earlier) on the expansion rack, then go to step 4.

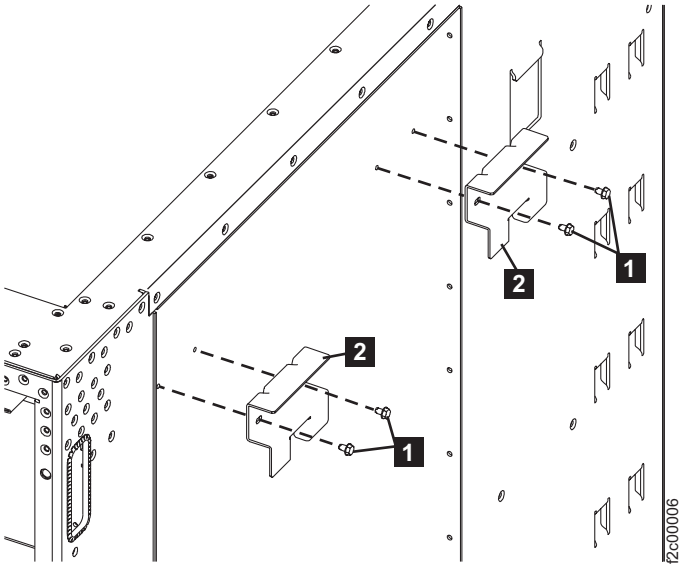


Figure 147. Removing/replacing right end cover

3. Does the expansion rack have the two screw holes in the top of the rack for the right end cover?
   - Yes, install the right end cover (removed earlier) on the expansion rack securing it with the two top screws.
   - No, call the next level of support. You will need to order the old version right end cover, retaining brackets and screws. Continue the installation without the right end cover.
4. Continue at the next section.

Opening the 208VDC bus bar gate

1. There are two versions of the Air baffle, determine which one you have:
   - Old version - one piece of sheet metal that must be removed before the 208VDC bus bar gate to the right of the baffle can be swung to the open position. Go to the next step.
   - New version - sheet metal with a flexible plastic cutout at the right rear (see **3** in the figure that follows). The plastic cutout bends out of the way when the 208VDC bus bar gate is swung open. Go to step 3.
2. Remove the two screws **1** and take out the Air baffle **2** as shown in Figure 148 on page 201. Retain the parts for later re-installation.

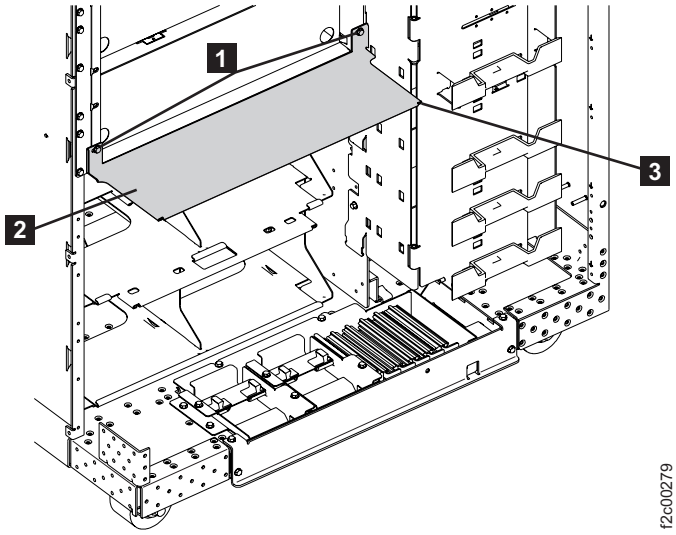


Figure 148. Air baffle

3. Remove the two screws **1** and pivot the 208VDC bus bar gate to the service position **2**, as shown in Figure 149.

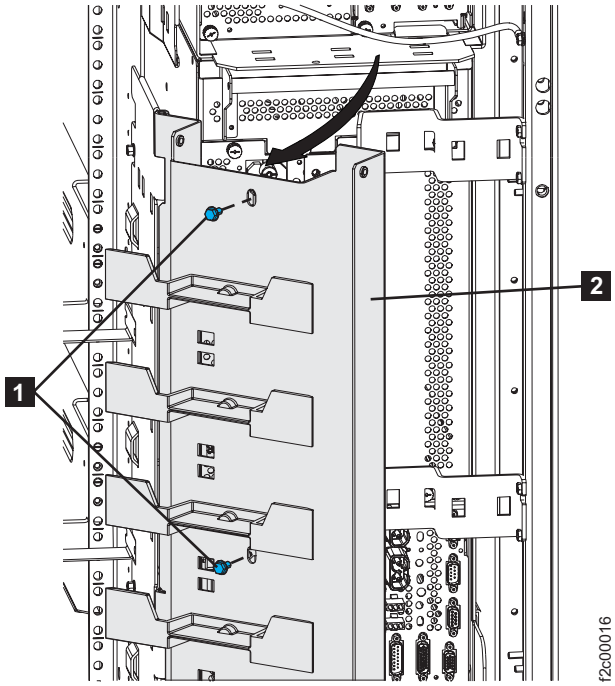


Figure 149. 208VDC bus bar gate service position

4. Remove the tailgate frame bracket. Remove two screws **2** as shown in Figure 150 on page 202. Loosen but do not remove the two top screws **1**. Slide the bracket out.

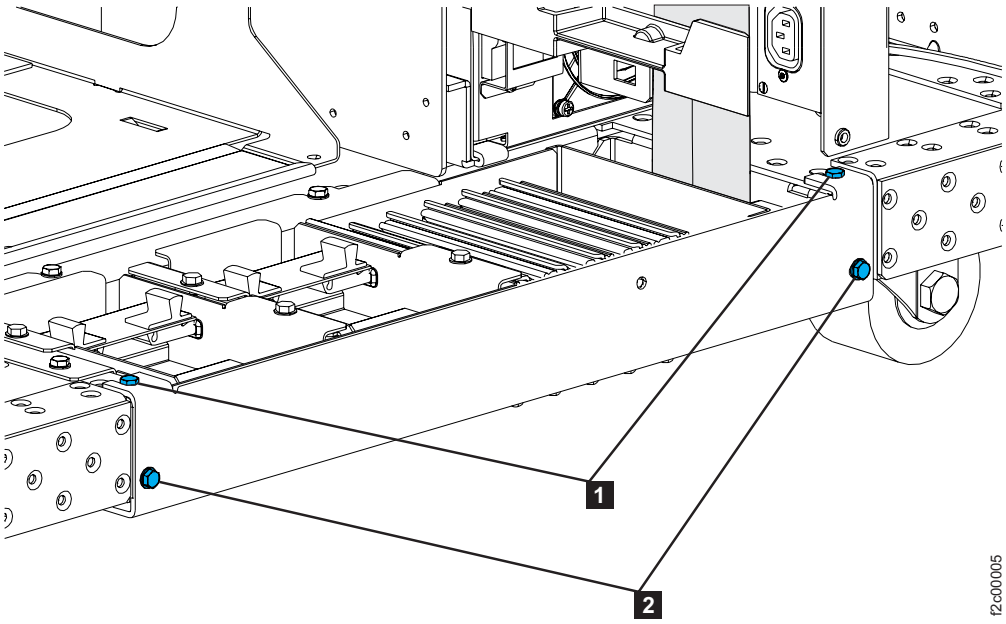


Figure 150. Tailgate frame bracket

5. Continue with "Installing the interrack decorative covers kit."

Installing the interrack decorative covers kit

1. Locate the interrack decorative covers kit. It contains two side interrack covers and one top interrack cover. There are two versions of the interrack decorative covers kit.
   - Early version - the covers are packaged in a long narrow cardboard box normally taped to the expansion rack. The side interrack covers are one piece. Go to step 3.
   - Later version - the covers are packaged in the large ship group box. Each side interrack cover is in two pieces that are hinged together. Go to the next step.
2. Assemble each of the side interrack covers as follows:
   a. Open the hinged side interrack cover **1** so that it is straight. See the following figure.
   b. Loosen the two nuts **2** on the threaded studs next to the hinge points.
   c. Slide the plate **3** so that it engages both studs.
   d. Tighten both nuts.

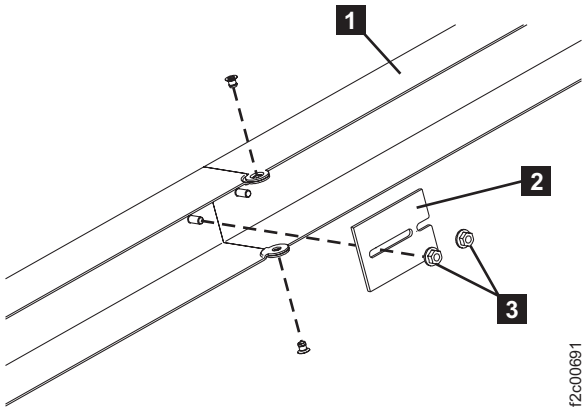


Figure 151. Assembling the later version of the interrack decorative side covers

3. Install each of the two interrack side covers by pushing the cover into place over the interrack spacing studs. Take care not to interfere with any interrack cables. See Figure 152.
4. Install the top interrack cover by pressing it down squarely. The spring clips should hold the cover in place. See Figure 152.

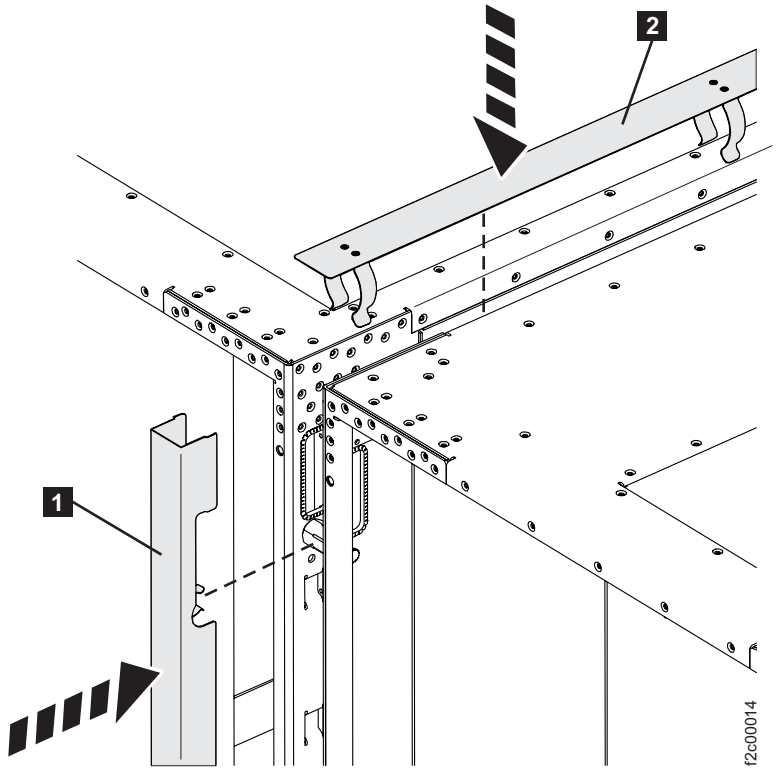


Figure 152. Installing the interrack decorative covers

5. Continue with "Checking for weight reduction feature."

Checking for weight reduction feature

The weight reduction feature removes storage enclosures and/or battery modules to reduce the total rack weight. These parts are then shipped on a separate pallet and must be reinstalled.

1. Was the Weight Reduction Feature (FC 0200) ordered for this storage expansion rack?

   Note: If FC 0200 was ordered, the Storage Enclosures will have been removed in manufacturing and shipped separately.

   - Yes, go to Chapter 8, "Installing hardware removed by weight reduction feature FC 0200," on page 231. Return here and continue when the storage enclosures have been installed.
   - No, continue with the next step.
2. Continue with "Performing the power and safety checks".

Performing the power and safety checks

Preparing to check DS8000 and customer power

DANGER

Lethal voltages are present in this area of the machine.

You will need the following tools to perform the power safety checks:

- For resistance checks, IBM analog ohmmeter P/N 00P7029 (Mastech Model 7040).
- For voltage checks, IBM digital multimeter P/N 8496278 (Fluke Model 179).
- For probing, high voltage test probe tips P/N 43L0951.

Note: Use listed P/N or equivalent approved by IBM.

Steps

1. Read the Danger notice and requirements above.
2. Continue with "Routing the mainline power cables".

Routing the mainline power cables

1. Uncoil the mainline power cables from the ship group.
2. The mainline power cable that connects to PPS-1 (upper) is longer than the mainline power cable that connects to PPS-2 (lower). Use the cable label and part number (P/N) to identify the longer cable.

Table 66. Cable label and part number

Feature Code	P/N of shorter cable	P/N of longer cable
1090 - 3 phase 60A non EMEA	22R1190	22R2222
1091 - 3 phase 60A EMEA	22R3794	22R3795
1092 - 3 phase 60A Japan	22R1191	22R2224
1093 - 3 phase 60A Chicago	22R1188	22R1189

3. Ensure the 208VDC bus bar gate **4** is in the open position. Refer to Figure 153 on page 205.
4. Route and connect the mainline power cables. Refer to Figure 153 on page 205 to complete the following steps:
   a. Route the longer mainline power cable up through the tailgate as shown and connect it to PPS-1 (upper).

b. Route the cable in between the 5/12V DDM "Y " power cables that connect the PPS-2 (lower) to the 5/12V bus bars as shown.

   Note: To make this easier, you can temporarily disconnect the right most connectors of the "Y" cables by removing the 4 screws **2** and moving the power cable **1** out of the way. The screws are not captive, so do not let them fall when they are removed.

c. Use a "hook and loop" fastener cable tie to fasten the upper cable to the bracket **3** .

d. Route the shorter mainline power cable up through the tailgate as shown and connect it to PPS-2 (lower).

Notes:

- If this is on a raised floor, route the cables down through the floor cutout and near the customer power connectors.
- If this is not on a raised floor, route the cables underneath the frame behind the rear caster so they exit to the side. The cables must not exit the rack in the front or rear service areas.

CAUTION:
Do not connect the mainline power cables to customer power until instructed to do so.

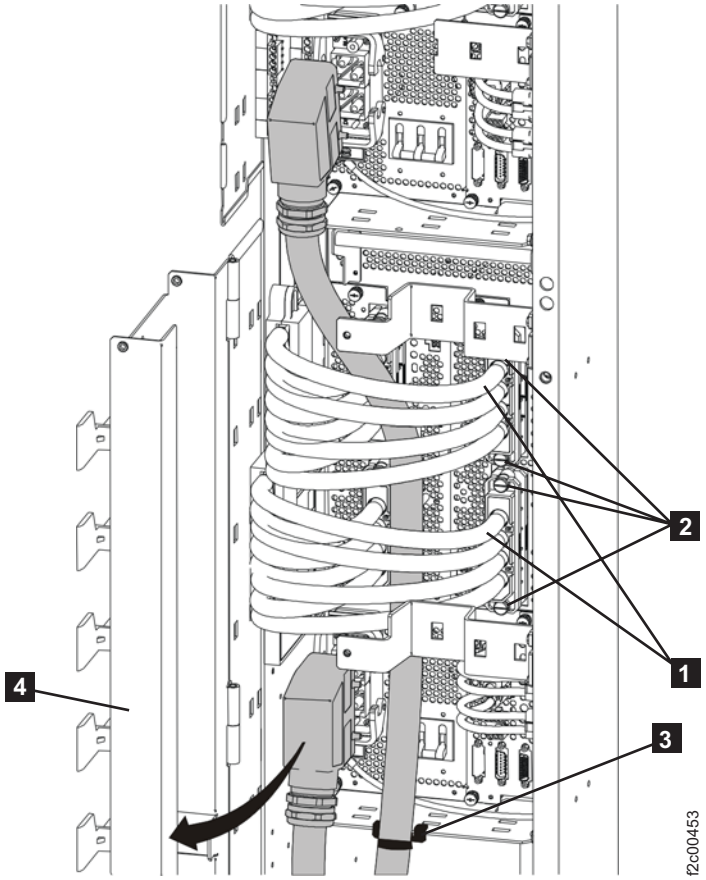


Figure 153. Routing the mainline power cables

Determining mainline power cable type (plug-in or wired)

1. Locate the customer end of the mainline power cables from all the DS8000 frames that you are installing.
2. Determine if the customer end of the mainline power cables are for plug-in or wired installations.
   - Plug-in: The mainline power cable has a plug at both ends. Go to "Checking customer power for a plug-in mainline power cable."
   - Wired: The mainline power cable has a plug at one end and loose wires at the other end. Go to "Checking customer power for a ″wired″ mainline power cable" on page 210.

Checking customer power for a plug-in mainline power cable

Repeat the following sections for both mainline power cables in the rack being installed.

Checking DS8000 power system ground continuity and voltage (plug in)

Attention: Use an IBM-approved analog multimeter. Do not use a digital meter.

1. Switch off the customer circuit breaker that supplies AC voltage to the mainline power cables.

   CAUTION:
   Do not connect the mainline power cables until instructed to do so.
2. **Attention:** Attach a "Do Not Operate" tag (S229-0237) and the safety lockout padlock to each customer circuit breaker that was switched off.
3. Verify the MAIN LINE circuit breaker **1** (CB00) on the rear of each primary power supply is set to Off (down). Refer to Figure 154 on page 207.

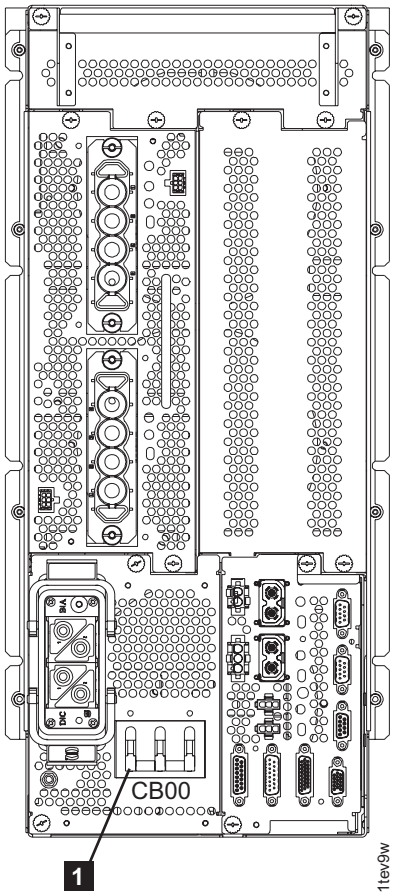


Figure 154. Rear view of PPS showing CB00

4. Verify the DS8000 mainline power cables are not connected to the customer power.
5. Prepare the multimeter to measure 0.1 ohm or less resistance. Place one lead of the multimeter on the ground pin of the male plug on the mainline power cable. Place the other lead on the conductive metal of its primary power supply enclosure. Refer to Figure 155 on page 208 for the location of the ground pin. Do this for each mainline power cable.

   Is there more than 0.1 ohm of resistance?

   - Yes, go to "MAP2330 Repair rack ground continuity" on page 618. To display the MAP, open the service Information Center on the management console, then open the **Isolation MAPs and Symbolic FRU procedures** section to locate the MAP.
   - No, go to "Checking customer receptacle ground pin continuity with customer CB off (plug in)" on page 208.

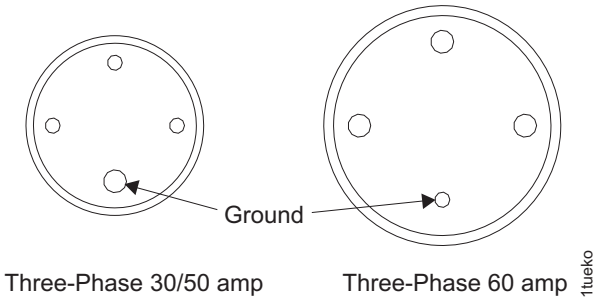


Figure 155. Three-phase amp

Checking customer receptacle ground pin continuity with customer CB off (plug in)

1. Prepare the multimeter to measure 1.0 V ac or less. Measure the voltage at the customer's AC power outlet between the ground pin and the building ground.

   Is the voltage less than 1.0 V ac?

   - Yes, go to step 3.
   - No, continue with the following step.
2. Voltage is present at a customer outlet with the customer circuit breakers off.

   DANGER

   Inform the customer that, even though the circuit breaker is off, voltage higher than 1.0 V ac is measured at the failing customer voltage outlet pins. Do not continue until the voltage is less than 1.0 V ac. (1003)
3. Prepare the multimeter to measure 1.0 ohm or less of resistance.
4. Measure the resistance between the customer AC power outlet ground pin and the building ground. Refer to Figure 156 for the location of the ground pin.

   Is the resistance 1.0 ohm or less?

   - Yes, continue with "Checking customer receptacle voltage pins with customer CB off (plug in)" on page 209.
   - No, inform the customer. **Do not continue until the resistance is 1.0 ohm or less.**

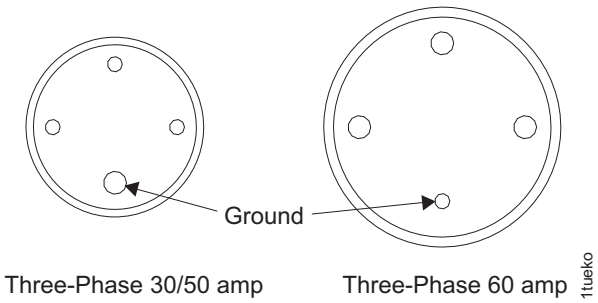


Figure 156. Three-phase amp

Checking customer receptacle voltage pins with customer CB off (plug in)

Prepare the multimeter to measure 1.0 V ac or less. Measure the voltage between each pair of voltage pins (**A**, **B**, and **C**) on the customer outlet. Also, measure the voltage between each voltage pin and ground pin on the customer outlet. Did any voltage measure more than 1.0 V ac? Refer to Figure 157 for the location of the voltage pins.

- Yes, inform the customer that one or more voltage pins on the customer receptacle measured greater than 1.0 V ac even though the circuit breaker is off. **Do not continue until the voltage is less than 1.0 V ac.**
- No, continue with the next task, "Checking customer receptacle voltage pins with customer CB on (plug-in)."

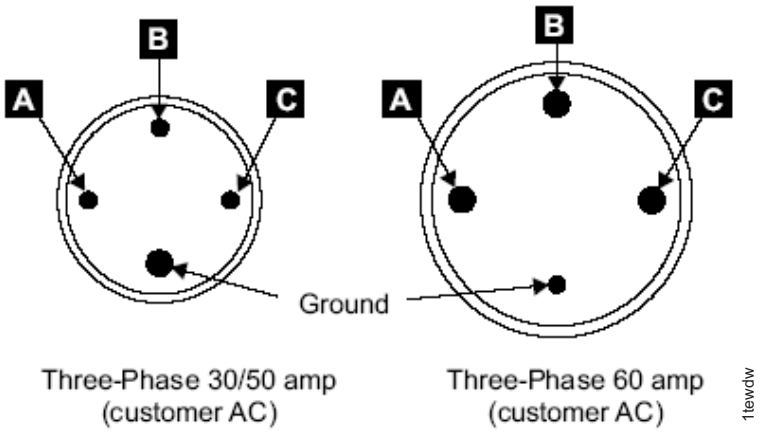


Figure 157. Measuring voltage between each pair of pins

Checking customer receptacle voltage pins with customer CB on (plug-in)

1. Remove the "Do Not Operate" tag and the lockout padlock from each customer mainline AC voltage circuit breaker and then switch on the customer circuit breaker.
2. Prepare the multimeter to read line voltage AC.

   DANGER

   Dangerous voltages may be present. Do not touch the internal parts (pins and connectors) of the customer receptacle.

3. Measure the voltage between the ground pin and each voltage pin (**A** , **B** , and **C**) on the customer outlet. Refer to Figure 158 on page 210 for the location of the voltage pins.

   Are the voltages within 10% of each other?

   - Yes, continue with the next step.
   - No, inform the customer that the voltages are not correct. **Do not continue until the voltages are correct.**
4. Locate the DS8000 information label located near the top of the left side panel at the rear of the DS8000. Measure the voltage between each pair of voltage pins (**A** to **B** , **B** to **C** , and **C** to **A**) on the customer outlet. Refer to

Figure 158 for the location of the voltage pins. Verify that the customer AC input voltage that you just measured matches the machine input voltage information on the label.

Do the voltages correspond with the label?

- Yes, continue with "Connecting the mainline power cables on the racks (plug-in)."
- No, **do not continue with the installation**. Contact the marketing representative to confirm that the DS8000 was ordered with the correct power input feature.

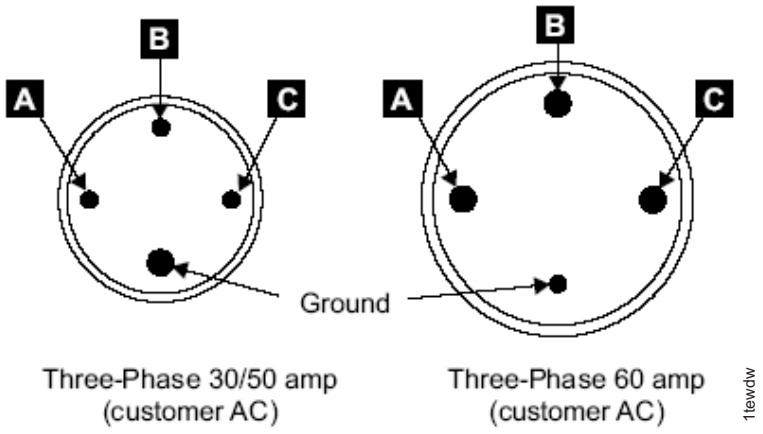


Figure 158. Measuring voltage between each pair of pins

Connecting the mainline power cables on the racks (plug-in)

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (D004)

1. Switch the customer circuit breaker to Off for the mainline power cables.

   Attention: Attach a "Do Not Operate" tag (S229-0237) and the safety lockout padlock to each circuit breaker.
2. Verify the mainline circuit breaker (CB00) on the rear of each primary power supply is set to Off (down).
3. Connect each storage facility mainline power cable plug to the customer AC outlet.
4. Continue with "Checking the expansion rack switch settings" on page 215.

Checking customer power for a ″wired″ mainline power cable

Use the following power sections to check the customer's power for a wired mainline power cable.

Check power system ground continuity and voltage (wired)

Attention: Use an IBM-approved analog multimeter. Do not use a digital meter.

1. Switch off the customer circuit breaker that supplies the AC voltage to the mainline power cables.

   CAUTION:
   Do not connect the mainline power cables until instructed to do so.
2. **Attention:** Attach a "Do Not Operate" tag (S229-0237) and the safety lockout padlock to each customer circuit breaker that was switched off. Refer to the *Electrical Safety for IBM Customer Engineers*.
3. Verify the MAIN LINE circuit breaker **1** (CB00) on the rear of each primary power supply is set to Off (down). Refer to Figure 159.

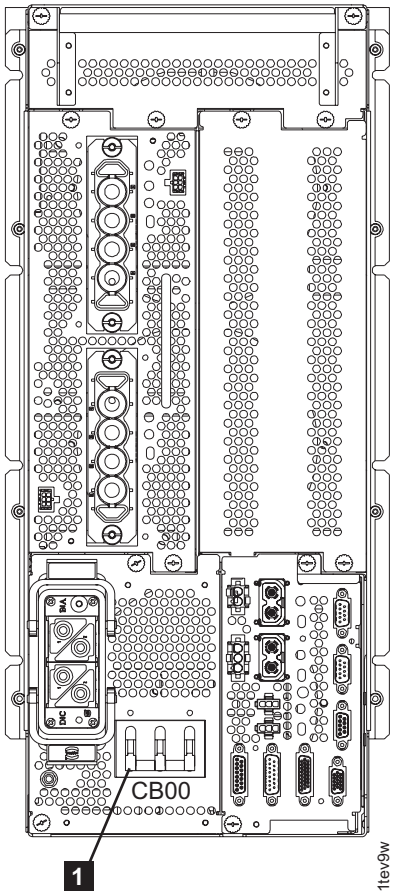


Figure 159. Rear view of PPS showing CB00

4. Verify the DS8000 mainline power cables are not connected to the customer power.
5. Connect the DS8000 mainline power cable to each primary power supply (PPS) input power connector.

   Note: Ensure that you connect the long mainline power cord to the upper primary supply and the short mainline power cord to the lower primary supply.
6. Prepare the multimeter to measure 0.1 ohm or less resistance. Place one lead of the multimeter on the green and yellow wire at the customer end of each mainline power cable. Place the other lead on the conductive metal of each PPS enclosure. Refer to Figure 160 on page 212.

   Is there more than 0.1 ohm of resistance?

- Yes, go to "MAP2330 Repair rack ground continuity" on page 618.
- No, continue with the next step.

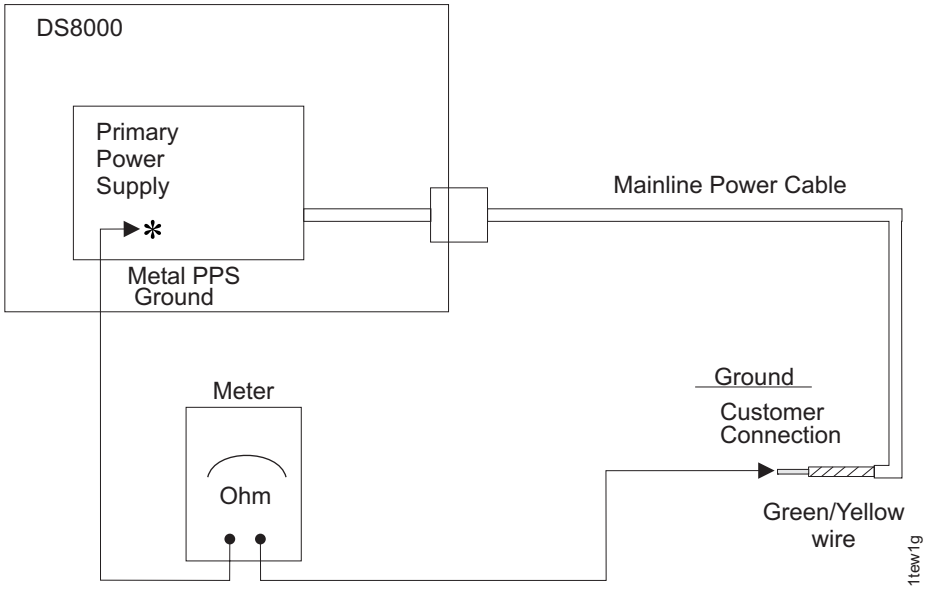


Figure 160. Prepare multimeter to measure ohm resistance

7. Disconnect the DS8000 mainline power cables from each PPS input power connector.
8. Instruct the customer to call a licensed electrician to connect each wired mainline power cable to the customer mainline power source.

   Attention: For EMEA installations, provide the following information to the electrician.

   EMEA Electrician Information

   The mainline power cord of this machine must be connected to the customer's mainline power source by a licensed electrician. The mainline power cable cannot be modified in any way.

   - For 3-phase machines:

     This machine must be connected to a 3-phase AC power. The mainline power cable is a four-conductor cable with the following color code:

     – L1 (phase 1) = black
     – L2 (phase 2) = blue
     – L3 (phase 3) = brown
     – PE (ground) = green/yellow

   Note: The connection to the AC power must be made without neutral, the blue wire must be used as a phase.
9. Continue with "Checking customer ground continuity with customer CB off (wired)."

Checking customer ground continuity with customer CB off (wired)

1. Prepare the multimeter to measure 1.0 V ac or less. Measure the voltage on the female ground pin on each mainline power cable and building ground. Refer to Figure 161 on page 213.

Is the voltage less than 1.0 V ac?

- Yes, go to step 3.
- No, continue at the following step.

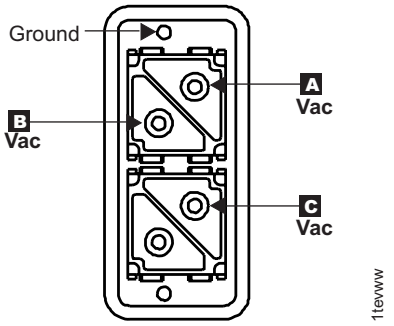


Figure 161. Mainline power cable connector

2. Voltage is present at a customer outlet with the customer circuit breakers off.

   DANGER

   Inform the customer that even though the circuit breaker is off, voltage higher than 1.0 V ac is measured at the failing customer voltage outlet pins.

   Do not continue until the voltage is less than 1.0 V ac.

3. Prepare the multimeter to measure 1.0 ohm or less of resistance.
4. Measure the resistance between the female connector ground pin on each mainline power cable and the building ground.

   Is the resistance 1.0 ohm or less?

   - Yes, continue with "Checking customer voltage with customer CB off (wired)."
   - No, inform the customer. **Do not continue until the resistance is 1.0 ohm or less**.

Checking customer voltage with customer CB off (wired)

1. Prepare the multimeter to measure 1.0 V ac or less.
2. Measure the voltage between each pair of voltage pins on the female connector on each mainline power cable. Also, measure the voltage between each voltage pin (**A**, **B**, and **C**) and the ground pin on each mainline power cable. Refer to Figure 162 on page 214.

   Did any voltage measure more than 1.0 V ac?

   - Yes, inform the customer that one or more voltage pins on the customer supply measured greater than 1.0 V ac even though the circuit breaker is off. **Do not continue until the voltage is less than 1.0 V ac.**
   - No, continue with "Checking customer voltage with customer CB on (wired)" on page 214.

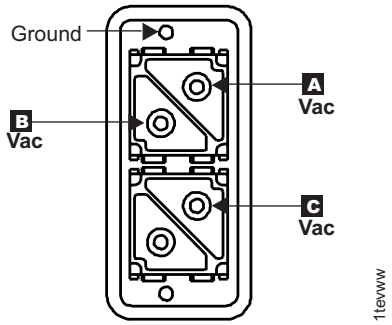


Figure 162. Mainline power cable connector

Checking customer voltage with customer CB on (wired)

1. Remove the "Do Not Operate" tag and the lockout padlock from each customer mainline AC voltage circuit breaker and then switch on the customer circuit breaker.
2. Prepare the multimeter to read line voltage AC.

   DANGER

   Dangerous voltages may be present. Do not touch the internal parts (pins and connectors) of the customer receptacle.

3. Measure the voltage between the ground pin and each voltage pin (**A** , **B** , and **C**) on each mainline power cable. Refer to Figure 163.

   Are the voltages within 10% of each other?

   - Yes, continue with the next step.
   - No, inform the customer that the voltages are not correct. **Do not continue until the voltages are correct.**

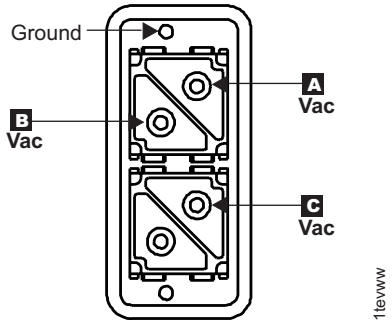


Figure 163. Mainline power cable connector

4. Locate the DS8000 information label located on the top of the left side panel at the rear of the storage facility. Measure the voltage between each pair of voltage pins (**A** to **B** , **B** to **C** , and **C** to **A**) on each mainline power cable. Refer to Figure 163. Verify that the customer AC input voltage that you just measured matches the machine input voltage information on the label.

   Does the voltage measured match the voltage on the DS8000 information label?

   - Yes, continue with "Connecting the mainline power cables on the racks (wired)" on page 215.

- No, **do not continue with the installation.** Contact the marketing representative to confirm that the DS8000 was ordered with the correct power input feature.

Connecting the mainline power cables on the racks (wired)

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (D004)

1. Switch the customer circuit breaker to Off for the mainline power cables.

   Attention: Attach a "Do Not Operate" tag (S229-0237) and the safety lockout padlock to each circuit breaker.
2. Verify the mainline circuit breaker (CB00) on the rear of each primary power supply is set to Off (down).
3. Connect each storage facility mainline power cable plug to the PPS then continue with "Checking the expansion rack switch settings."

Checking the expansion rack switch settings

1. Verify the setting of the following switches on each expansion rack. Each rack has:
   - One UEPO switch
   - Two PPSs
   - Zero to three battery enclosures

Table 67. Switch settings and locations for expansion racks

Switch	Setting	Location	Figure reference
Battery enclosure circuit breakers CB0 and CB1.	On (up)	On each battery assembly (rear of rack)	2 in Figure 164 on page 216
UEPO red switch	Off (down)	Rack operator panel (front of rack) **Note:** Press the recessed switch towards the bottom. It will appear flat when off.	n/a

Figure 164 on page 216 shows the rear view of the rack:

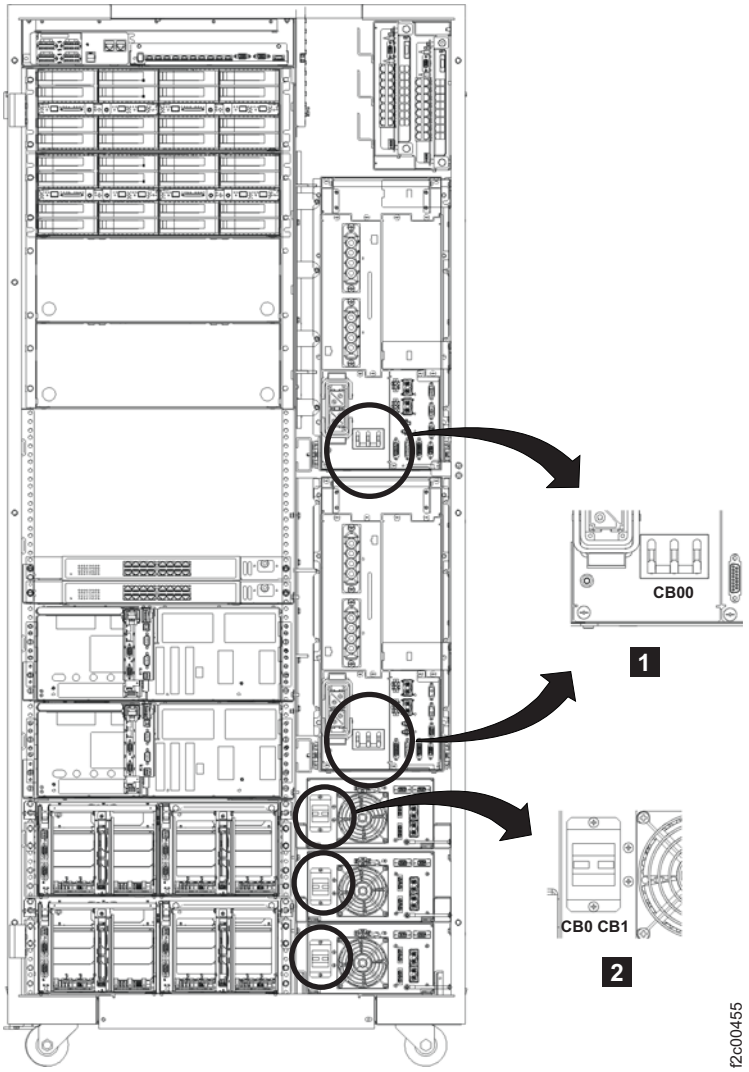


Figure 164. Rack rear view

2. Continue verifying the settings of the following switches on the expansion rack.

Table 68. Switch settings and locations for expansion rack PPS sequencer module

Switch	Setting	Location	Figure reference
Primary power supply circuit breaker CB00	Off (down)	On each PPS, on the AC input power module (rear of rack)	1 in Figure 164
Primary power supply three sequencer module enable/disable switches	Enabled (up)	Three switches on each PPS (rear of rack)	1 in Figure 165 on page 217
Enable/disable switches on the PPS 5/12 V DDM power module	Enabled (up)	Two switches on each PPS (rear of rack)	1 in Figure 166 on page 218

Figure 165 on page 217 shows the enable disable switches for the primary power supply sequencer module.

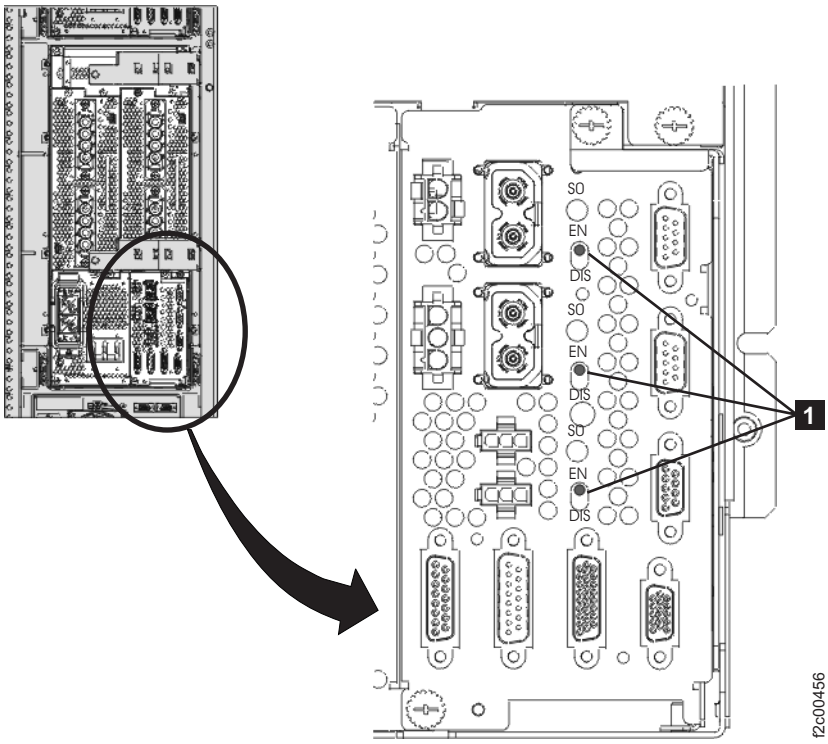


Figure 165. PPS sequencer module and LED enable/disable switch

Figure 166 on page 218 shows the enable disable switches for the primary power supply DDM.

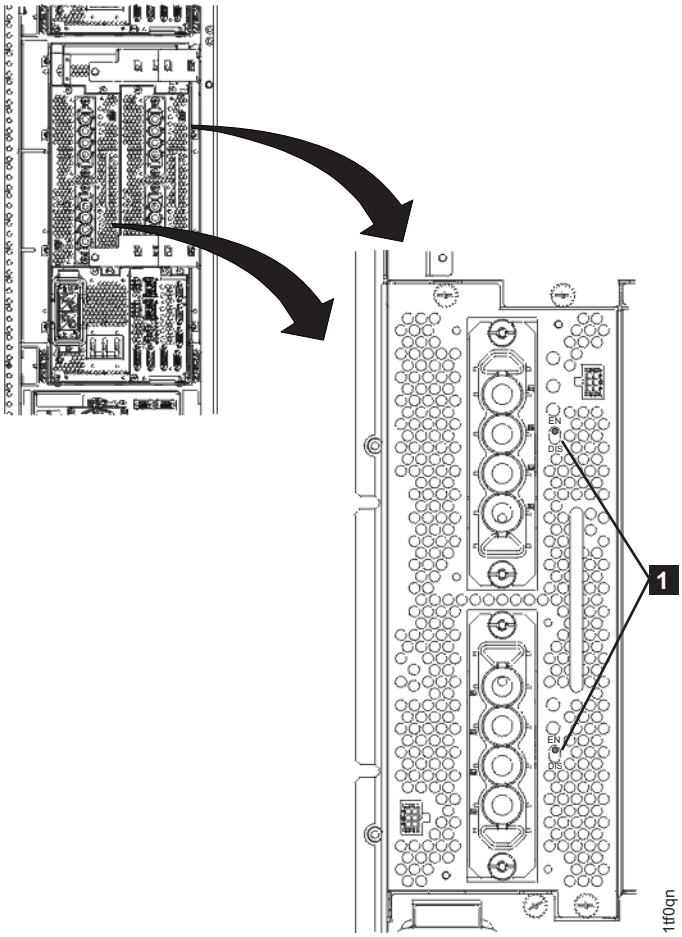


Figure 166. Enable/disable switches on a 5/12 V DDM power module (PPS)

3. Continue with "Checking the operation of the rack UEPO switch."

Checking the operation of the rack UEPO switch

1. Remove the "Do Not Operate" tag and the lockout padlock from each customer mainline AC voltage circuit breaker that supplies power to thestorage facility that you are installing.
2. Switch on each customer circuit breaker.
3. Switch the MAINLINE CB00, on the rear of each primary power supply to On (up).
4. Observe the six vertical LED indicators at the front of each primary power supply (to the left of the fans).

   Note: The Rack 1 UEPO switch must be in the On position.

   Use Table 69 to find the condition that applies:

Table 69. LED indicators when MAINLINE CB00 is on

AC INPUT GOOD	UEPO LOOP GOOD	PPS Display Panel	Action
On	Off	Ignore	Normal condition, continue with the next step

Table 69. LED indicators when MAINLINE CB00 is on (continued)

AC INPUT GOOD	UEPO LOOP GOOD	PPS Display Panel	Action
On	On	Ignore	UEPO fault, go to "MAP21F0 UEPO loop good LED should be off" on page 595
Off	Off	Ignore	Input power fault, go to "MAP2050 Loss of AC Input to a single primary power supply" on page 552. **Note:** If both PPSs are failing, then repeat the customer voltage checks done previously.

5. Push a paper clip through the small hole in the operator panel to reset the UEPO red switch to the On (up) position.

   Use Table 70 to find the condition that applies:

Table 70. LED indicators when UEPO switch is on

AC INPUT GOOD	UEPO LOOP GOOD	PPS Display Panel	Action
On	On	Blank, U0 or XC **Note:** Some levels of PPS firmware will cause an XC error code to be displayed. This is a false error. The condition will remain until the DDM power supply is turned on in a later step. No action is required. Continue with the next step.	Normal condition, continue with the next step.
On	On	Error code	Go to "MAP21A0 PPS fault isolation during install" on page 592.
On	Off	N/A	UEPO fault, go to "MAP21E0 UEPO Loop Good LED should be on" on page 594.

6. Swing the 208VDC bus bar gate back into its non-service position. Reinstall and tighten the two retaining screws.
7. If you removed the Air baffle **2** earlier to allow the 208VDC bus bar to swing open, reinstall it. See Figure 167 on page 220.

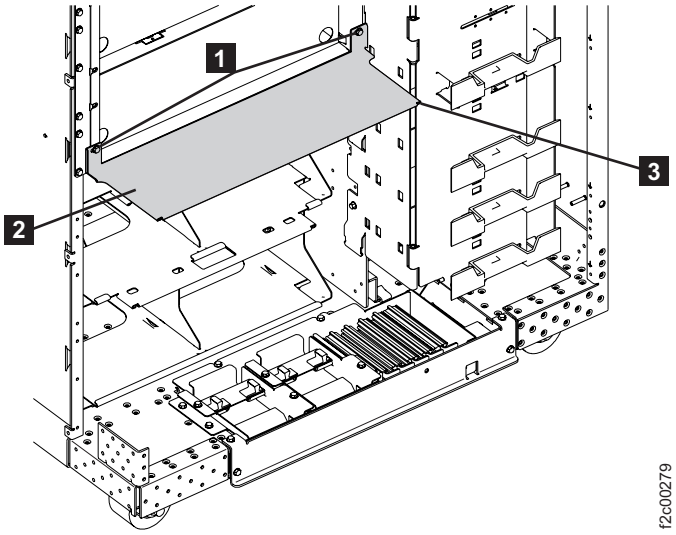


Figure 167. Air baffle

8. Continue with "Cabling, powering on, and verifying the storage facility."

Cabling, powering on, and verifying the storage facility

Use the topics in this section to connect the power control cables to start power on the rack and then verify the storage facility.

Connecting the power control cables to power on the rack

1. Locate the two RPC cables in the top rear of the expansion rack. Route the cables through the hole at the top rear right side to the RPC cards in Rack 1. If this is not Rack 2, then the cables will need to be routed through all the intermediate racks between this one and Rack 1.

   Note: On early production racks, the cables may be labeled with "Base Rack". On later production racks, they will be labeled with"Rack 1".

2. In the next step, connecting the PPS to RPC power control cables will power on the expansion rack automatically.

   Note: Because Rack-1 is already powered on, the RPC card ports for the expansion racks are also sending power on signals.

3. Connect the power control cables into the RPC connector as indicated in Table 71 on page 221 and Figure 168 on page 221.

   Note: On some early production storage expansion racks, the cables were labeled "RPC-0" and "RPC-1".

   The cable labeled "RPC-0" must be connected to RPC1.

   The cable labeled "RPC-1" must be connected to RPC2.

   Important: Do not cross the cables between the RPC cards. This could result in an unscheduled power drop during repair activities. If the RPC number labeling is not clear, trace the cables back to the PPS.

   - The cable to RPC1 originates from connector J1 on both PPSs.
   - The cable to RPC2 originates from connector J2 on both PPSs.

- Some cables are color coded. Later versions may have a gray label for RPC1 and a yellow label for RPC2.

Table 71. Rack numbers and RPC connector locations

Rack Number being installed	2	3	4	5	6	7
RPC 1 and RPC 2 connector	J203	J205	J207	J209	J211	J213

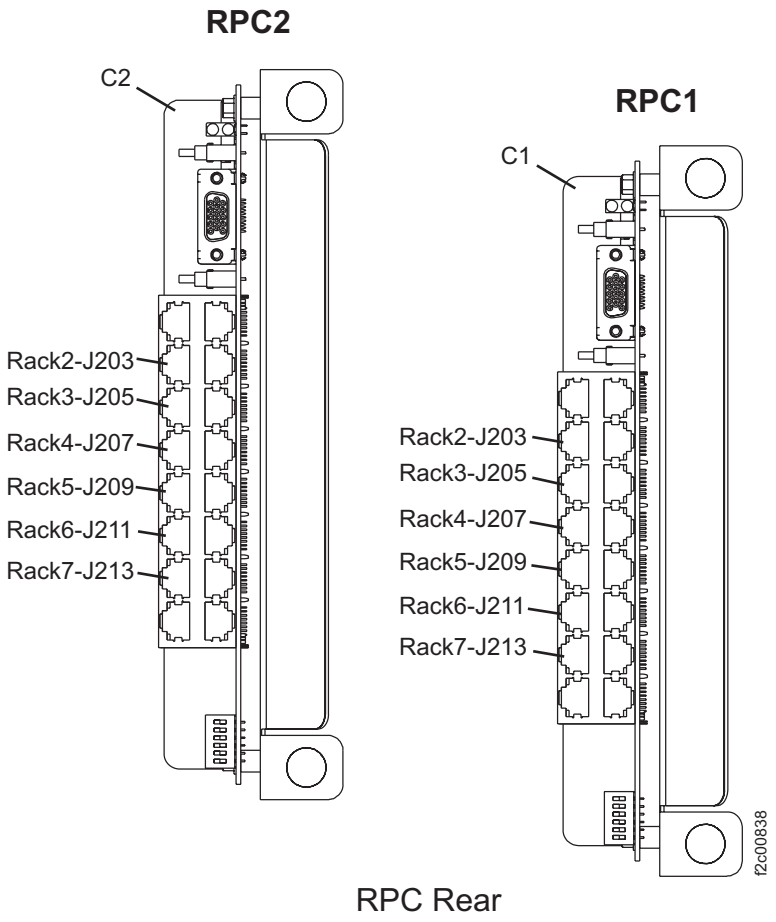


Figure 168. RPC card locations

Verifying the storage facility

1. Verify the storage facility. Return to the HMC screen that sent you back to these instructions and click the **Continue** button.
2. The install process will continue and verify the new rack.
   a. If the verify process completes successfully, you will be sent back here. Continue at "Finish install and cleanup" on page 228.
   b. If the verify process does not complete successfully and an exception screen is displayed, call the next level of support.

Installing and testing the storage enclosures

Use the procedures in this section to logically install and test the storage enclosures in this expansion rack.

1. **YOU MUST DISCONNECT** the FCIC card connector T3 and T4 FC-AL cables now in the storage enclosure being installed. Do this at the front and back of the rack.

   Note: You must do this now to ensure that each storage enclosure in the expansion rack can be physically cabled and logically installed one at a time. If these FC-AL cables are left connected, in later steps some of the storage enclosures will be discovered too early in the installation process which may cause problems that require the next level of support.

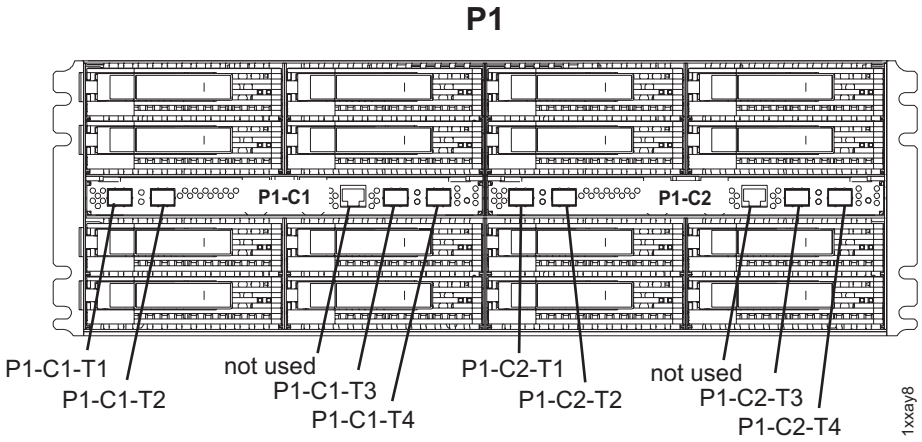


Figure 169. Storage enclosure connections

2. Determine the number of storage enclosure pairs in the expansion rack that will be installed to each DA pair in Rack 1. (A DA pair is two device adapter cards, each in a different I/O enclosure but sharing the same storage enclosures.)
   a. An example of a storage enclosure pair are storage enclosures XS11 and XS21 in Figure 170 on page 223.

      Note: On the HMC as well as in Table 72, they are referred to as S11 and S21.

   b. In Table 72 column 3, put a check mark in front of each storage enclosure pair that is present in the expansion rack.
   c. In Table 72 column 4, write down the number of storage enclosure pairs for each DA pair ID.

Table 72. Storage enclosures pairs per DA pair

DA pair ID (from HMC)	DA pair (location code of I/O enclosure slot)	Storage enclosure pairs (Location from HMC / Location on Figure 170 on page 223	Record the number of storage enclosure pairs present for each DA pair ID
2	I/O enclosure XI3 Slot C3 I/O enclosure XI4 Slot C6	___ S15 and S25 / XS15 and XS21 ___ S16 and S26 / XS16 and XS26	
0	I/O enclosure XI1 Slot C3 I/O enclosure XI2 Slot C6	___ S17 and S27 / XS17 and XS27 ___ S18 and S28 / XS18 and XS28	

Table 72. Storage enclosures pairs per DA pair (continued)

DA pair ID (from HMC)	DA pair (location code of I/O enclosure slot)	Storage enclosure pairs (Location from HMC / Location on Figure 170	Record the number of storage enclosure pairs present for each DA pair ID
3	I/O enclosure XI3 Slot C6 I/O enclosure XI4 Slot C3	___ S11 and S21 / XS11 and XS21 ___ S12 and S22 / XS12 and XS22	
1	I/O enclosure XI1 Slot C6 I/O enclosure XI2 Slot C3	___ S13 and S23 / XS13 and XS23 ___ S14 and S24 / XS14 and XS24	

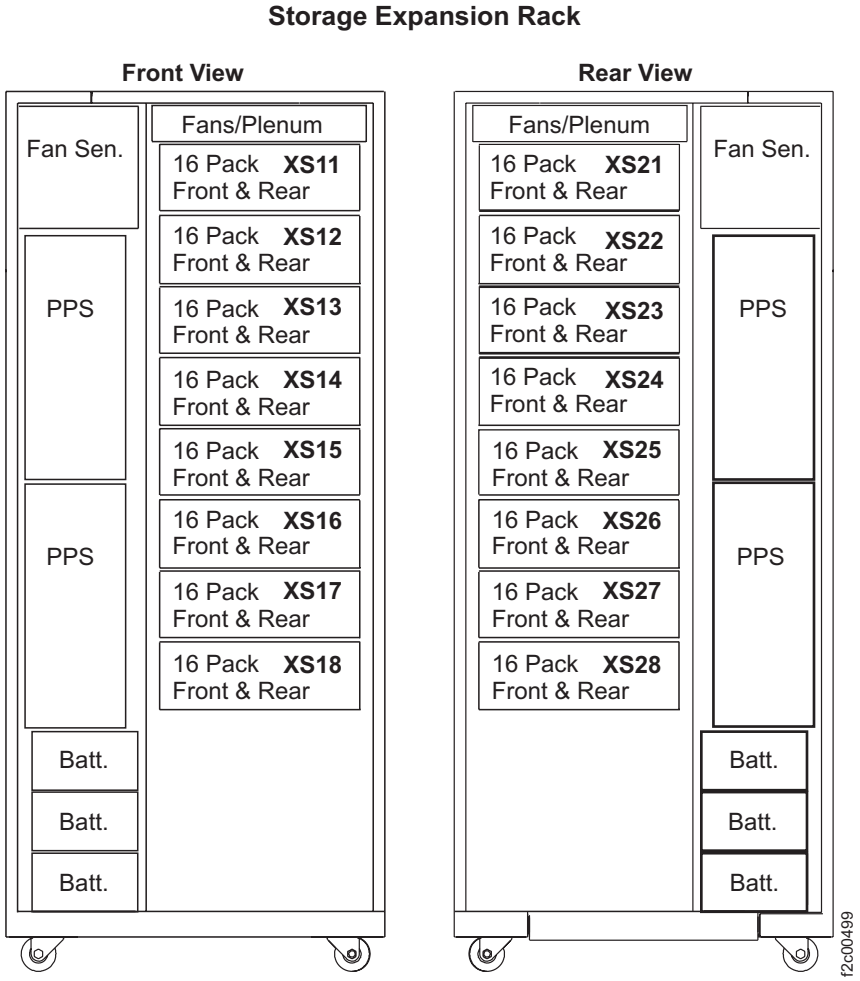


Figure 170. Storage expansion rack without I/O enclosures

3. Determine if Rack-1 has 8 device adapter cards installed. Device adapter cards will be in slot 3 or 6 of the four I/O enclosures at the bottom of rack 1. Refer to Figure 171 on page 224 and Figure 172 on page 224. Are there 8 device adapter cards installed?
   - Yes, go to step 5 on page 225.
   - No, go to step 4 on page 224.

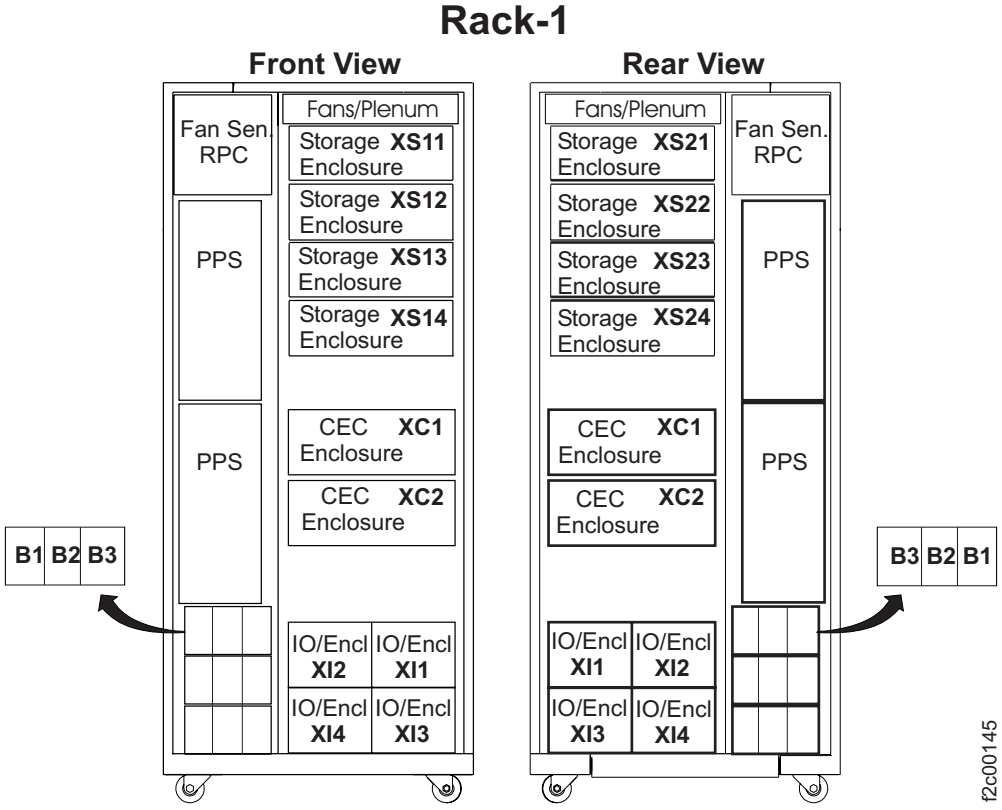


Figure 171. Physical location codes (Rack-1)

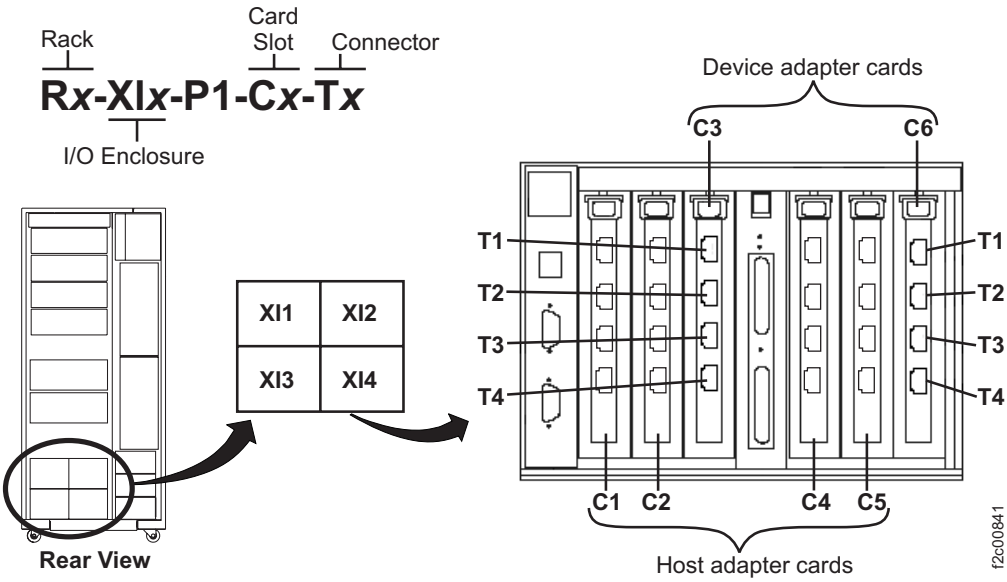


Figure 172. I/O enclosure locations (rear)

4. Determine if Rack-1 has enough device adapter cards to connect the storage enclosures that are present in the new expansion rack. Observe the rear of the rack and use Table 73 on page 225 to answer the question that follows.

   Note: Device adapter cards and storage enclosures comes in pairs, but as shown in the table you are only required to check for one of each.

Table 73. Determine device adapter cards needed

If the new expansion rack has a storage enclosure present in this physical location, (reference Figure 170 on page 223)	Rack-1 must have a device adapter card in this I/O enclosure and slot (reference Figure 171 on page 224 and Figure 172 on page 224)
S21 (XS21)	I/O enclosure XI3 Slot C6
S23 (XS23)	I/O enclosure XI1 Slot C6
S25 (XS25)	I/O enclosure XI4 Slot C6
S27 (XS27)	I/O enclosure XI2 Slot C6

Are the required device adapter cards present in rack 1?

- Yes, go to step 5.
- No, stop and call the next level of support. Additional device adapter cards must be added to Rack-1 to install all the storage enclosures. Another option is to continue the installation and only install those storage enclosures for the device adapter cards that are present. The HMC storage enclosure guided process will only allow you to install storage enclosures that have the proper device adapter cards already installed.

5. You are installing one or more pairs of storage enclosures. The management console GUI screen will prompt you for one storage enclosure at a time and will continue to redisplay the screens until all the storage enclosures have been installed.

   Note: The HMC process will display the physical location of the next storage enclosure to be installed.

   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Install/Add/Remove Hardware**, a window displays a list of storage facilities.
   d. Select the storage facility, click **Selected** (on top tool bar), and then select **Install Storage Enclosure or DDMs**. A window displays asking if you were sent from the installation instructions. Click **Yes**.
   e. A window displays prompting you what to install. Select **Install Storage Enclosures** and then click **Submit**.
   f. If rack 1 is a Model 9A2 or 9B2, a window may open that prompts for the storage facility image to assign the storage enclosures to. Select the storage facility image and then click **Submit**.

      Note:
      The storage facility serial number ends in 0.
      The first storage facility image serial number ends in 1.
      The second storage facility image serial number ends in 2.

   g. A window displays a listing of DA pairs available for additional storage enclosures, select the DA Pair and click **OK**.
   h. A window displays a listing of the possible numbers of storage enclosure pairs that can be installed. Refer to Table 72 on page 222 column 4 for each DA pair ID. Select the number to install and click **OK**.
   i. A window displays listing the physical location code of the storage enclosures to be connected. If the location codes are correct, click **OK**.

j. When the HMC screen directs you to return to these installation instructions, go to the next step.

6. The HMC screen has returned you here with a storage enclosure physical location code displayed for the expansion rack being installed.
   - The storage enclosure physical location code displayed by the HMC is of the format “Rx-Sxx”. The storage enclosure physical location codes in Figure 170 on page 223 are of the format ″XSxx″. They both refer to the same location.
   - Using the displayed physical location code, refer to Figure 170 on page 223 to determine the location of the storage enclosure in the rack.
   - Ensure the FC-AL cables (four total) are connected to the T1 & T2 connectors on both FCIC cards in the storage enclosure being installed. The other end of these four cables are not yet connected.
7. Connect the four FC-AL cables for each storage enclosure in the new expansion rack. Two FC-AL cables come from each FCIC card in the storage enclosure.

   Note: Do not connect any other FC-AL cable until directed.

   a. Find the physical location code displayed by the HMC in column one of Table 74, Table 75 on page 227, or Table 76 on page 227.
   b. Use columns two, three, and four to determine the physical location to connect the other end of the four blue FC-AL cables.
   c. Refer to Figure 170 on page 223, Figure 171 on page 224 and Figure 172 on page 224 to find the location of the enclosure for the other end of the cables.
   d. Each end of the FC-AL cable is prelabeled with either the physical location code of the enclosure and connector location or just the connector location it connects to.
   e. Find and connect the four cables determined using columns 2 through 4 in Table 74.
   f. For the rack to rack routing of the FC-AL cables, see Figure 173 on page 228.
   g. Go to the next step.

Table 74. FC-AL cable connections to I/O enclosures in Rack-1

Physical location of new expansion rack storage enclosure displayed on HMC screen:	Physical location to connect the four FC-AL cables to:		
	Rack	I/O Enclosure and slot	Connector
Rx-S11	Rack-1	XI3 Slot 6 and XI4 Slot 3	T1 & T2 (Top two connectors)
Rx-S13	Rack-1	XI1 Slot 6 and XI2 Slot 3	T1 & T2 (Top two connectors)
Rx-S21	Rack-1	XI3 Slot 6 and XI4 Slot 3	T3 & T4 (Bottom two connectors)
Rx-S23	Rack-1	XI1 Slot 6 and XI2 Slot 3	T3 & T4 (Bottom two connectors)

Table 75. FC-AL cable connections to storage enclosures in Rack-1

Physical location of new expansion rack storage enclosure displayed on HMC screen:	Physical location to connect the four FC-AL cables to:		
	Rack	**Storage enclosure**	**Connector**
Rx-S15	Rack-1	XS12	T3 & T4 on both FCIC cards
Rx-S17	Rack-1	XS14	T3 & T4 on both FCIC cards
Rx-S25	Rack-1	XS22	T3 & T4 on both FCIC cards
Rx-S27	Rack-1	XS24	T3 & T4 on both FCIC cards

Table 76. FC-AL cable connections to storage enclosures in same Rack

Physical location of new expansion rack storage enclosure displayed on HMC screen:	Physical location to connect the four FC-AL cables to:		
	Rack	**Storage enclosure**	**Connector**
Rx-S12	New expansion rack	XS11	T3 & T4 on both FCIC cards
Rx-S14	New expansion rack	XS13	T3 & T4 on both FCIC cards
Rx-S16	New expansion rack	XS15	T3 & T4 on both FCIC cards
Rx-S18	New expansion rack	XS17	T3 & T4 on both FCIC cards
Rx-S22	New expansion rack	XS21	T3 & T4 on both FCIC cards
Rx-S24	New expansion rack	XS23	T3 & T4 on both FCIC cards
Rx-S26	New expansion rack	XS25	T3 & T4 on both FCIC cards
Rx-S28	New expansion rack	XS27	T3 & T4 on both FCIC cards

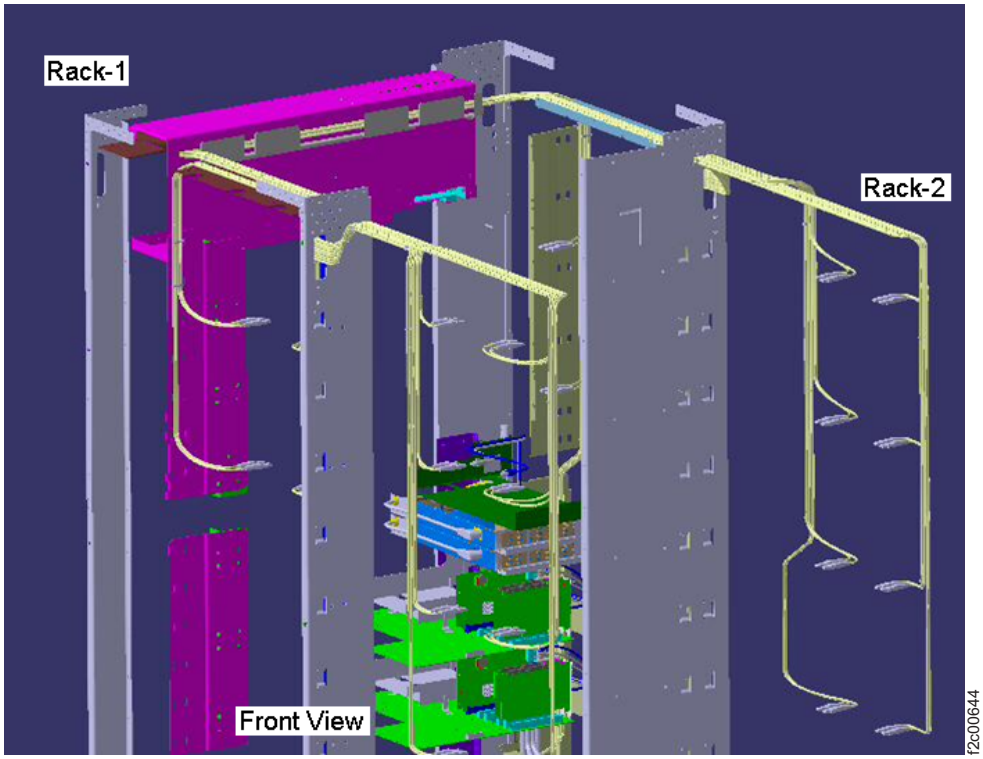


Figure 173. Mechanical routing of the FC-AL cables (rack-to-rack)

8. Return to the HMC and click **Next**.
   a. You will be sent back to the installation instruction to repeat steps 5, 6, 7, and 8 for each storage enclosure being installed on this DA pair.
   b. When all storage enclosures on this DA pair have been installed, go to the next step.
9. No action is required as the HMC initializes the storage facility image the storage enclosures are being installed to.

   The HMC displays:

   Task in Progress...**Powering on the FRU(s)**
   Verification Progress...**Verification progress:**
   Task in Progress...**Activating the system** (could take 20 minutes or more)
   Task in Progress...**Verifying system**
   Verification Progress...**Verification progress:**
   Task in Progress...**Activating applications(s)**

   When the HMC is finished, it displays:

   Service action is complete
   Service action is ending...

   The HMC directs you back to the installation instructions, go to the next step.
10. Continue with "Finish install and cleanup."

Completing the install

Finish install and cleanup

1. Display and repair any open serviceable events.

2. Will you be installing additional racks, storage enclosures, or other hardware features to this storage facility as part of this installation activity?
   - Yes. The backup of critical console data will occur after all installation activity is complete. Go to step 6.
   - No. The backup of critical console data will occur now. Go to the next step.
3. Locate the critical console data back up DVD disc for each HMC on this storage plex. The DVD disc should be in the ship group during an installation or kept in the HMC DVD-RAM drive after installation.

   There are two versions of the DVD disc:
   - Newer version is labeled with the HMC machine type model S/N and "HMC Critical Console Data Backup DVD, Keep in HMC DVD-RAM drive". If you have this version, go to 5.
   - Older version has no preprinted label, it should have the HMC machine type model S/N hand printed by the service representative. If you have this version, go to the next step.
4. Is the HMC machine type model and S/N printed on the DVD disc?
   - Yes, go to the next step.
   - No, hand print the HMC machine type model and S/N and "HMC Critical Console Data" on the DVD disc. For example: `HMC machine type model S/N: 8837-PLM 75KKTWT8R, HMC Critical Console Data`. Go to the next step.
5. Perform the following steps to back up critical console data on each HMC for this storage plex. Use the DVD disc with the HMC machine type model S/N for this HMC.
   a. Log into the management console (HMC) for rack 1.
   b. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   c. Open **Licensed Internal Code Maintenance → HMC Code Update**.
   d. In the right content area, select **Back up Critical Console Data**.
   e. Select **Back up to DVD on local system** and click **Next**.
   f. Insert a formatted DVD-RAM media into the drive.
   g. Enter a description for the archive data.
   h. Click **OK** to store your critical console data on the DVD-RAM.
   i. Leave the HMC Critical Console Data backup DVD in the HMC DVD-RAM drive. It is automatically updated once a week.
6. If used during this installation, store the customer-provided configuration worksheets in the rack 1 document enclosure (front upper right of rack).
7. Use the View Storage Facility Status utility to ensure there are no unreported or unexpected problems or conditions.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications → Service Focal Point**.
   c. In the right content area, select **Service Utilities**, a window opens that displays a list of storage facilities.
   d. Select a storage facility, click **Selected** (on top tool bar), and then select **View Storage Facility State**.
   e. A window opens that lists passed/failed status for 25 or more system checks. You can display the details for each system check. For more information and options, go to "MAP1100 View storage facility state (end of call)" on page 446.

8. If you have storage enclosures to install, return to “Installing and testing the storage enclosures” on page 221 to begin the storage enclosure installation process, and then return here and continue at the next step.
9. Monitor the certify DDM process for completion. It was started automatically for all DDMs being installed
   a. In the HMC Navigation area, open the **Management Environment**, select and open the HMC.
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Service Utilities**, a window displays a list of Storage Facilities.
   d. Select the Storage Facility that is being installed from the list. Click **Selected** from the top tool bar, and then select **Certify DDM**.
   e. When the certify DDM process is complete, inform the customer that the storage facility is now available for configuration.
10. Ensure the HMC power control mode for this storage facility is returned back to the original customer setting. (This was set to Manual Power Mode in step 1 of ″Preparing the existing rack.″)

    Note: This will return the storage facility power control to normal operation.
11. Refer to the pack/unpack instructions for return/discard information. Discard the shipping material locally.
12. The expansion rack is now regarded as “Installation complete”.
    a. Update the account records to show the install is complete.
    b. Record any additional time to install features, ECs, MESs to the correct service code. Do not charge the additional time to the storage facility installation.
    c. The on-site service actions are now complete.

Chapter 8. Installing hardware removed by weight reduction feature FC 0200

Feature Code 0200 removes storage enclosures and sometimes battery modules to reduce the shipping weight of a rack. This is required if the weight limit of building floors or elevators is less than the weight of a fully loaded rack. The parts that are removed are shipped on separate pallets. Feature Code 0200 can be installed by:

- Manufacturing prior to shipment when ordered by the customer.
- The service representative on the computer room floor after rack discontinue or relocate if required.

  Note: IBM packing materials must have been ordered to properly protect the removed parts.
- The service representative at the customer loading dock prior to the rack being moved to the computer room floor if required.

  Note: IBM packing materials must have been ordered to properly protect the removed parts.

The instructions describe how to:

- Reinstall the battery modules in their original locations in the battery module chassis.
- Reinstall the storage enclosures in their original locations in the storage facility.

Copies of the *Weight Reduction Status* chart are in the CE envelope which may be taped to the front covers, or may be in the document enclosure (front upper left of rack) and each box on the pallet.

Attention: The DS8000 retains configuration information that was established during manufacture. If all components are not reinstalled into their original locations, significant problems will result.

CAUTION:
The weight of a fully populated storage enclosure exceeds the safe lifting limit for one service representative. Installation of this feature requires two service representatives.

To determine the estimated weight of a rack, use Table 77.

Table 77. Rack weight (estimated) after all shipping materials have been removed

Rack model	Rack weight without FC 0200 (non-reduced weight)[1, 2]	Rack weight with FC 0200 (reduced weight)[1, 2]
921, 931	1243 kg (2740 lbs)	934 kg (2060 lbs)
922, 9A2, 932, 9B2	1313 kg (2895 lbs)	950 kg (2095 lbs)
92E, 9AE with FC 1300[3] without FC 1300[4]	 1338 kg (2950 lbs) 1089 kg (2400 lbs)	 776 kg (1710 lbs) 689 kg (1520 lbs)

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Table 77. Rack weight (estimated) after all shipping materials have been removed (continued)

Rack model	Rack weight without FC 0200 (non-reduced weight)[1, 2]	Rack weight with FC 0200 (reduced weight)[1, 2]

Notes:

1. If the shipping materials are still in place on the rack, add the following weight:
   - If the rack is in the carton but not crated, add 115 kg (250 lbs)
   - If the rack is in the carton and crated without desiccant/barrier bag, add 140 kg (310 lbs)
   - If the rack is in the carton and crated with desiccant/barrier bag, add 147 kg (325 lbs)
2. The estimated weights assume that both primary power supplies (PPSs) in the rack contain booster modules. (From the rear of the rack, if a booster module is present it is at the top of the PPS in the horizontal orientation.) If booster modules are not present, subtract 11kg (25 lbs) from the rack weight.
3. Four I/O enclosures.
4. No I/O enclosures.

Continue with "Installing battery module sets."

Installing battery module sets

Perform this task on any rack from which the battery module sets have been removed.

1. Locate the weight reduction status chart:
   - If the rack is new and IBM manufacturing applied FC 0200, the status sheet will be computer generated. Continue to the next step.
   - If the rack is not new from IBM manufacturing and FC 0200 was applied by a field service representative, the status sheet will be hand printed. Go to step 3 on page 233.
2. Remove the Weight Reduction Status chart from the CE envelope. Additional copies are in the boxes on the pallet. The Weight Reduction Status chart contains a record of the original installed location of each battery module. For a sample chart, see Figure 174 on page 233. For a description of the columns in the chart, see Table 78 on page 233. Then go to step 4 on page 233.

   Note: If the status chart cannot be found, contact the next level of support. There is a procedure to get a PDF copy sent from San Jose manufacturing.

Weight Reduction Status

Machine Serial Number: 0028970, Generated at Fri May 06 19:33:35 CEST 2005								
MCSN	**CRMMDL**	**CRINPN**	**CRINSQ**	**CRPLL2**	**CRPLL3**	**CRCDES**	**PARTFAMC**	
0028970	922	0000022R1128	YM10C04AC091	E10		BBU Sub-asm		
0028970	922	0000017P7655	Y1W0NE4C2055	E10		BBU Battery Module	BBUM1	B1
0028970	922	0000017P7655	Y1WONE4C2056	E10		BBU Battery Module	BBUM1	B2
0028970	922	0000017P7655	Y1WONE4C2057	E10		BBU Battery Module	BBUM1	B3
0028970	922	0000022R1128	YM10C04AC093	E11		BBU Sub-asm		
0028970	922	0000017P7655	Y1WONE4C2059	E11		BBU Battery Module	BBUM1	
0028970	922	0000017P7655	Y1WONE4C2060	E11		BBU Battery Module	BBUM1	
0028970	922	0000017P7655	Y1WONE4C2061	E11		BBU Battery Module	BBUM1	
0028970	922	0000022R0879	YM10750004E9	XS11		16PACK MPACK 73GB 15K	MPC11	
0028970	922	0000022R0879	YM10750006D2	XS12		16PACK MPACK 73GB 15K	MPC11	
0028970	922	0000022R0879	YM1075000502	XS13		16PACK MPACK 73GB 15K	MPC11	
0028970	922	0000022R0879	YM10750004FB	XS21		16PACK MPACK 73GB 15K	MPC11	
0028970	922	0000022R0879	YM10750006F2	XS22		16PACK MPACK 73GB 15K	MPC11	
0028970	922	0000022R0879	YM10750004EF	XS23		16PACK MPACK 73GB 15K	MPC11	

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Figure 174. Sample of a Weight Reduction Status chart

Table 78. Description of columns in a sample Weight Reduction Status chart

Column in chart	Description of column
CRINSQ	Battery module serial number
CRMMDL	Rack model number (*mmm* in the location code for the battery module chassis: U2*nnn.mmm*.sssssss-E1x-E2)
MCSN	Machine serial number
CRPLL2	Location of the battery module chassis (*xxx* in the location code for the battery module chassis: U2*nnn*.mmm.sssssss-*xxx*-E2; see Figure 175 on page 234)
(margin to the right of the table)	Location of the battery module, handwritten by manufacturing (when the rack is viewed from the front, B1 is on the left; see Figure 175 on page 234)

3. Locate the Weight Reduction Status chart, it should be included in one of the boxes for the removed parts. The Weight Reduction Status chart contains a record of the original installed location of each battery module.
4. Use the information in the status chart to determine where each battery module must be installed, and then go to step 5 on page 234.

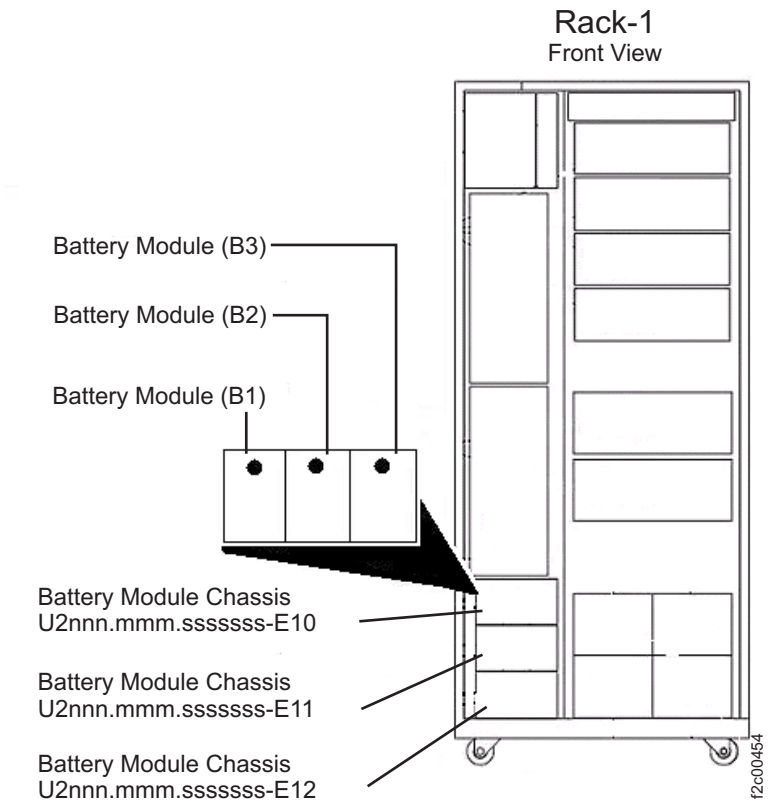


Figure 175. Locations of the battery modules

5. Using the location information from step 2 on page 232, slide each battery module into its original location and secure it with the thumbscrew. For additional guidance, go to "Exchange the battery module set" on page 1210.
6. Continue with "Installing storage enclosures."

Installing storage enclosures

Perform this task on any rack from which the storage enclosures have been removed.

1. Remove the Weight Reduction Status chart from the CE envelope. The Weight Reduction Status chart contains a record of the original installed location of each storage enclosure. For a sample chart, see Figure 176 on page 235.

Weight Reduction Status

Machine Serial Number: 0028970, Generated at Fri May 06 19:33:35 CEST 2005								
MCSN	**CRMMDL**	**CRINPN**	**CRINSQ**	**CRPLL2**	**CRPLL3**	**CRCDES**	**PARTFAMC**	
0028970	922	0000022R1128	YM10C04AC091	E10		BBU Sub-asm		
0028970	922	0000017P7655	Y1W0NE4C2055	E10		BBU Battery Module	BBUM1	B1
0028970	922	0000017P7655	Y1WONE4C2056	E10		BBU Battery Module	BBUM1	B2
0028970	922	0000017P7655	Y1WONE4C2057	E10		BBU Battery Module	BBUM1	B3
0028970	922	0000022R1128	YM10C04AC093	E11		BBU Sub-asm		
0028970	922	0000017P7655	Y1WONE4C2059	E11		BBU Battery Module	BBUM1	
0028970	922	0000017P7655	Y1WONE4C2060	E11		BBU Battery Module	BBUM1	
0028970	922	0000017P7655	Y1WONE4C2061	E11		BBU Battery Module	BBUM1	
0028970	922	0000022R0879	YM10750004E9	XS11		16PACK MPACK 73GB 15K	MPC11	
0028970	922	0000022R0879	YM10750006D2	XS12		16PACK MPACK 73GB 15K	MPC11	
0028970	922	0000022R0879	YM1075000502	XS13		16PACK MPACK 73GB 15K	MPC11	
0028970	922	0000022R0879	YM10750004FB	XS21		16PACK MPACK 73GB 15K	MPC11	
0028970	922	0000022R0879	YM10750006F2	XS22		16PACK MPACK 73GB 15K	MPC11	
0028970	922	0000022R0879	YM10750004EF	XS23		16PACK MPACK 73GB 15K	MPC11	

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Figure 176. Sample of a Weight Reduction Status chart

2. Use the information in the chart to determine where each storage enclosure must be installed. For a description of the columns in the chart, see Table 79.

Table 79. Description of columns in a sample Weight Reduction Status chart

Column in chart	Description of column
CRINSQ	Storage enclosure serial number (on the front of the storage enclosure, at the far right, between the rack mounting screws; the number is in a vertical orientation)
CRMMDL	Rack model number
MCSN	Machine serial number
CRPLL2	Location of the storage enclosure (see Figure 177 on page 236 and Figure 178 on page 237)

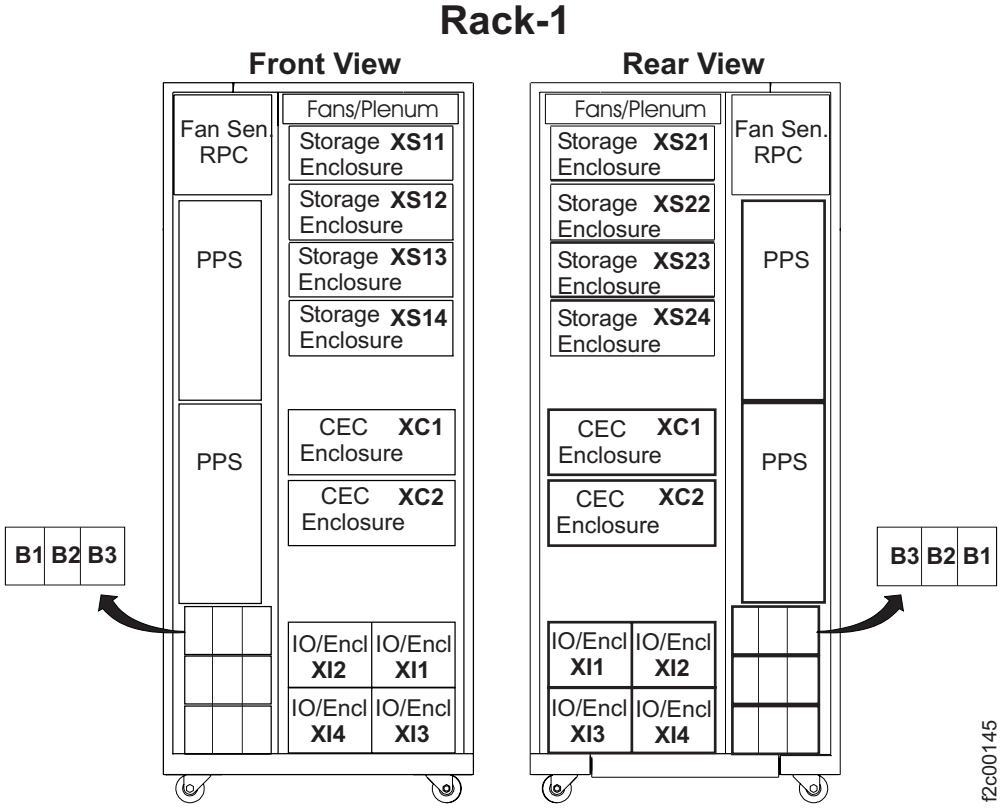


Figure 177. Physical location codes (Rack-1)

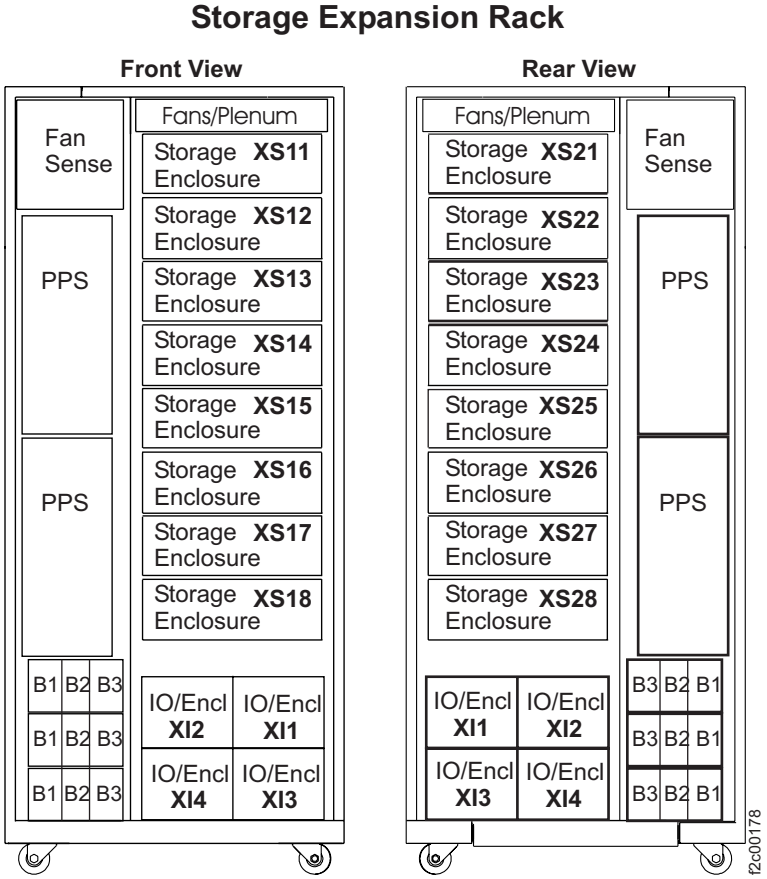


Figure 178. Physical location codes (expansion rack)

CAUTION:
A fully populated storage enclosure weighs 121 kgs (55 lbs). This weight exceeds the safe lifting limit for a single service representative. Installation of this feature requires two service representatives.

Note: DDMs are logically configured to a particular slot and if removed must be put back in the same slot.

3. Using the location information from step 2, install the storage enclosures in their original locations.
   a. Unlatch the sheet metal air flap so it can swing to the up position.
   b. Install the storage enclosure in the rack and fasten it with the four screws **2** provided. See Figure 179 on page 238.

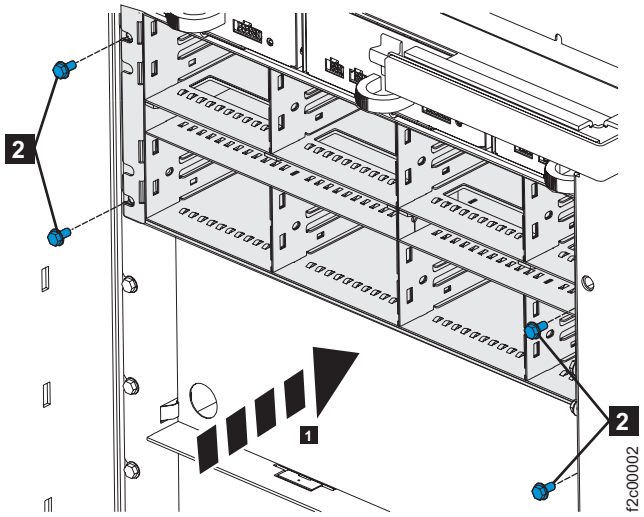


Figure 179. Install the storage enclosure

c. Connect the FC-AL cables to the Fiber Channel Interface Card connectors. For connector locations, see Figure 180.

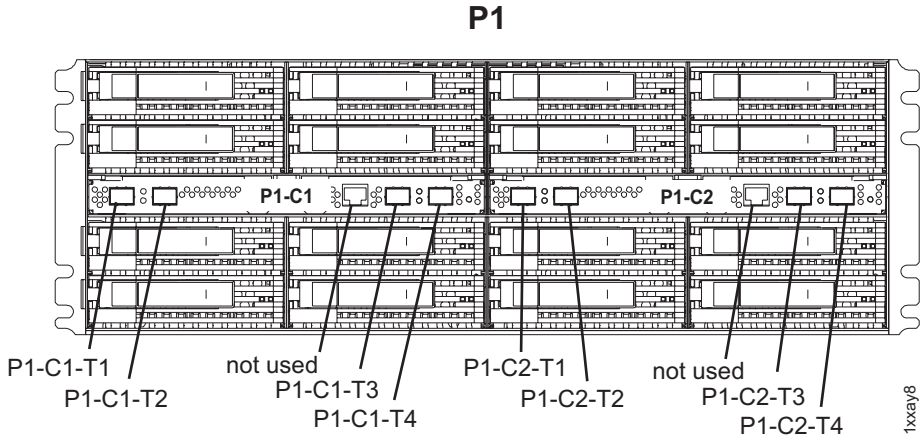


Figure 180. Storage enclosure locations

d. Repeat step 3 for each storage enclosure to be installed.

4. At each unused storage enclosure position, make sure that the sheet metal air flap is latched down in order to maintain correct cooling air flow to the installed storage enclosures.
5. Return to the procedure that sent you here.

Chapter 9. Installing the earthquake resistance kit feature FC 1906

Use this section to install the earthquake resistance kit, feature code 1906.

Earthquake resistance kit model 9xx FC 1906

The earthquake resistance kit, Feature Code 1906, provides additional hardware to be installed. The kit stiffens the rack from flexing and also ties the rack directly to the concrete floor. The kit can be installed on a raised floor or non-raised floor.

- If the rack is new from IBM, the MES hardware kit for FC 1906 would be shipped with the rack.
- If the rack has been discontinued from another account, and the earthquake resistance kit was originally installed there, the kit would have been removed and shipped separately.

  The original kit included parts to tie-down the rack to a non-raised floor, a low raised floor, and a high raised floor. Parts not used at the original installation may not have been kept and shipped. If you are installing on a different floor type than the original floor type, you may not have all the necessary parts. Call the next level of support.

Customer responsibility for site preparation

1. The marketing representative should have previously notified the customer of the prerequisites for the floor(s). The floor mounting requirements are defined in *IBM System Storage DS8000 Introduction and Planning Guide* (GC35-0515-01), which is included on the service documentation CD in the ship group.
2. The customer is responsible to obtain the service of a qualified consultant or Structural Engineer, to determine the appropriate anchoring for the lockdown plate, as needed, for the non-raised floor installation, as well as the determination of the heavy duty concrete or slab floor eyebolts for the raised floor(s) installation.
3. Are the storage facility racks being installed on a raised floor?
   a. Yes, go to "Raised floor installation."
   b. No, go to "Non-raised floor tie-down hardware" on page 243.

Raised floor installation

1. If the earthquake resistance kit is being installed, it must be installed on all racks in a storage facility (base rack and attached expansion racks).
2. Read this entire section to understand the rack stiffening and floor tie-down installation before you return to the installation instructions that sent you here. You will need to decide during the rack installations when to use the information in this procedure to install the earthquake resistance kit.
3. Inspect the floor where the storage facility racks are to be installed. Refer to Figure 181 on page 240 and ensure the following are already present for each rack:
   a. Floor tiles have one cable cutout.
   b. Floor tiles have four tie-down hardware holes.
   c. The concrete floor has four customer provided eyebolts installed.

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Note: Customer floor preparation specifications are documented in *IBM System Storage DS8000 Introduction and Planning Guide* which is included on the *IBM System Storage DS8000 series Service Documents CDROM* and the customer documentation CDROM.

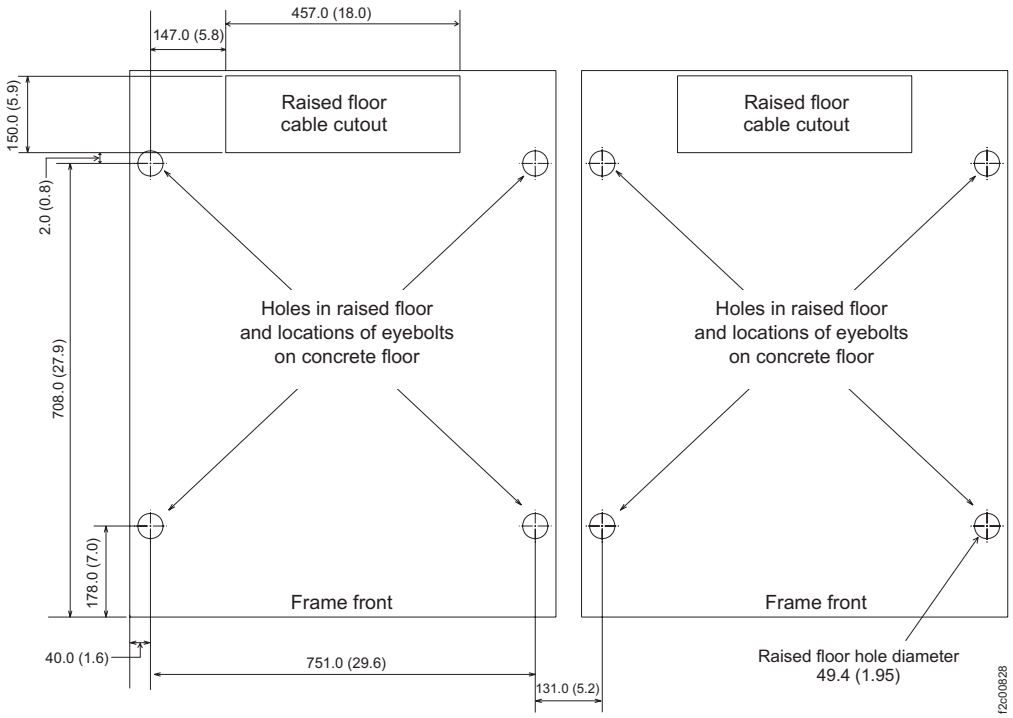


Figure 181. Locations for cable cutouts and rubber bushing holes for raised floor and eyebolt installation on concrete floor

4. Familiarize yourself with the MES kit hardware. Refer to "MES kit bill of materials, figures, and part numbers" on page 250.
5. Do the following after the rack is in its final position over the raised floor cutouts.
   a. Move one rack to the location and install the floor tie-down hardware before moving the next frame into position to have the tie-down hardware installed.
   b. Do not tighten the tie-down turnbuckles until all of the racks have been installed.
   c. There are two versions of the turnbuckle supplied in this kit, a short turnbuckle, and a long turnbuckle. The difference in the versions is for the height of the raised floor. The installation procedure is the same for both.
6. This is an overview of the floor tie-down hardware.
   - The leveler nut and support plate lift the rack up slightly to take the weight off the wheel caster.
   - The frame stud pulls the rack down against the floor to keep it from tipping over.

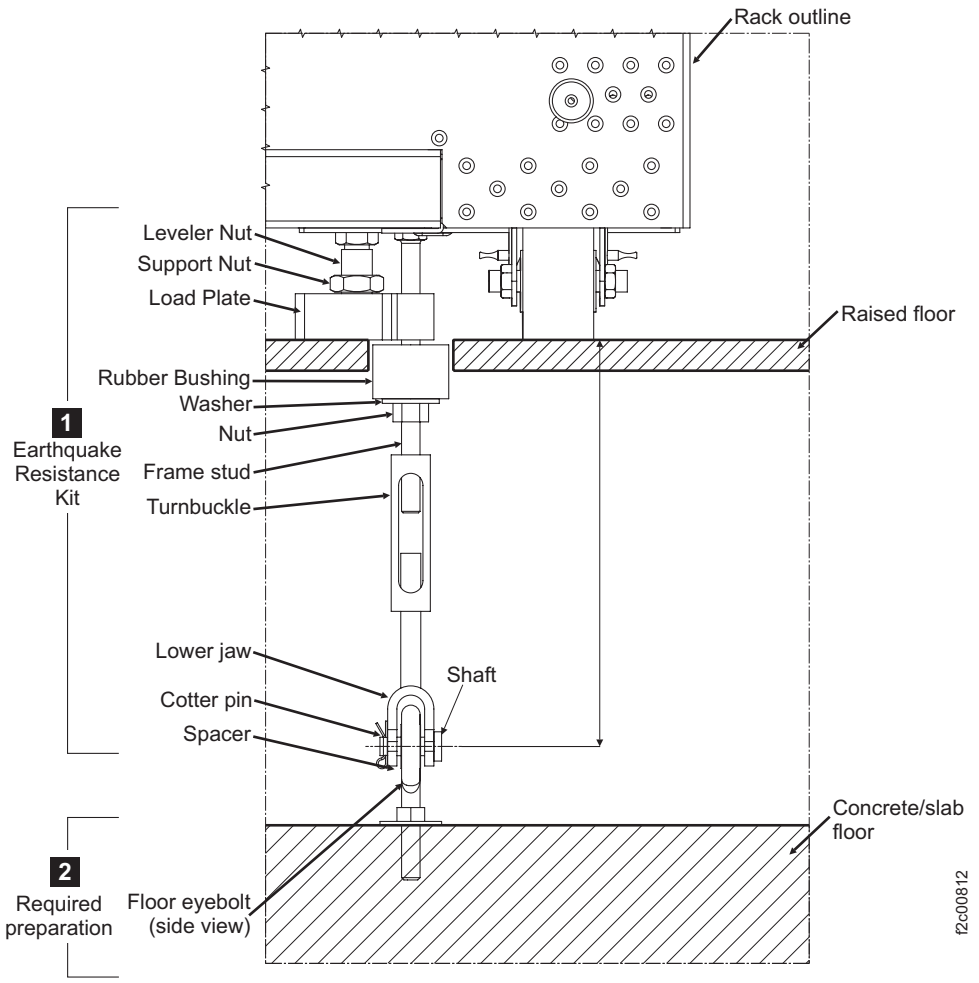


Figure 182. Floor tie-down hardware

7. The MES kit should include two frame jack assemblies. They can be used to raise one side of the rack at a time, so you have more clearance between the rack and the floor to install the floor tie-down hardware.

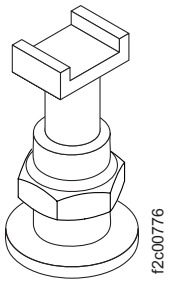


Figure 183. Frame jack tool

The following shows the raised floor tie-down hardware:

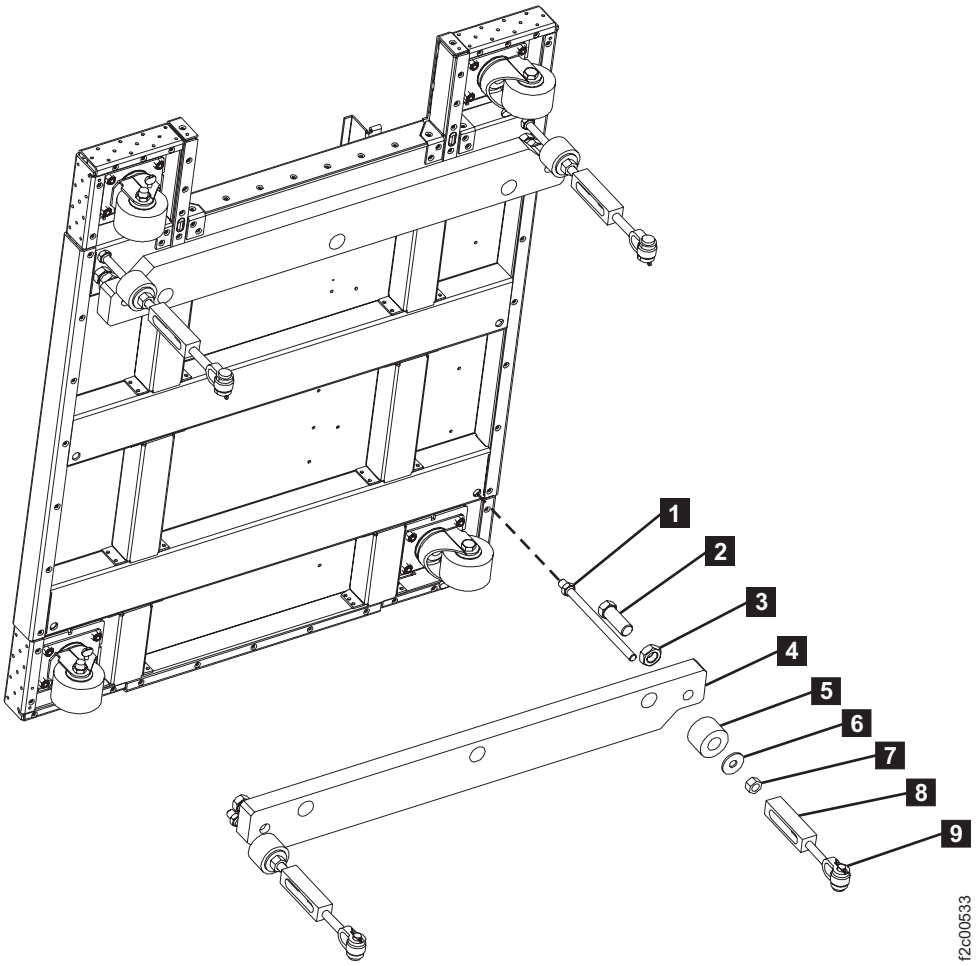


Figure 184. Raised floor tie-down

8. Install the jam nut **3** on leveler **2** and thread it on fully.
9. Install two levelers on each load plate **4**.
10. Position the load plates under the rack.
11. Install the tie-down studs **1** into the rack. You can do this from above or below the raised floor.

    Note: A frame jack tool assembly is provided to lift the frame as an aid in attaching the tie-down frame stud to the frame. Place them on the outside corners of one side of the frame. Attach the tie-down hardware to one side of the frame. Move the frame jack assembly to the outside corners of the other side of the frame to aid in attaching the tie-down hardware to the other side of the frame. This tool is to be used on unbolted frames.
12. Raise the leveler **2** by tightening until it is tight against the frame and then tighten it an additional one-half turn. This will take the rack weight off the caster wheel.
13. Use the jam nut **3** to lock the leveler.
14. Install the rubber bushing **5**, washer **6** and nut **7** on the frame stud **1**. This must be done from beneath the raised floor.
15. Tighten the nut until the rubber bushing is secure against the load plate and protects the frame stud from touching the sides of the raised floor hole.

16. Screw in the lower jaw assembly **9** into the turnbuckle **8**.
17. Screw the turnbuckle assembly onto the frame stud **1** ensuring that both shafts are equally inserted so that there is room to tighten them later.
18. Place the spacer into the customer-installed eyebolt.

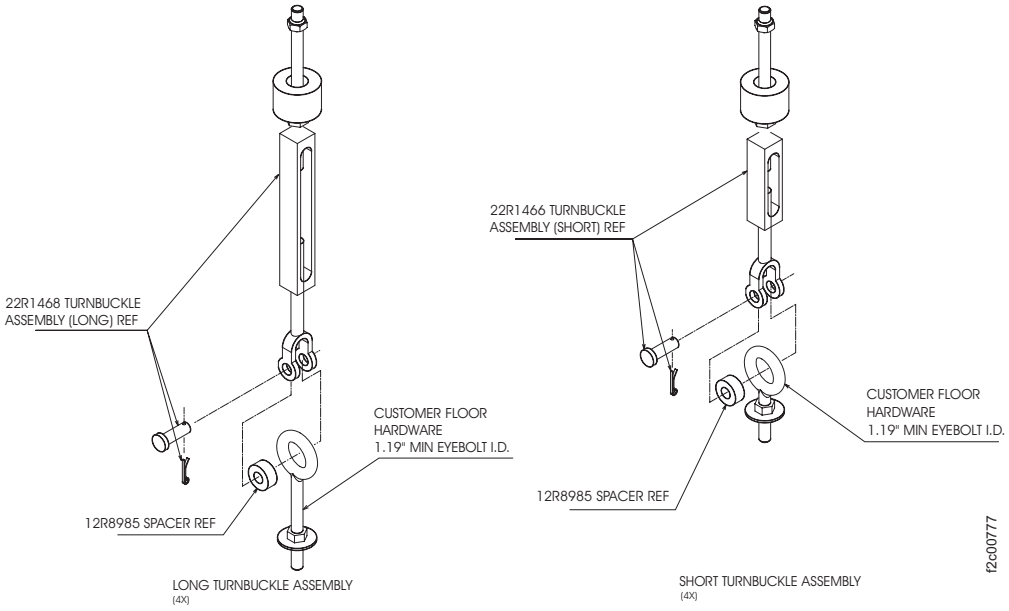


Figure 185. Turnbuckle assembly

19. Install the lower jaw onto the floor eyebolt with the shaft. Secure the shaft with cotter pin.
20. After installing all frames, tighten the turnbuckles by hand until snug, then tighten it an additional one-half turn to ensure that the tie-down assembly is sufficiently secure.

    Note: If you are working with a two or three frame storage facilities, you can leave the turn buckles loose until you have completed the installation of all the frames and then you can fully tighten them.
21. Repeat the above steps for each of the four corners in the frame.
22. Repeat these steps for each frame in the storage facility
23. Continue with "Installing front and rear rack stiffening hardware" on page 246.

Non-raised floor tie-down hardware

1. If the earthquake resistance kit is being installed, it must be installed on all racks in a storage facility (base rack and attached expansion racks).
2. Read this entire section to understand the rack stiffening and floor tie-down installation before you return to the installation instructions that sent you here. You will need to decide during the rack installations when to use the information in this procedure to install the earthquake resistance kit.
3. Inspect the floor where the storage facility racks are to be installed. Refer to Figure 186 on page 244 and ensure the following are already present for each rack:
   a. The concrete floor must have three fasteners per load plate.

b. Refer to Figure 187 on page 245, if the customer has threaded holes in the floor, you must be given three bolts and washers used to fasten each load plate to the floor. If the customer has provided studs, you must be given three nuts and washers to fasten each load plate to the floor.

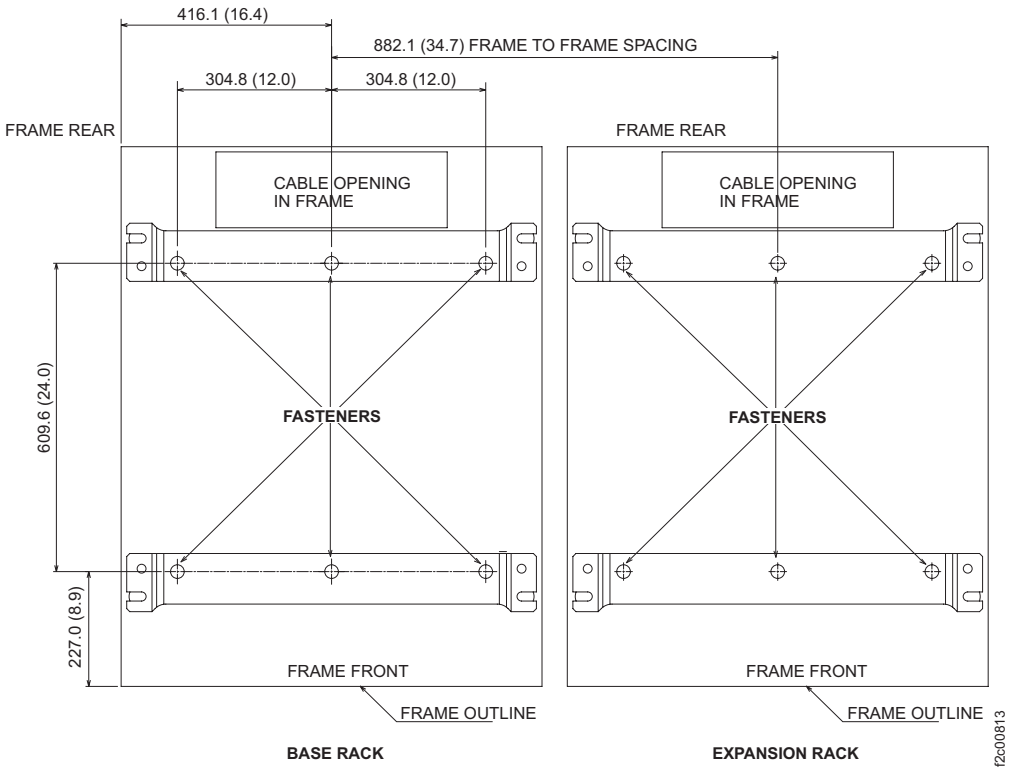


Figure 186. Locations for fastener installation (non-raised floor). Dimensions in millimeters (inches)

4. Familiarize yourself with the MES kit hardware. Refer to "MES kit bill of materials, figures, and part numbers" on page 250.
5. Do the following after the rack is in its final position.
   a. Move one rack to the location and install the floor tie-down hardware before moving the next frame into position to have the tie-down hardware installed.
6. This is an overview of the floor tie-down hardware.
   - The leveler nut and support plate lift the rack up slightly to take the weight off the wheel caster.
   - The frame stud pulls the rack down against the floor to keep it from tipping over.

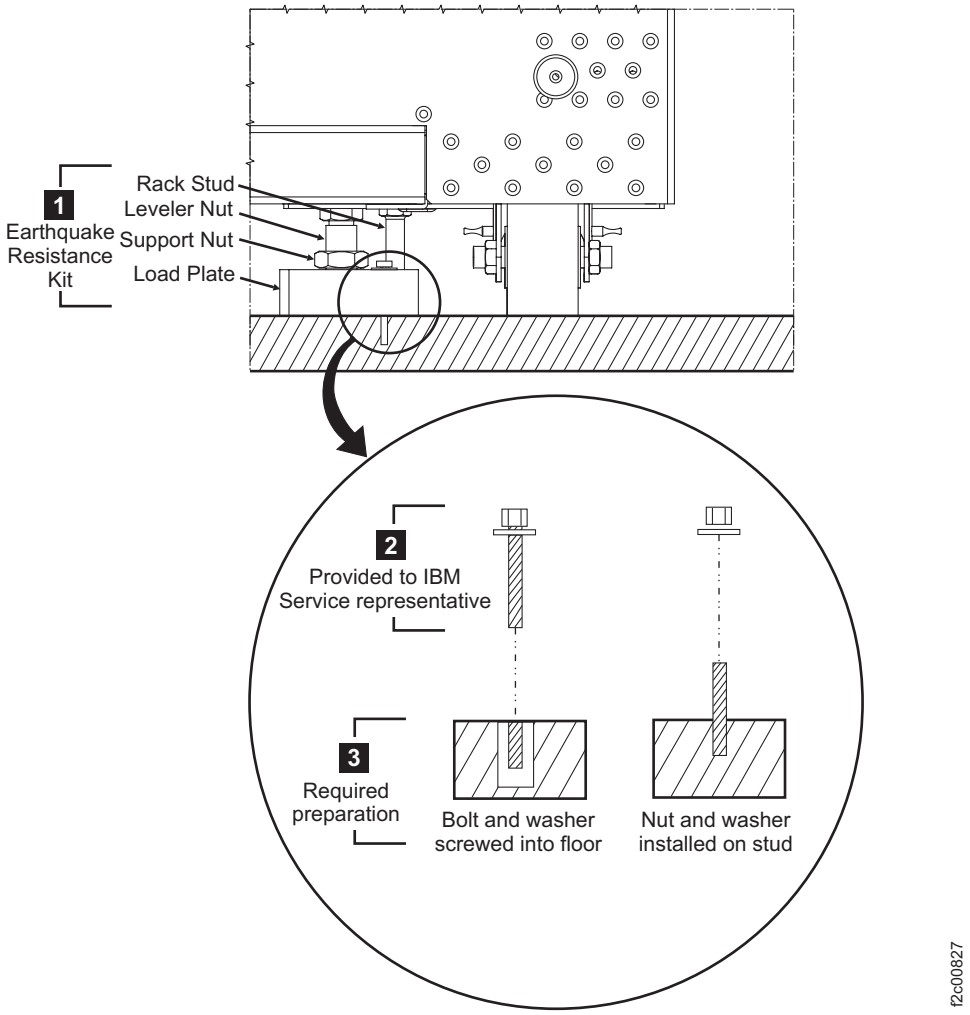


Figure 187. Earthquake resistance kit - common fasteners

7. The MES kit should include two frame jack assemblies. They can be used to raise one side of the rack at a time, so you have more clearance between the rack and the floor to install the floor tie-down hardware.

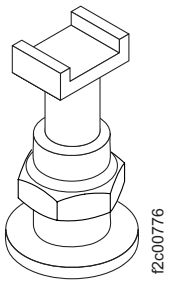


Figure 188. Frame jack tool

The following shows non-raised floor tie-down hardware.

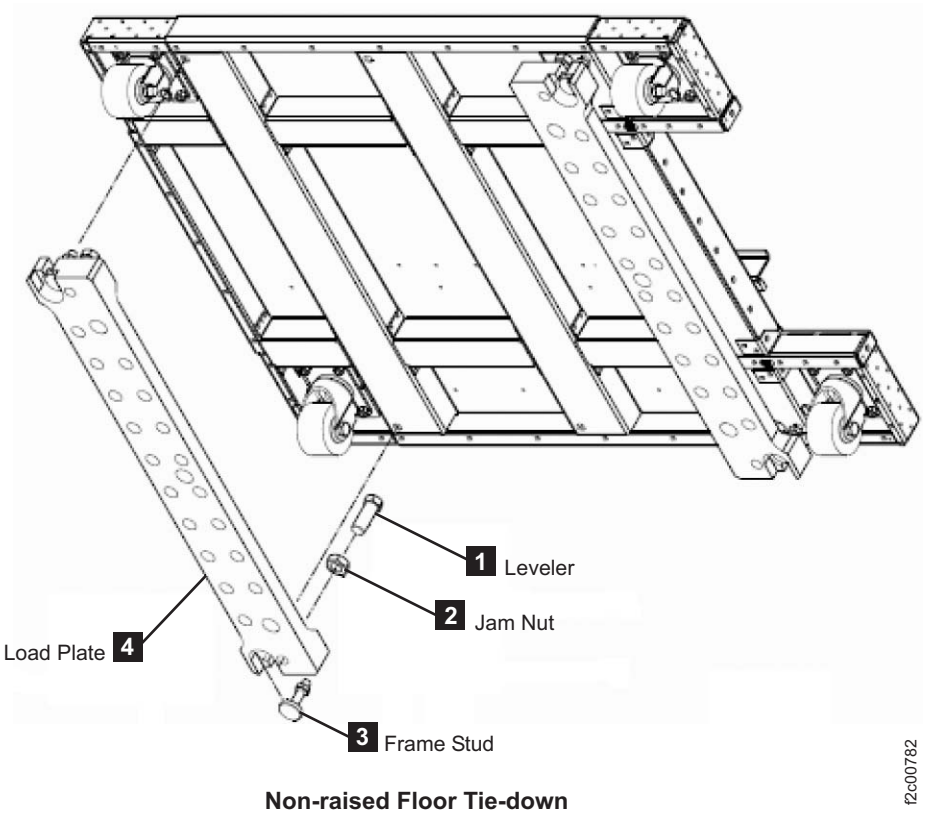


Figure 189. Non-raised floor tie-down hardware

8. Fasten the load plate to the concrete floor using the six fasteners for each rack provided to you by the customer.

   Note: A frame jack tool assembly is provided to lift the frame as an aid in attaching the tie-down frame stud to the frame. Place them on the outside corners of one side of the frame. Attach the tie-down hardware to one side of the frame. Move the frame jack assembly to the outside corners of the other side of the frame to aid in attaching the tie-down hardware to the other side of the frame. This tool is to be used on unbolted frames.
9. Install the leveler **1** and jam nut **2** onto the load plate.
10. Position the rack and install the frame studs into the rack. The frame stud goes into the slot at the bottom of the load plate and then threads into the bottom of the rack. After you have installed the frames, remove the jack tool from beneath the frame.
11. Raise the leveler by tightening the leveler until the frame stud head is tight against the load plate, then tighten it an additional one-quarter turn. This will remove some weight off the wheel caster.
12. Tighten the frame stud so it holds the rack securely down to the load plate.
13. Continue with "Installing front and rear rack stiffening hardware."

Installing front and rear rack stiffening hardware

Use this section to install the front and rear rack stiffening hardware for the earthquake resistance kit.

Rack front bracing

1. Remove the cover from the front of the rack.
2. Remove the front cover latch bracket **12** from the left side of the frame, near the rack operator panel. Refer to Figure 190. The cover latch bracket **7** will then be mounted on the frame extension **1** using the same screws in a later step.

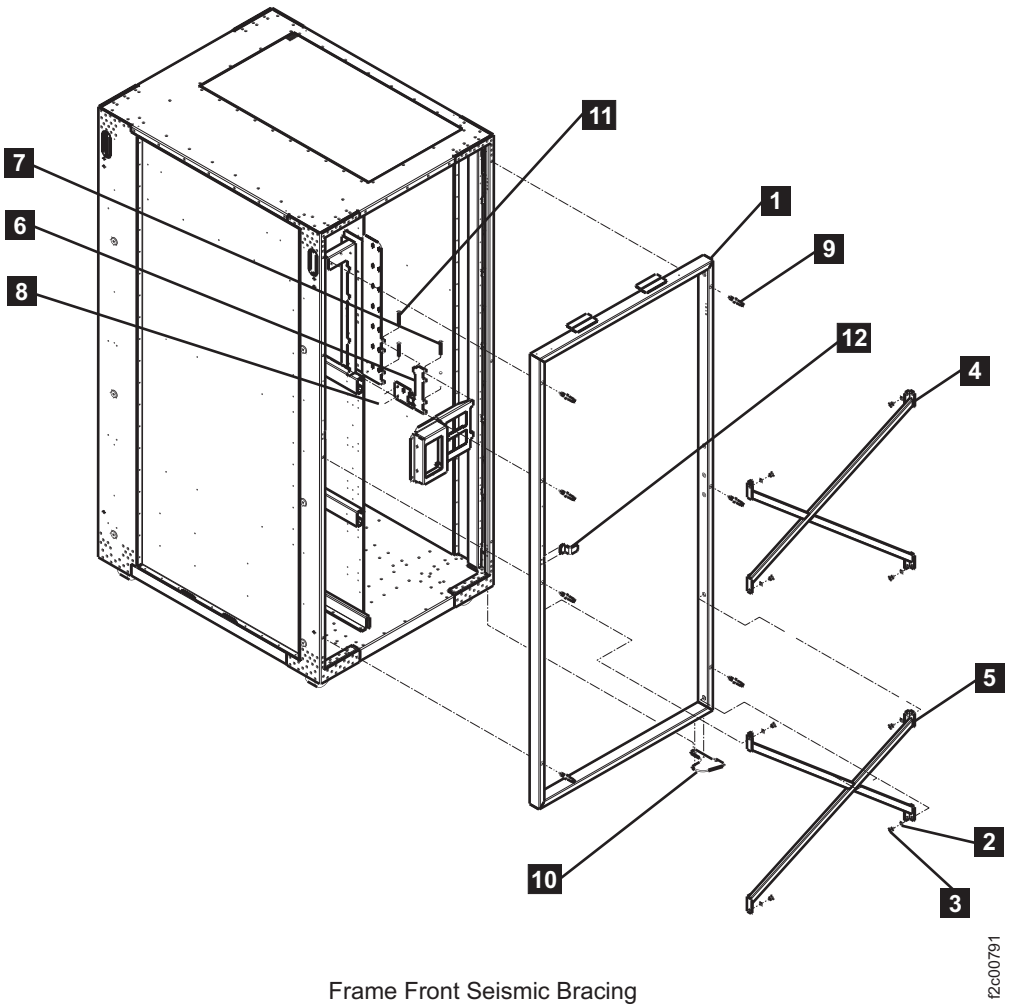


Figure 190. Earthquake resistance kit - front frame bracing

3. Remove the front cover hinges from the frame and the stop strap from the top of the frame.
4. Install the seven screws that secure the brace extension frame to the front of the rack. See Figure 190.

   Note: The brace extension frame weighs 17.0 kg (37.4 lbs). Installation of this assembly requires two service representatives.
5. Reinstall the latch bracket **7** on the extension frame **1**.
6. Relocate the front cover hinges from the frame to the extension frame with the existing screws.
7. Remove the operator panel pivot pins **11** from the existing bracket. See Figure 191 on page 248.

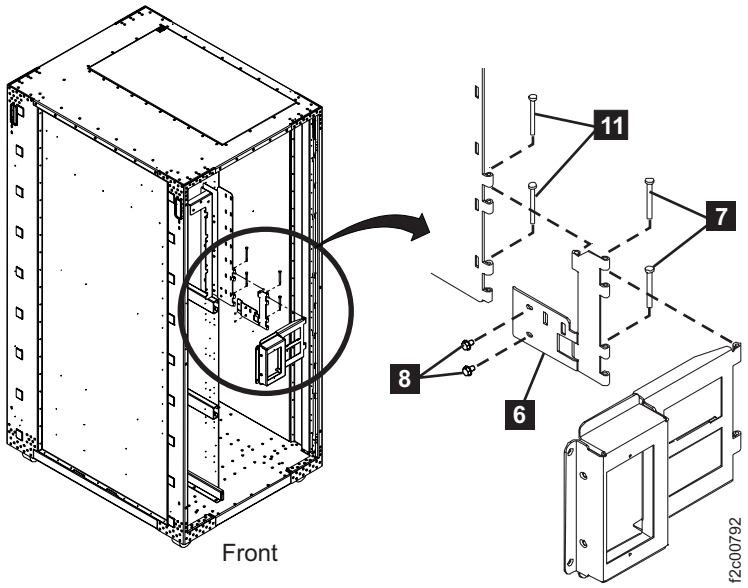


Figure 191. Earthquake resistance kit

8. Attach the rack operator panel relocation bracket **6** using the removed pivot pins **7** and screws **8** .
9. Remove the operator panel cable from the first cable tie above the operator panel.
10. Attach the operator panel to the relocation bracket using new pivot pins.
11. Install the upper X-brace **4** with screws and washers to the brace extension frame. See Figure 190 on page 247.
12. Install the lower X-brace **5** with screws and washers to the brace extension frame. See Figure 190 on page 247.
13. Reinstall the front cover and the stop strap on the top of the extension frame.

    Note: You might have to close the HMC to install the cover.

CEC enclosure rear bracing

You must install the CEC enclosure rear support brackets.

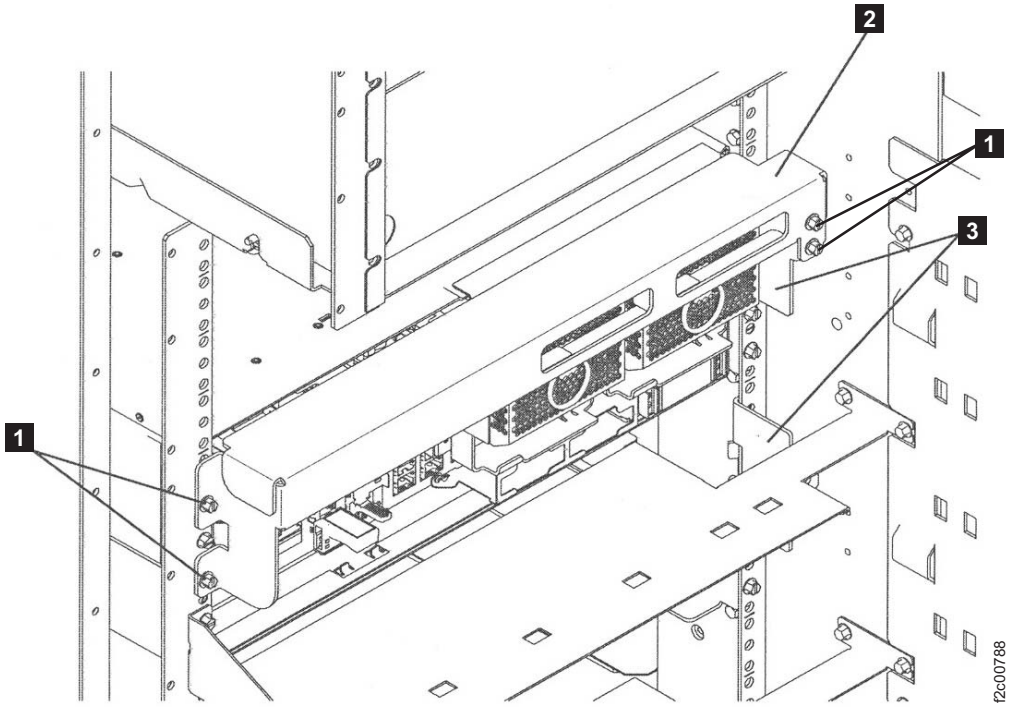


Figure 192. CEC support bracing

1. Earlier frames do not have the bracket **3** . If the bracket is missing from the frame, go to 2. If the bracket is present on the frame, go to 3.
2. Use two (2) screws to install the supplied bracket **3** . Repeat the installation for the second CEC enclosure.
3. Use four (4) screws to install the CEC support bracket **2** to the frame. Repeat the installation for the second CEC.

Rack rear bracing

1. Remove the covers from the rear of the rack.

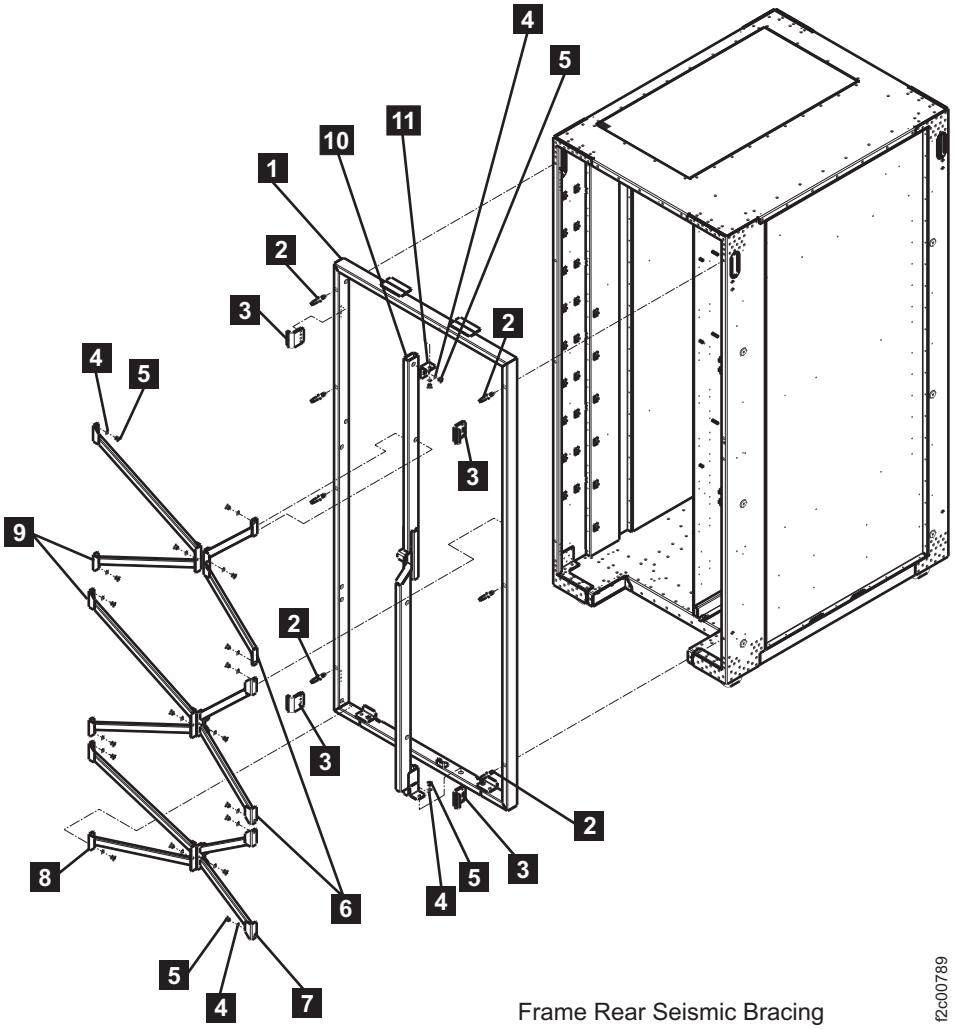


Figure 193. Frame rear

2. Remove the rear cover hinges (quantity 4 of item **3**) from the brace extension frame **1** .
3. Install the seven (7) screws that secure the brace extension frame to the rear of the rack. See Figure 193.
4. Reinstall the four (4) hinges with existing screws on the extension frame.
5. Install the rear center post **10** to the top and bottom mounting brackets that are installed on the brace extension frame with screws and washers.
6. Install the left side V-braces **8** **9** with screws and washers to the brace extension frame.
7. Install the right side V-brace **6** **7** with screws and washers to the brace extension frame.
8. Secure the V-braces with screws and washers to the rear center post.
9. Reinstall the rear covers on the extension frame.

MES kit bill of materials, figures, and part numbers

FFBM - 22R6616 basic kit
FFBM - 22R2053 for the 92x, 93x, and 9x2 models only

Earthquake resistance kit parts at the front of the rack (stiffeners)

Use the figures and tables that follow to locate information about the earthquake resistance kit brackets (stiffeners) at the front of the rack.

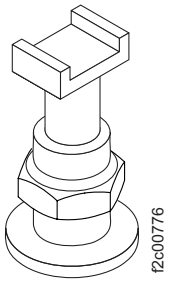


Figure 194. Frame jack tool

Table 80. Frame jack tool parts

Part name	Part number
Jack tool	17P8369

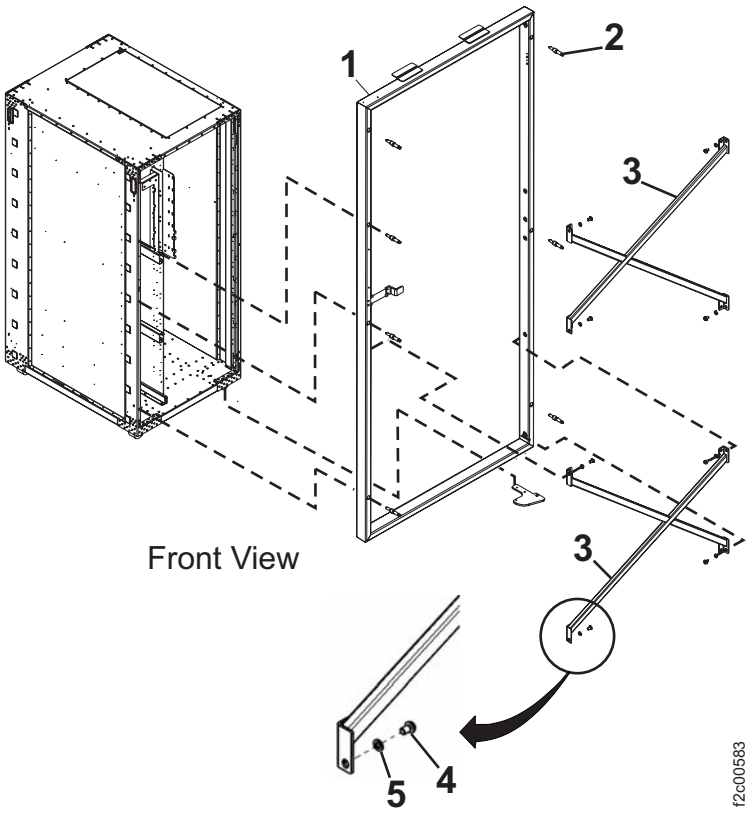


Figure 195. Earthquake resistance kit parts at the front of the rack

Table 81. Earthquake resistance kit parts (except relocation bracket for the operator panel)

Index	Part name	Part number
1	Brace extension frame	22R1317
2	Screw	22R2193
3	X-brace	22R1321
4	Screw (20mm)	1621538
5	Washer, Lock	1622321

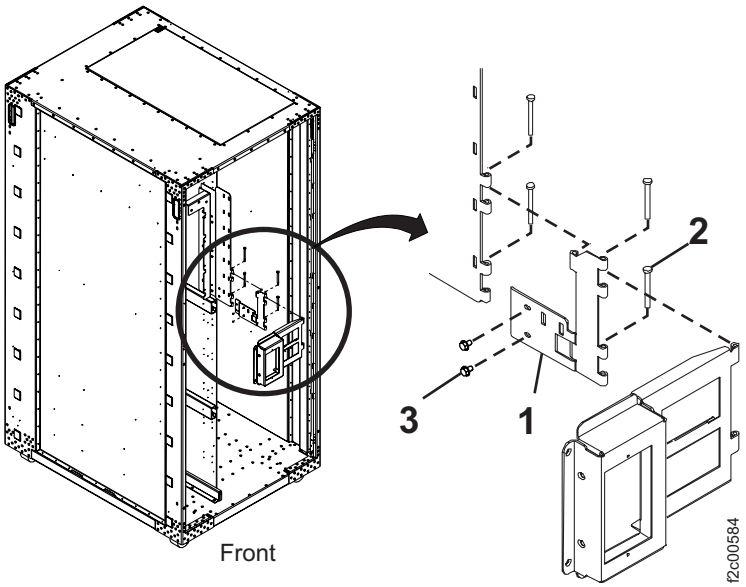


Figure 196. Earthquake resistance kit parts - Relocation bracket for the operator panel

Table 82. Earthquake resistance kit relocation bracket for the operator panel

Index	Part name	Part number
1	Bracket, relocation	22R1793
2	Pin, pivot	22R1794
3	Screw	1621842

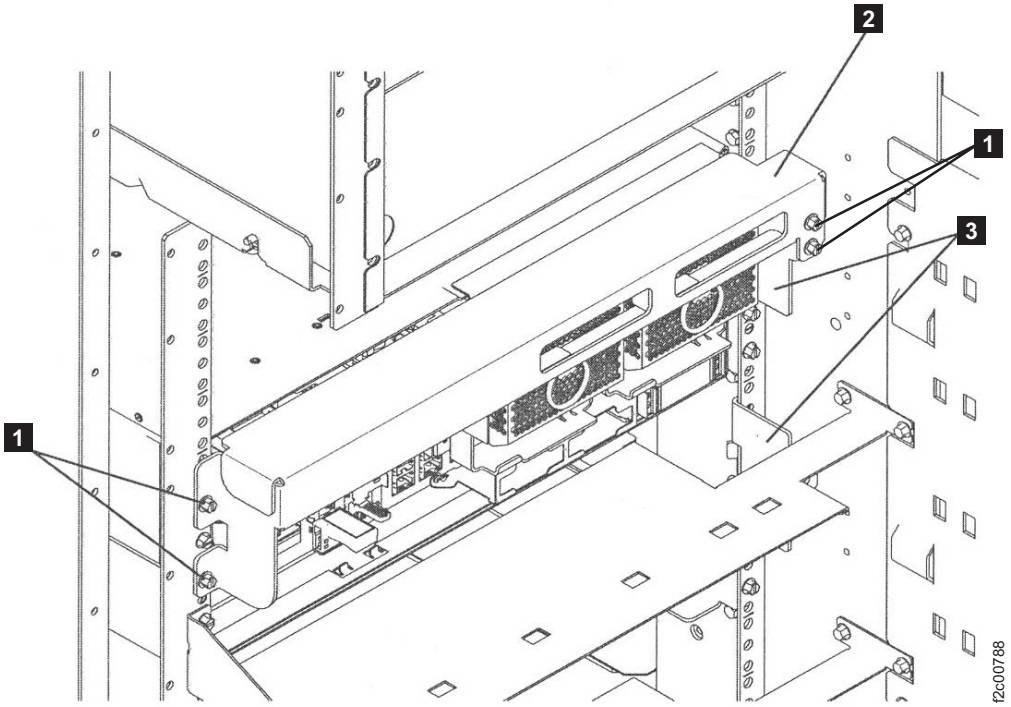


Figure 197. CEC support bracing

Table 83. CEC stiffeners

Index	Part name	Part number
1	Screw	23R1520
2	Bracket, stiffener	22R6856
3	Bracket, mounting	17P8485

Earthquake resistance kit parts at the rear of the rack (stiffeners)

Use the figures and tables that follow to locate information about the earthquake resistance kit brackets (stiffeners) at the rear of the rack.

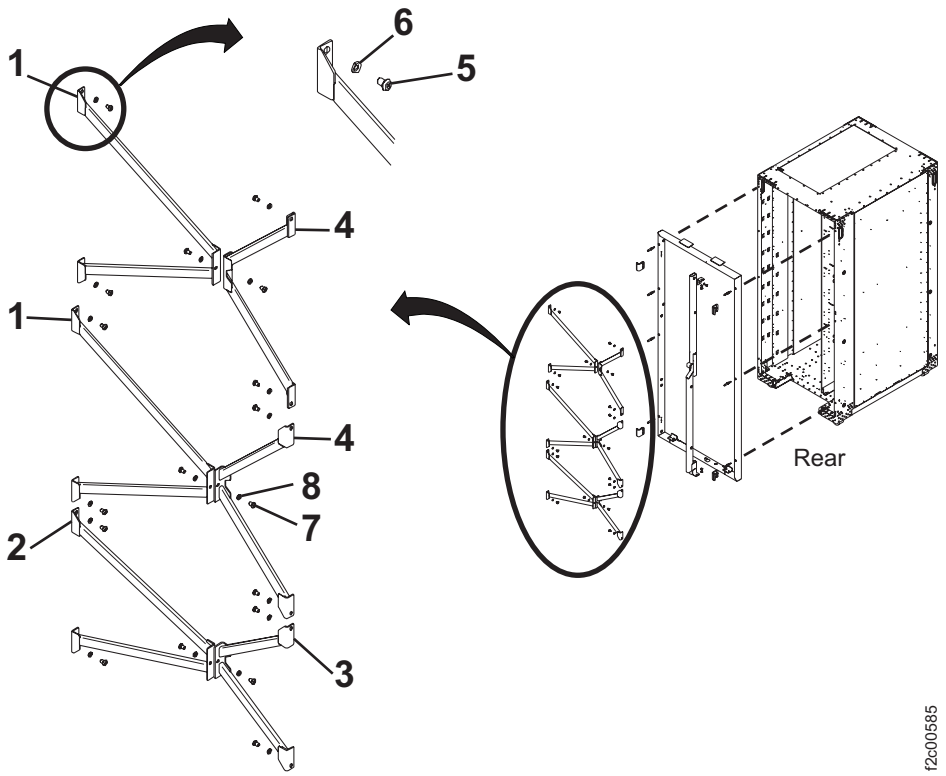


Figure 198. Earthquake resistance kit V-braces at the rear of the rack

Table 84. Earthquake resistance kit V-braces

Index	Part name	Part number
1	V-brace, main, upper	22R1313
2	V-brace, main, lower	22R1315
3	V-brace, power, lower	22R1316
4	V-brace, power, upper	22R1314
5	Screw (20mm)	1621538
6	Washer, Lock	1622321

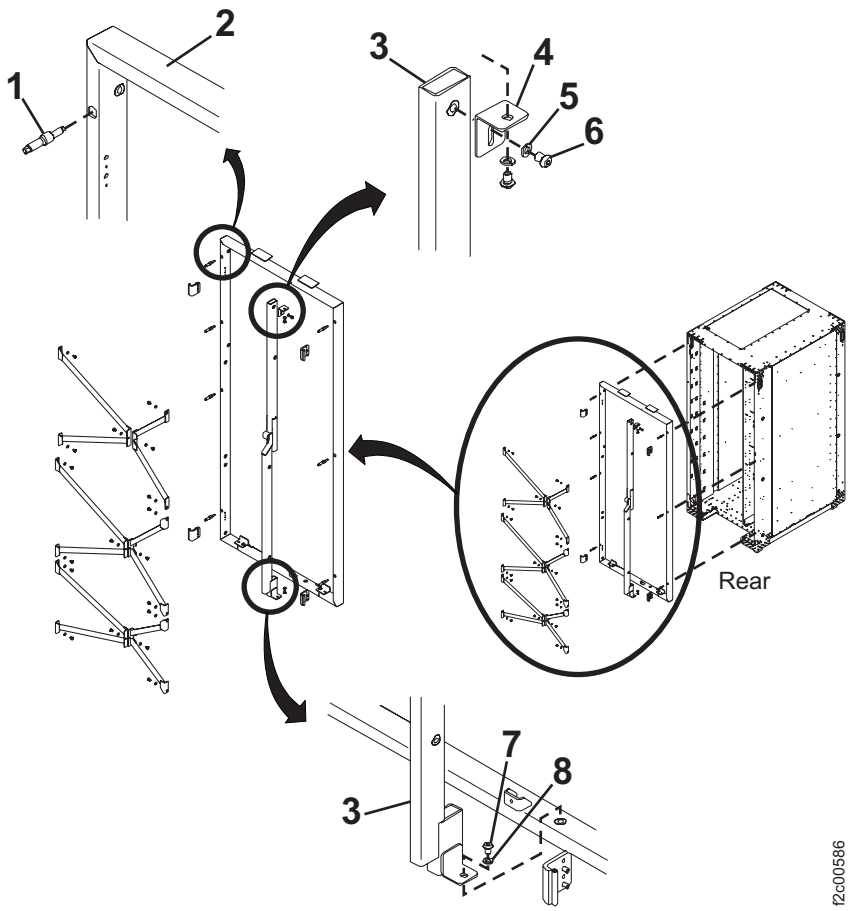


Figure 199. Earthquake resistance kit parts at the rear of the rack (except V-braces)

Table 85. Earthquake resistance kit parts (except V-braces)

Index	Part name	Part number
1	Screw	22R2193
2	Brace extension frame	22R5959
3	Vertical brace	22R1304
4	Bracket, vertical brace to frame	22R5960
5	Washer	1622321
6	Screw	1621538
7	Screw	1621538
8	Washer	1622321

Earthquake resistance kit parts at the floor (tie-downs)

Use the figures and tables that follow to locate information about the earthquake resistance kit parts that tie the rack to the floor.

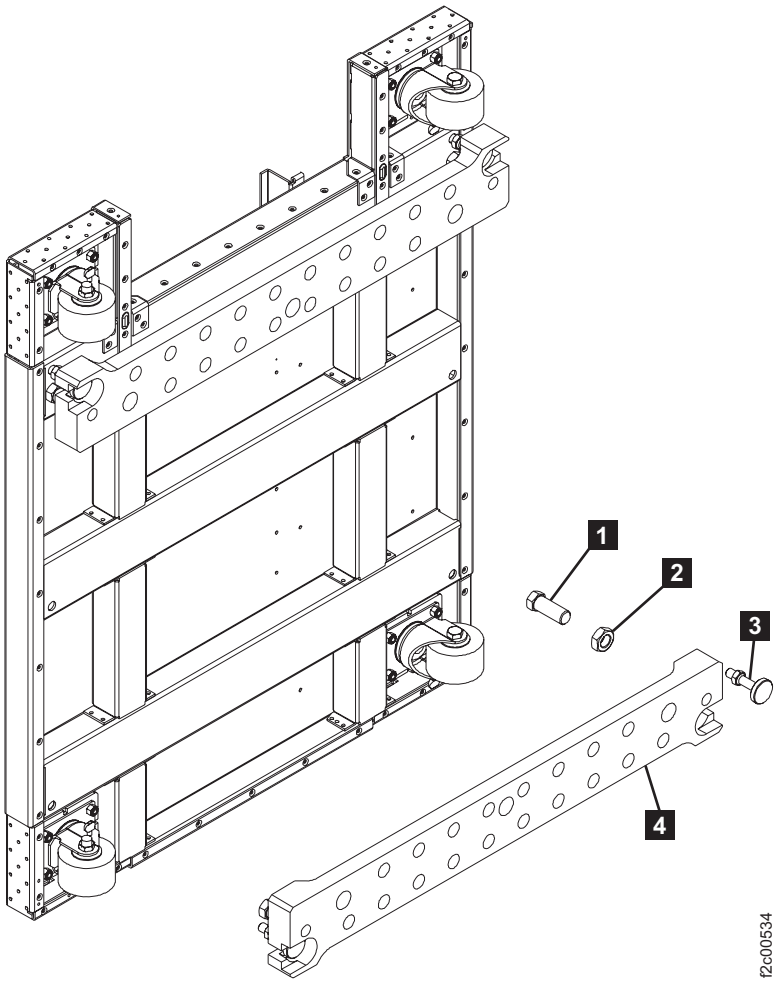


Figure 200. Floor tie-down parts of the earthquake resistance kit (non-raised floor)

Table 86. Floor tie-down parts of the earthquake resistance kit (non-raised floor)

Index	Part name[1]	Part number
1	Leveler	22R1462
2	Jam nut	22R1463
3	Stud	22R1461
4	Load plate	22R1515
Notes		
[1] - Part of the tie-down hardware kit P/N 22R1472.		

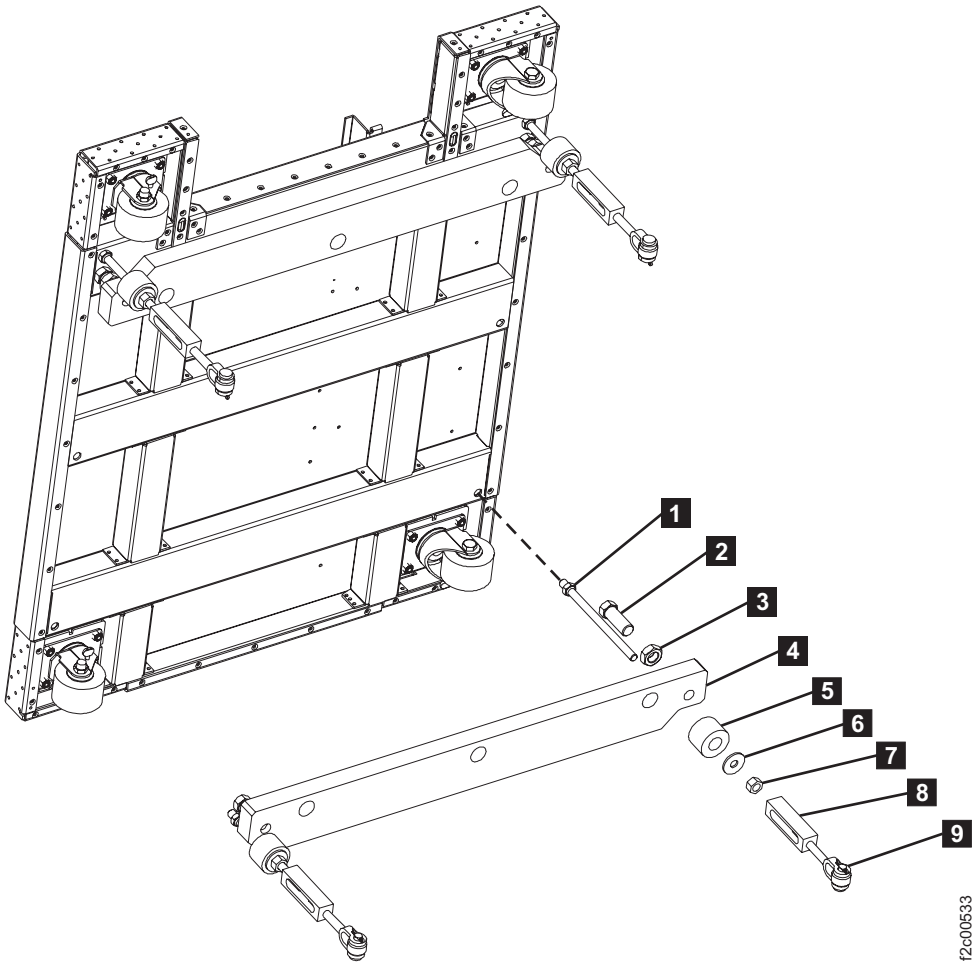


Figure 201. Floor tie-down parts of the earthquake resistance kit (raised floor)

Table 87. Floor tie-down parts of the earthquake resistance kit (raised floor)

Index	Part name	Part number
1	Stud, frame-to-turnbuckle	22R1464
2	Leveler	22R1462
3	Jam nut	22R1463
4	Load plate	22R1301
5	Bushing, rubber	44P2997
6	Washer (M12)	[1]
7	Nut (M12x1.75)	[2]
8	Turnbuckle, short[3]	22R1465
8	Turnbuckle, long[4]	22R1467
9	Spacer, jaw-to-floor hardware, cotter pin, and holding pin	[3], [4]
Notes		
[1] - McMaster-Carr P/N 91100A180 or IBM approved equivalent.		
[2] - McMaster-Carr P/N 90591A181 or IBM approved equivalent.		
[3] - Part of the short tie-down hardware kit (P/N 22R1466).		

Table 87. Floor tie-down parts of the earthquake resistance kit (raised floor) (continued)

Index	Part name	Part number
[4] - Part of the long tie-down hardware kit (P/N 22R1468).		

Chapter 10. Relocating a storage facility

This section contains an overview and important notes for relocating a storage facility.

This procedure should only be used when the entire storage facility is being relocated within the same customer's enterprise and the data must be retained. In all other cases the "*Discontinuing a storage facility*" procedure must be used, go to Chapter 12, "Discontinuing a storage facility," on page 347. Failure to use the correct procedure will result in problems or delays during reinstallation.

These instructions describe how to:

- Repair any existing problems.
- Power off the storage facility.
- Identify and label disconnected cable connectors.
- Disconnect the storage facility power cables.
- Disconnect the storage facility host interface, power control, and communication cables.
- Disconnect the storage facility storage expansion racks from a base rack.
- Reinstall the storage facility at the new location.
- Use the management console (HMC) to power on and verify the storage facility after relocation.

Notes:

1. These instructions describe moving the storage facility within an account (relocating). The term *moving* is used in this procedure to identify relocation activities.
2. These instructions only support moving **all** base and storage expansion racks in a storage facility at the same time.
3. This procedure supports moving multiple storage facility racks only when they are part of the **same** storage facility.
4. Because these instructions describe moving base and storage expansion racks, some diagrams might not specifically show the model that you are moving.
5. Before you can move a storage facility, all problems must be repaired.
6. If the storage facility being relocated contains an HMC then additional considerations may apply. These are outlined in the next section.

Important considerations when moving a storage facility

Before you move a storage facility, advise the customer to make a copy of all data before you continue.

Management console (HMC)

1. Is the storage facility being moved part of a storage complex that contains multiple storage facilities?
   - Yes, continue with the next step.

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- No, continue with "Determine if shipping containers are required."

2. Does the storage facility contain an integrated HMC which is the only HMC managing the storage complex?
   - Yes, a secondary HMC must be installed if the move of this storage facility is to be done concurrently with customer use of the other storage facilities in the storage complex.
   - No, continue with the next step.
3. Does this storage facility provide a connection point for an external HMC into the storage facility storage complex private network?
   - Yes, review the network topology and if necessary re-cable the external HMC to a different storage facility in the storage complex.
   - No, continue with "Determine if shipping containers are required."

Determine if shipping containers are required

1. Determine if you are relocating the storage facility to another location on the same floor, or relocating it to another floor or building.

Relocation of storage facility	Action
To same floor	Go to "Determine configuration and racks being moved"
To another floor or building	Go to step 2.

2. Verify that the correct Asset Sealing and Physical Protection kits are available for the base rack or storage expansion rack you are relocating:
   - Base rack, use Asset Sealing kit part number 7334849 and Physical Protection kit part number 17P6483.
   - Storage expansion rack, use Asset Sealing kit part number 7334849 and Physical Protection kit part number 17P6483.

   Note: For additional relocation packaging information, refer to the Website: http://rtsweb1.raleigh.ibm.com/SSRHomepage/packingsealing.html.
3. Verify that the correct Ship Group Packaging Materials kit is available for the base or storage expansion rack that you are relocating. Note: the Relocation Packaging Materials kit is only available for U.S., Canada, and EMEA.
   - Base rack, use Relocation Packaging Materials kit, refer to the Website: http://rtsweb1.raleigh.ibm.com/SSRHomepage/packingsealing.html.
   - Storage expansion rack, use Relocation Packaging Materials kit, refer to the Website: http://rtsweb1.raleigh.ibm.com/SSRHomepage/packingsealing.html.
4. Continue with "Determine configuration and racks being moved."

Determine configuration and racks being moved

1. Determine the type-model and serial number of each base and storage expansion rack that you will be moving.
2. On the storage expansion racks only, view the label **1** on the Operator Control Panel. Ensure that they are all labeled correctly with their correct rack number and the serial number of Rack-1 (the base rack). See Figure 202 on page 261.

Note: The Rack-1 label will not have the Rack-1 field filled in.

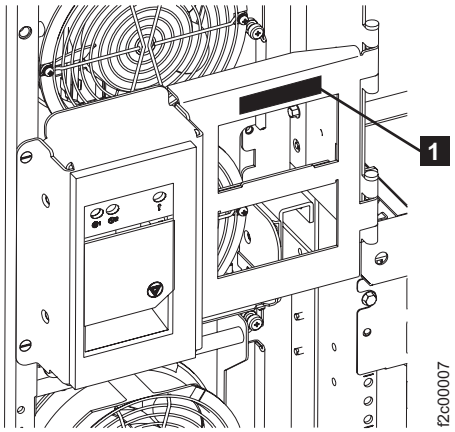


Figure 202. Rack operator panel label

3. Continue with "Check the customer preparation."

Check the customer preparation

1. Inform the customer that all devices in the entire storage facility will be powered off and all of the devices will not be available.

   Attention: Before disconnecting/connecting host cables, ask the customer to remove host I/O activities to all devices on the affected cables. The customer should refer to the host documentation to determine if host power also needs to be off.
2. Verify that the customer knows which logical devices will be affected by the removal of the storage facility which you are moving.
3. Verify that the customer has copied all needed data to other devices.
4. Verify that the customer has performed all needed data security procedures on the machine or machines you are moving.
5. If this storage facility contains a management console (HMC), inform the customer that access to the storage complex through this HMC will be lost.
6. Continue with "Repair existing problems and prepare the subsystem for relocate."

Repair existing problems and prepare the subsystem for relocate

1. Log on to the management console (HMC) with the following user ID and password:

   ID: CE
   Password: serv1cece
2. Check for open serviceable events. In the management console (HMC) navigation area, open the Management Environment and then select and open the system to be serviced. Select: **Service Applications** → **Service Focal Point** → **Repair Serviceable events**. Select **Machine type-model/serial**, click **OK** button View the list of open serviceable events.
3. Use Repair Serviceable Event to repair all Open problems.
4. Contact your next level of support for the procedure to create the configuration DVD and set the Storage Facility SF back to 'Ready for Field Install'.

Power off the storage facility

1. Open the rear left machine cover of the base rack in the subsystem. Ensure that the Local/Remote switch on the LR/ZLR card is set to Remote.

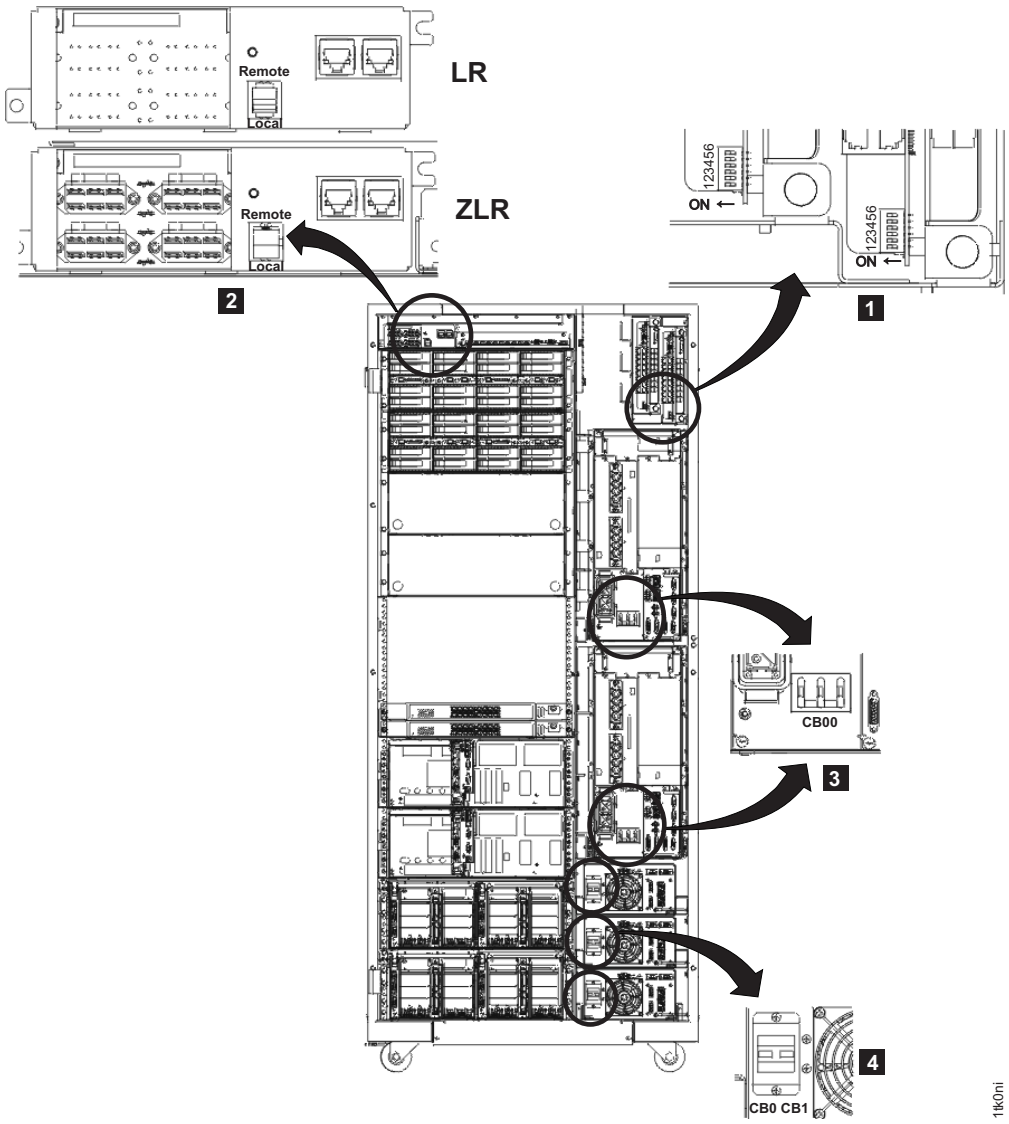


Figure 203. Rack rear view

2. From the WebSM GUI select: **Service Applications** → **Service Focal Point** → **Service Utilities**.
3. Select the storage facility which you are currently installing, click on **Selected**. From the drop-down menu, select **Manage power control**.
4. Power off the storage facility. In the management console (HMC) navigation area, open the Management Environment and then select and open the system to be serviced. Select **Service Applications** → **Service Focal Point** → **Service Utilities**. Select **Machine type-model/serial**. Click **Selected**. From the top tool bar, select **Manage Power Control**. Ensure Power Control Mode is set to **Manual Power Mode**. Change Storage Facility Power State to **Power Off Storage Facility**. Click **OK**. Answer **Yes** on the confirm screen.
5. Allow up to 5 minutes for the storage facility to power off.

6. Verify that thestorage facility is now powered off. From the WebSM GUI, select: **Service and Partition** → **Server Management**. View the state of the two storage facility systems that belong to the storage facility that you are relocating. Do both of the storage facility systems show as "Powered Off"?
   - Yes, continue with the next step.
   - No, retry step 2 on page 262. If the problem persists then call your next level of support.
7. Shutdown and power off the management console by performing the following steps:
   a. From the task bar, click on **Console**.
   b. Select **Exit**, and then click **Exit Now**.
   c. From the selection box, select **Shutdown**.
   d. Click **OK**.
   e. Wait until the following message is displayed on the monitor: `Master Resource Control: runlevel 0 has been reached`
   f. Press the power control button on the management console server. See Figure 204 (X335 server) or Figure 205 (X336 server). The server will power off and the green power LED will begin flashing.

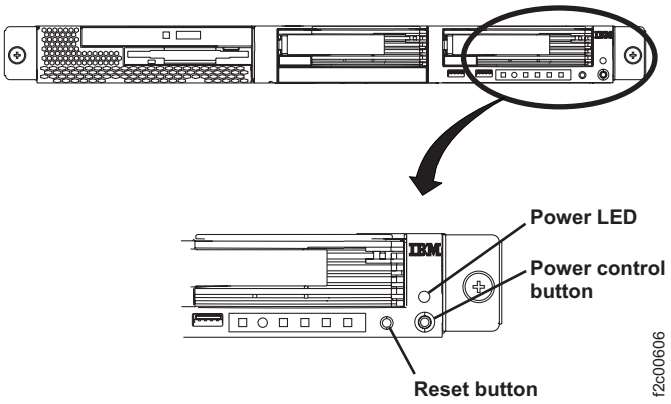


Figure 204. X335 management console server (front view)

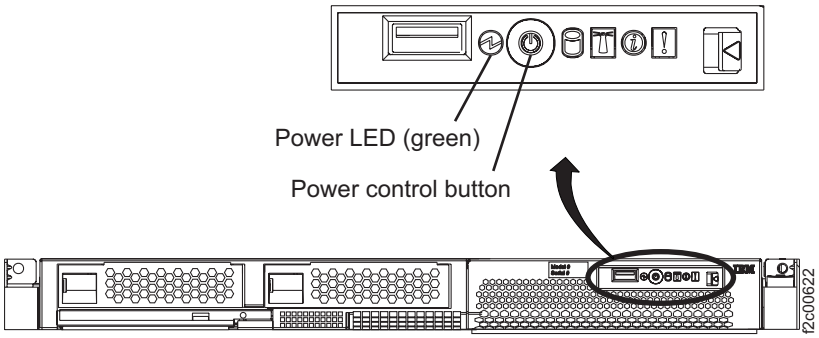


Figure 205. X336 management console server (front view)

8. Remove and retain the two screws **1** and open the rear right machine cover. See Figure 206 on page 264.

   Note: The screws must be reinstalled later to prevent non-service personnel from accessing a hazardous section of the machine.

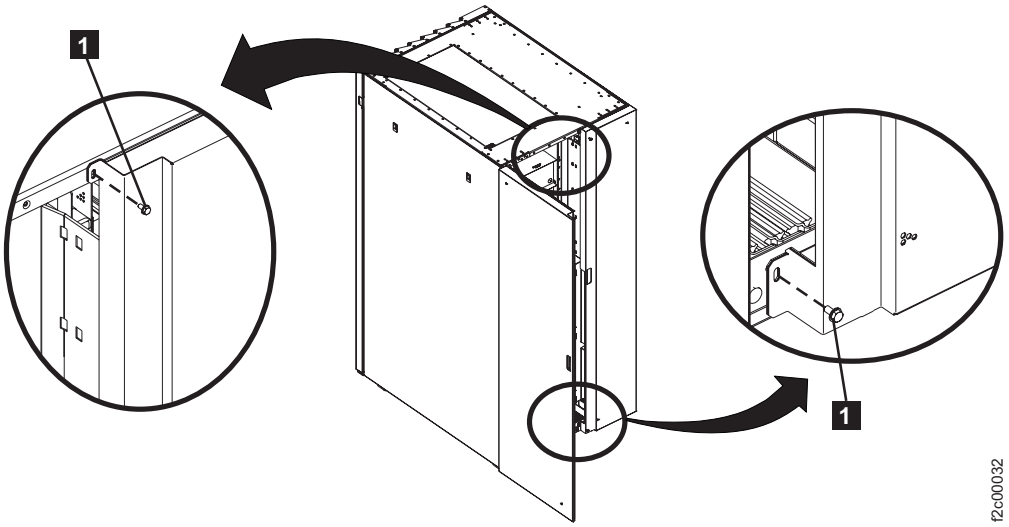


Figure 206. Removing retaining screws on right rear machine cover

9. Continue with "Disconnect mainline power cables from each rack."

Disconnect mainline power cables from each rack

Perform the steps in this section on each rack being relocated.

1. Locate the 208VDC distribution assembly. Refer to Figure 207. Remove the two screws **1** and swing it out to the service position **3**.

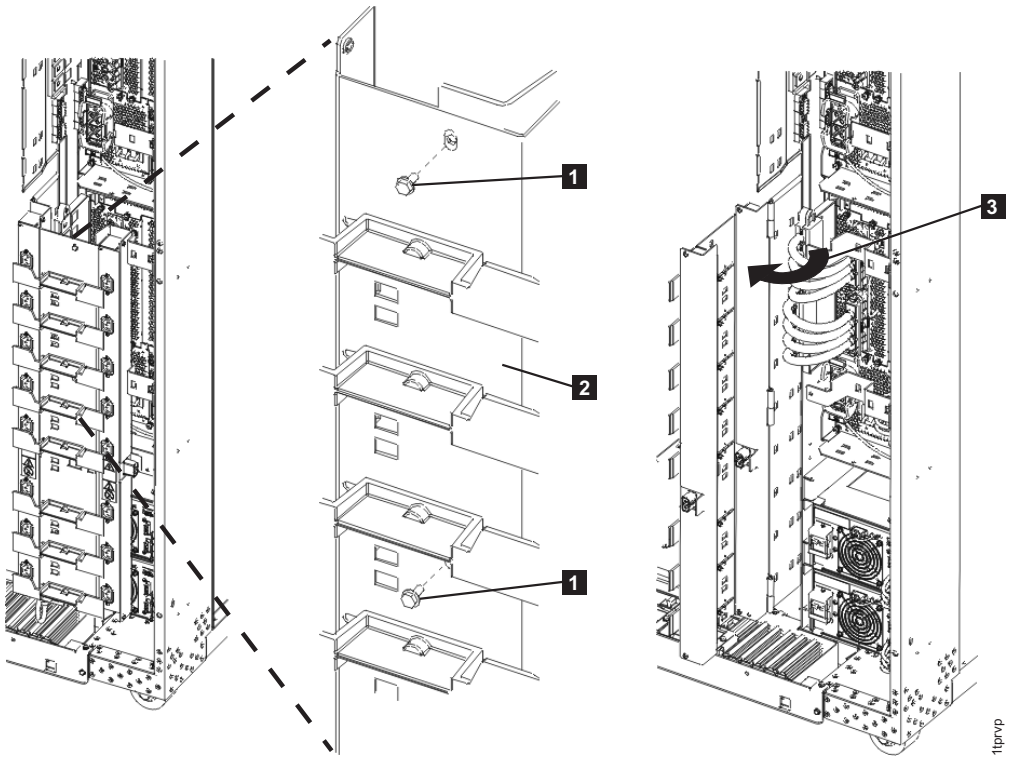


Figure 207. 208VDC bus bar gate

2. At the rear of each rack in the storage facility, set the circuit breakers **1** on all IBUs to Off (down). See Figure 208.

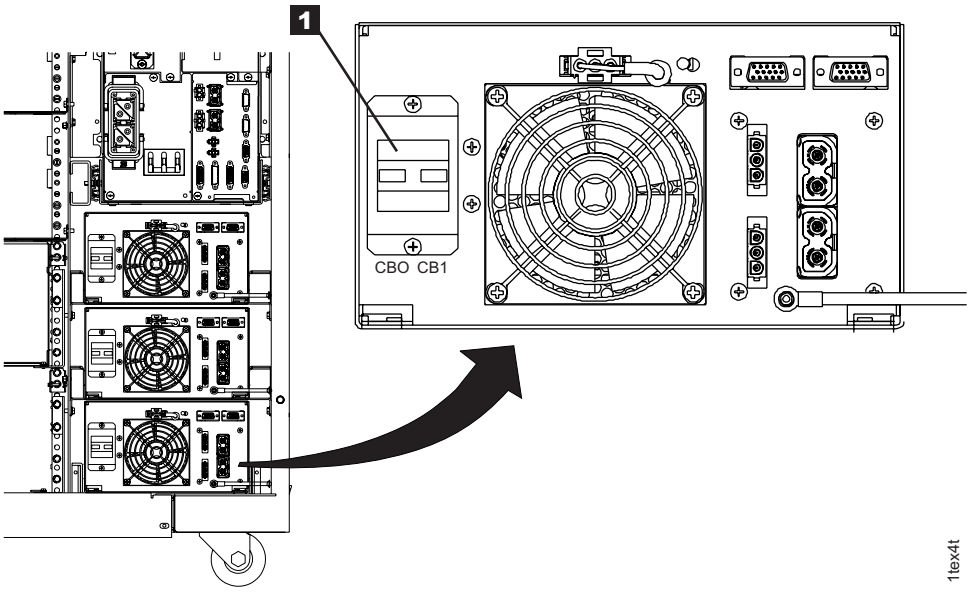


Figure 208. IBU circuit breaker PC card DIP switches

3. At the rear of each rack in the storage facility, locate the two primary power supplies (PPS). Set CB00 on all PPSs to Off (down), see location **3** in Figure 209 on page 266.

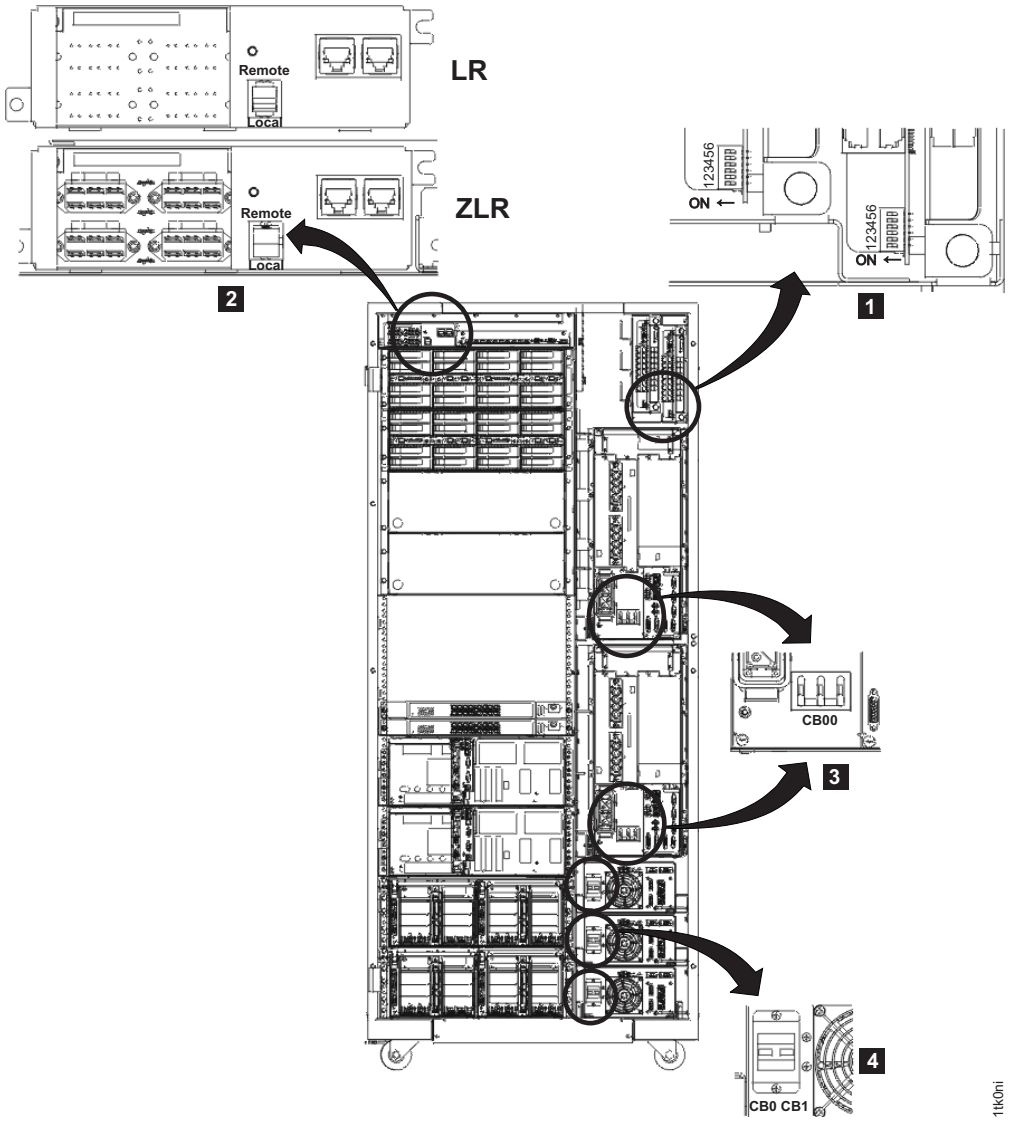


Figure 209. Rack rear view

4. Instruct the customer to switch off the circuit break that supplies mainline AC voltage to both mainline power cables for each rack in the storage facility. Attach a "Do Not Operate" tag (S229-0237) and the safety lockout padlock to each of these customer AC mainline voltage circuit breakers. Refer to *Electrical Safety for IBM Customer Engineers*.

   Note: Each rack in the storage facility has two mainline power cables that connect to the primary power supplies.

5. Determine where the two mainline power cables from each rack connect to the customer's power. Note if the customer end of the mainline power cable is connected to customer power by a pluggable connector or wires and terminals. Disconnect these mainline power cables from the customers AC power:
   - For plug in mainline power cables, you can disconnect the connector.
   - For wired in mainline power cables, instruct the customer to call a licensed electrician to disconnect the wired mainline power cables from the customer's mainline power sources.

6. Remove the tailgate frame bracket. Remove two screws **2** as shown in Figure 210. Loosen but do not remove the two top screws **1** . Slide the bracket out.

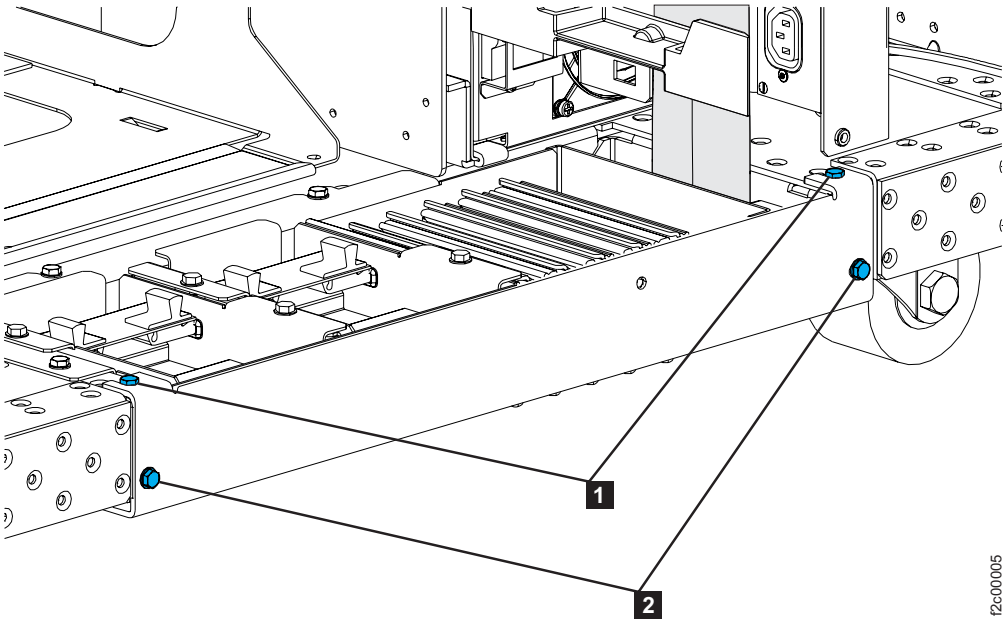


Figure 210. Tailgate frame bracket

7. Unplug the mainline power cord from each of the two PPSs and withdraw the power cords from the frame.
8. Swing the 208VDC distribution assembly back into its non-service position and reinstall the screws removed in step 1 on page 264.
9. Repeat steps 1 through 5 for all racks being relocated.
10. Continue with "Disconnect control and interface cables."

Disconnect control and interface cables

Repeat steps 1 through 4 for each rack.

1. Label and disconnect all host cables.
2. Route the cables back towards the tailgate.
3. In the tailgate, squeeze the black release levers **2** , pivot the retention bracket up and then remove it.

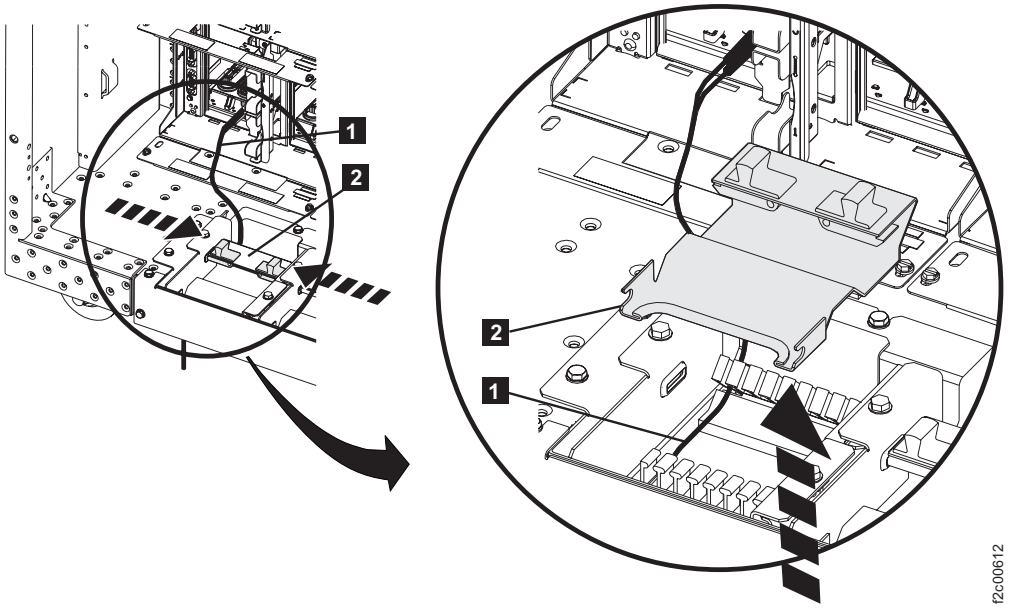


Figure 211. Tailgate cable and fibre channel cable retention

4. Pass the cables through the tailgate and out of the machine.
5. Repeat steps 1 through 4 for each rack.
6. If the remote power control feature is installed, disconnect the remote power control cables from the ZLR card and route the cables back to the tailgate. Remove the appropriate cable retention clamps on the right hand side of the tailgate to allow the power control cables to be removed from the rack. Refer to Figure 212 on page 269.
   a. Loosen the screws only **1**.
   b. Remove the screws **2**.
   c. Remove the tailgate bar **3**.
   d. Remove the screw **4**.
   e. Pull the knob **5**.
   f. Lift out the cable retention bracket **6**.

   Note: The retention clamps are removed in sequence from right to left by removing the screws on the underside and then releasing the spring loaded pins.

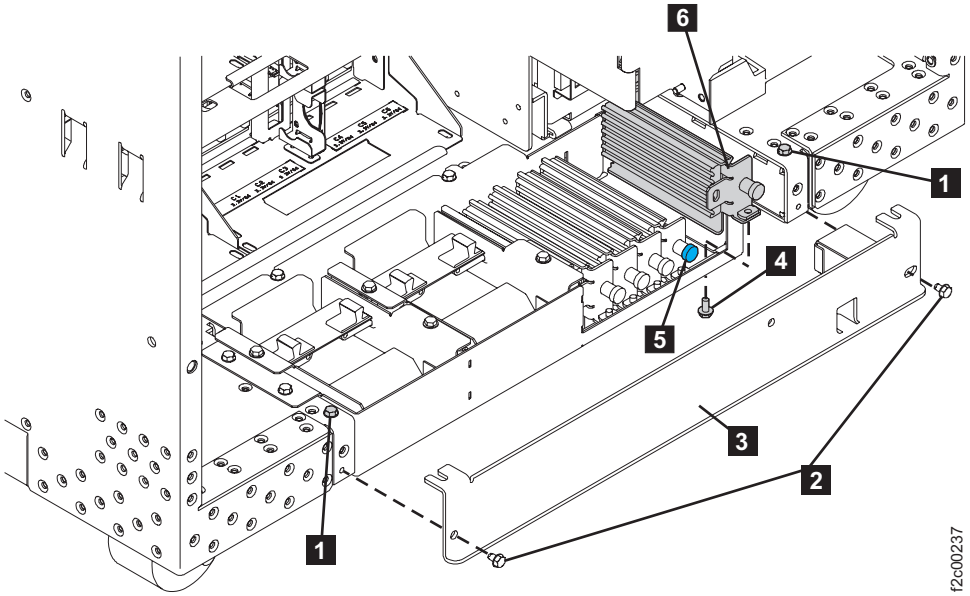


Figure 212. Cable retention clamps

7. If the rack has an integrated MC, disconnect the customer Ethernet cable from the customer Ethernet connector (eth2) on the rear of the management console server. See Figure 213 (X335 server) or Figure 214 on page 270 (X336 server). Route the customer Ethernet cable back to the tailgate. Remove the appropriate cable retention clamps on the right hand side of the tailgate to allow the Ethernet cable to be removed from the rack. Reinstall the cable retention clamps using the screws removed previously.

   Note: The retention clamps are removed in sequence from right to left by removing the screws on the underside and then releasing the spring loaded pins.

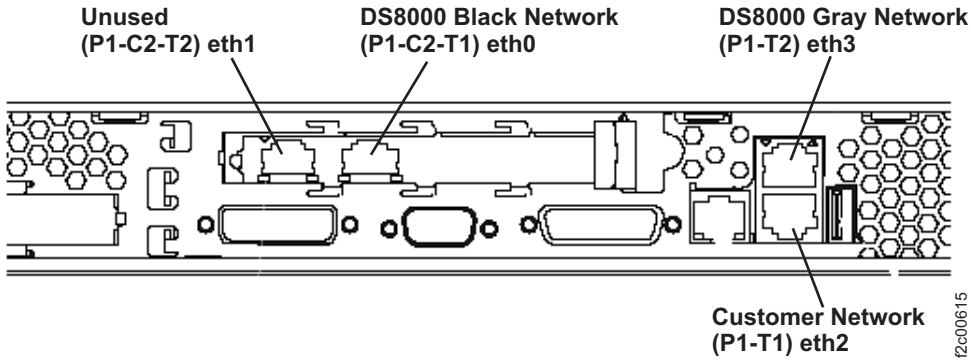


Figure 213. Ethernet connectors on the rear of the X335 management console server

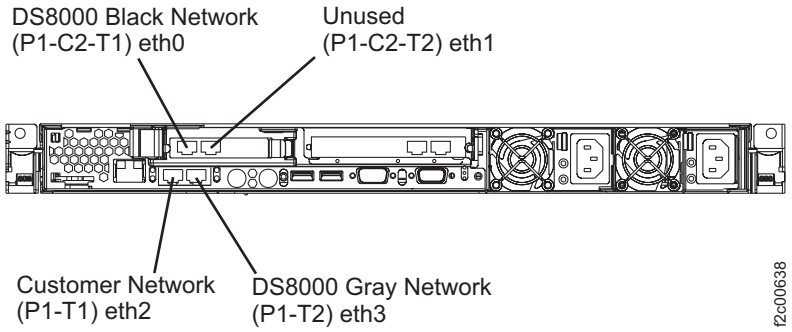


Figure 214. Ethernet connectors on the rear of the X336 management console server

8. If the rack has an integrated MC, then trace the modem telephone cable to the customer supplied telephone outlet. Unplug the cable from the outlet and re-route it back into the rack.
9. Does this storage facility have any storage expansion racks attached?
   - Yes, continue with "Disconnecting storage expansion racks."
   - No, continue with "Moving the storage facility" on page 272.

Disconnecting storage expansion racks

Repeat steps 1 and 2 for each installed storage expansion rack in the subsystem.

1. Locate the two vertical interrack covers and remove them by pulling them off the interrack spacing studs. See Figure 215 on page 271. Store them for later reinstallation.
2. Locate the top interrack cover and remove it by pulling. See Figure 215 on page 271. Store it for later reinstallation.

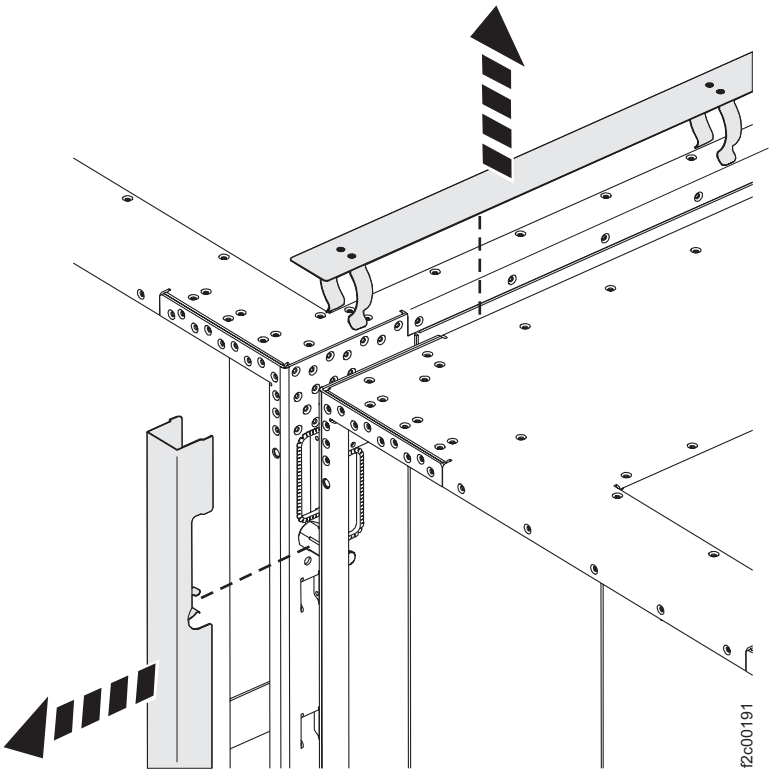


Figure 215. Rack disconnection

3. Locate the two RPC cards in the top rear of the base rack. Unplug the cables which connect to the storage expansion racks. Refer to Table 88 for the connector locations. Route the RPC cables back to the storage expansion racks from which they originate. Coil up and store the cables so that they will not become dislodged during transit.

Table 88. Rack numbers and RPC connector locations

Rack Number	2	3	4	5	6	7
RPC 1/2 connector	3	5	7	9	11	13

4. Check the top rear of the base rack to determine if there are FCIC (Fibre Channel Interface Cables) that have been routed through from storage expansion racks. If cables are found, then unplug them from the DA cards and route the cables back to the racks from which they originate. Coil up and store the cables so that they will not become dislodged during transit.
5. Check in the tailgate area of the base rack to determine if there are RIO and SPCN cables which have been routed through from storage expansion racks. If cables are found, then unplug them from the SPCN and RIO connectors on the I/O enclosures and route them back to the tailgate. Remove the appropriate cable retention clamps on the right hand side of the tailgate to allow the RIO and SPCN cables to be removed from the rack.

   Note: The retention clamps are removed in sequence from right to left by removing the screws on the underside and then releasing the spring loaded pins.

6. Route the RIO and SPCN cables back to the racks from which they originate. Coil up and store the cables so that they will not become dislodged during transit. Store the cable retention clamps and screws safely for later reinstallation.
7. Reinstall the tailgate removed in the previous section.
8. Repeat this step for **each** storage expansion rack in the subsystem. Locate the 4 spacer studs located between each pair of adjacent racks. Remove the spacer studs by removing the 8 x spacer mounting bolts. Store the hardware for later reinstallation.

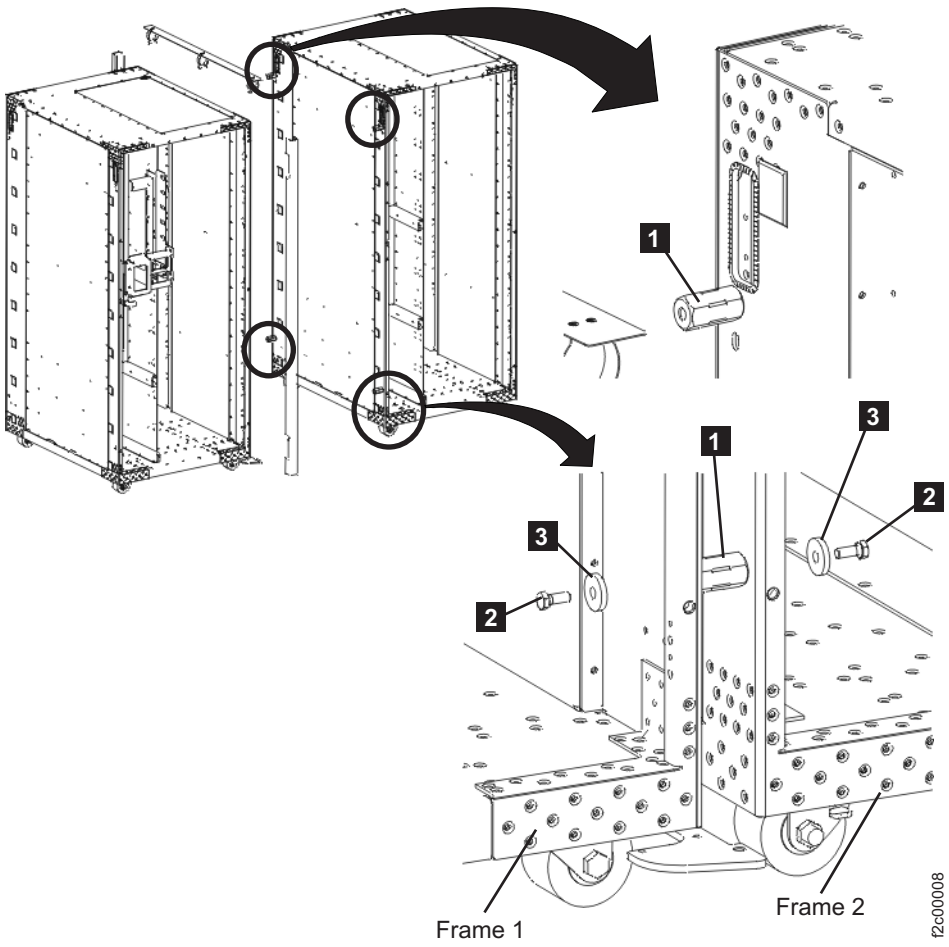


Figure 216. Rack merge and view of spacer studs

9. Continue with "Moving the storage facility."

Moving the storage facility

1. Reinstall the tailgate hardware previously removed.
2. Reinstall the two screws **1** to secure the rear right machine cover.

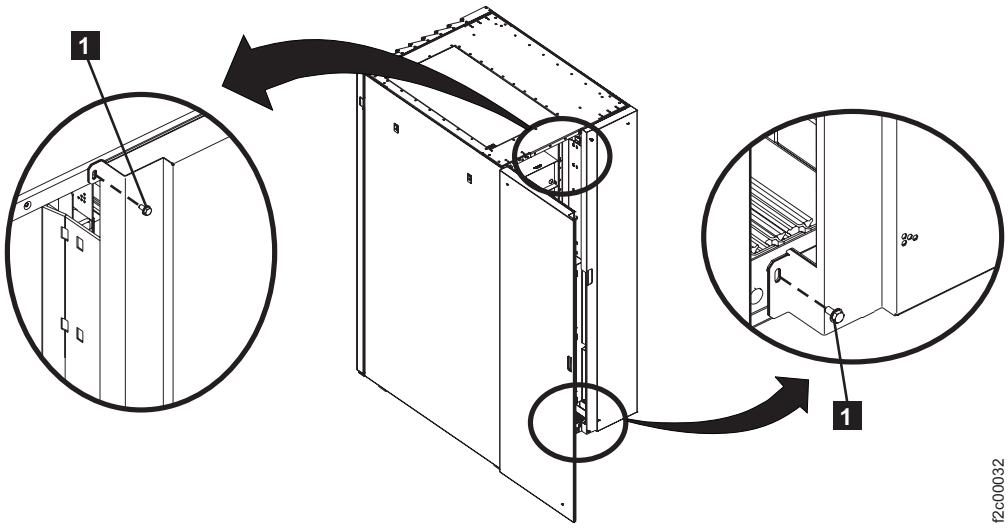


Figure 217. Removing retaining screws on right rear machine cover

3. Remove the wheel chocks **1** from all four casters on each rack in the subsystem. Refer to Figure 218.

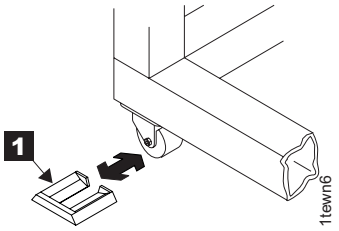


Figure 218. Wedge chocks

4. Select your move activity from the following list:
   - Relocating the storage facility on the same floor. **Note**: If you are installing the base and storage expansion racks, always install the base rack first. Continue with Chapter 11, "Installing a relocated storage facility," on page 275.
   - Relocating the storage facility to another floor/building. Pack the subsystem for removal. Follow the instructions that come with the Asset Sealing kit and the Relocation Packaging Materials kit to pack the storage facility for shipping.
     – Asset Sealing Kit
       - U.S. or Canada, use Asset Sealing kit part number 7334847
       - Asia Pacific, use Asset Sealing kit part number 7334847
       - Latin America, use Asset Sealing kit part number 7334847
       - EMEA, use Asset Sealing kit part number 7334847
     – Relocation Packaging Materials Kit. **Note:** The Relocation Packaging Materials kit is only available for U.S., Canada, and EMEA.
       - Base Rack, use Relocation Packaging Materials kit, refer to the Website: http://rtsweb1.raleigh.ibm.com/SSRHomepage/packingsealing.html
       - Storage Expansion Rack, use Relocation Packaging Materials kit, refer to the Website: http://rtsweb1.raleigh.ibm.com/SSRHomepage/packingsealing.html.

5. Continue with Chapter 11, “Installing a relocated storage facility,” on page 275.

Chapter 11. Installing a relocated storage facility

This section contains an overview and important notes for installing a relocated storage facility. **Note:** these instructions are only to be used to relocate (move) an entire storage facility.

These instructions describe how to perform the following tasks:

- Connect the storage facility storage expansion racks to the base rack.
- Connect the storage facility power cables.
- Connect the storage facility interface, control, and communication cables.
- Use the management console (HMC) to verify the storage facility after relocation.

Attention: To preserve the integrity of customer data, it is *critical* that the storage facility be reconnected exactly the way it was connected before it was disassembled for relocation. Hardware cannot be changed or added during the relocation process.

Beginning the reinstallation of a relocated storage facility

Checking customer preparations

1. Verify that the customer has two AC power sources for each rack in the DS8000 storage facility.

   For maximum fault tolerance, use two separate AC power sources.

   Note: The DS8000 is designed for connection to an IT power distribution system. In an IT power distribution system, the neutral conductor is isolated from earth (ground) by an impedance with exposed conductive parts in the installation that is tied directly to earth.

   No service representative action is needed. Information is for compliance with International Electrotechnical Commission Standard 950 for the safety of information technology equipment and electrical business equipment.
2. If the DS8000 will be installed on a raised floor:
   a. Review the weight of each rack with the customer to verify that their raised floors have adequate support. An individual rack, fully configured can weigh a maximum of 2880 pounds (1307 kilograms). For details on the DS8000 rack weights, refer to *IBM System Storage DS8000 Introduction and Planning Guide*.
   b. To correctly cool a DS8000, place two floor tiles, that have holes for air flow, directly in the front and the rear of each DS8000 rack (for a total of 4). Also provide tiles with holes, for cable entry, under the rear tailgate.
3. If the DS8000 will not be installed on a raised floor, ensure the customer will provide adequate air flow and temperature around the DS8000.

   Notes:

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a. For information about the temperature requirements of the operating environment, see the *IBM System Storage DS8000 Introduction and Planning Guide*.
b. The DS8000 rack cooling airflow enters through the front and rear covers and exits through the top and rear covers. The bottom of the DS8000 is sealed.

4. Verify the customer wall circuit breaker. The customer wall circuit breaker rating that protects each line cord depends on the voltage range as follows:
   - Low-voltage, three-phase installations (200 - 240 V) require wall circuit breakers that have a rating of 50 to 60 A. Do not exceed the wire rating of the facility.
   - High-voltage, three-phase installations (380 - 480 V) require wall circuit breakers that have a rating of 30 to 35 A. Do not exceed the wire rating of the facility.
5. Verify that the customer has ordered, supplied, and routed the following cables to the DS8000 being installed. Routing of the customer cables must not be billed against the installation. If the customer wants the service representative to route the cables, that activity must be coded or billed separately.
   a. ESCON host cables from the host to the DS8000 host adapters.
   b. Fibre host cables from the host to the DS8000 host adapters.
   c. An Ethernet LAN signal cable. This cable is required to connect the management console to the customer LAN.
   d. If the rear of each CEC enclosure has a two-port Ethernet card in PCI slot 1 or 5 (counted from left to right), then the customer has ordered a feature code that installs additional Ethernet cards. The cards allow faster management of flash copy relationships. For each empty port, the customer should provide an Ethernet cable from their network to be connected.
   e. A functional analog telephone line to the hardware management console (also referred to as HMC and management console) within 2.5 meters (8 feet) of the management console.
   f. AC service for the service provider laptop within 2.5 meters (8 feet) of the DS8000.
   g. AC service outlet for each component of an external management console.

Checking communications worksheets

Verify if any customer communications settings need to be updated during this relocation. If settings will be updated, ensure that the customer has provided a copy of the DS8000 work sheets. Refer to *IBM System Storage DS8000 Introduction and Planning Guide*.

Checking for required microcode

1. Is the new storage facility being installed to an existing storage complex?
   - Yes, ensure the code level of the existing storage complex and management consoles are already at a compatible level or same level as the new code levels. Then go to step 2.
   - No, go to step 3 on page 277.

   Note: Normally, if there are two management consoles, they both must be running the same level of code.

2. Ensure the code level of the existing storage plex and management consoles are already at a compatible level or same level as the new storage facility code levels.

   Note: Do not intermix the following bundles within a storage plex without the approval of next level of support.
   - bundle 6.1.6xx.xx or prior
   - bundle 6.2.0xx.xx or later

3. Determine if there is a required level of microcode available for your storage facility or management console. For IBM personnel, go to DS8000 - Engineering Web site (https://ssgtech4.sanjose.ibm.com/PFE/Squadrons-S%20PE%20Support.nsf/WVhome). For non-IBM personnel, follow the established process to determine the required code level.

   When the web site defines a code level as "required", it means that the storage facility must not be transferred over to the customer without the indicated code level installed.

   When the web site defines a code level as "recommended", it means the IBM service representative can either:
   - Give the storage facility to the customer when the installation is complete.
   - Negotiate with the customer for a more convenient time to update the microcode.

Checking RETAIN for storage facility installation tips

1. Sign on to RETAIN.
2. Select HSF.
3. Search for 2107 Install (p;2107 Install). RETAIN may have information that corrects problems that are not yet addressed by the install instructions.

Unpacking the storage facility

If the storage facility was relocated using the Asset Sealing Kit, unpack the storage facility racks using the unpack instructions that come with the kit.

Inspecting for shipping damage

1. Inspect the storage facility for any damage that might have occurred during shipping.
2. If you observe shipping damage or missing items, do not install the storage facility without IBM management approval. Report all observed damage immediately, following existing procedures.

Determining if a safety inspection is required

Find the condition that applies to your storage facility:

- New storage facility from IBM. A safety inspection is not required. Continue with "Positioning and cabling the racks" on page 278.
- Not a new storage facility from IBM and was maintained by IBM. A safety inspection is not required. Continue with "Positioning and cabling the racks" on page 278.
- Not a new storage facility from IBM and was not maintained by IBM. A safety inspection is required. Continue with Chapter 56, "Safety inspection," on page 2153 in the Service Information Center.

Positioning and cabling the racks

Use the following sections to position Rack-1 and to install additional storage racks.

Positioning Rack-1

If you have questions about floor loading and service clearances of the DS8000 racks, review the Site Requirements for the DS8000 section in the *IBM System Storage DS8000 Introduction and Planning Guide*.

DANGER

HEAVY EQUIPMENT -- PERSONAL INJURY OR EQUIPMENT DAMAGE MAY RESULT IF MISHANDLED (D006)

1. Verify that the new location meets the necessary service clearances for the storage facility which include any attached racks. Refer to the installation site requirements for the DS8000 in *IBM System Storage DS8000 Introduction and Planning Guide*.
2. Do you have more than one rack to install?
   - Yes, continue at the next step.
   - No, go to step 4 on page 279.
3. You must ensure that each expansion rack is installed to the base rack (Rack-1) that it was originally configured with.

   Note: If expansion racks for two storage facilities are accidentally intermixed, a successful install will not be possible.
   - Each rack has a small label with its rack S/N under the operator panel cover.
   - Each rack has a large label with its rack number (position in the storage facility) and the S/N of the Rack-1 it must be installed to the right of the operator panel cover.

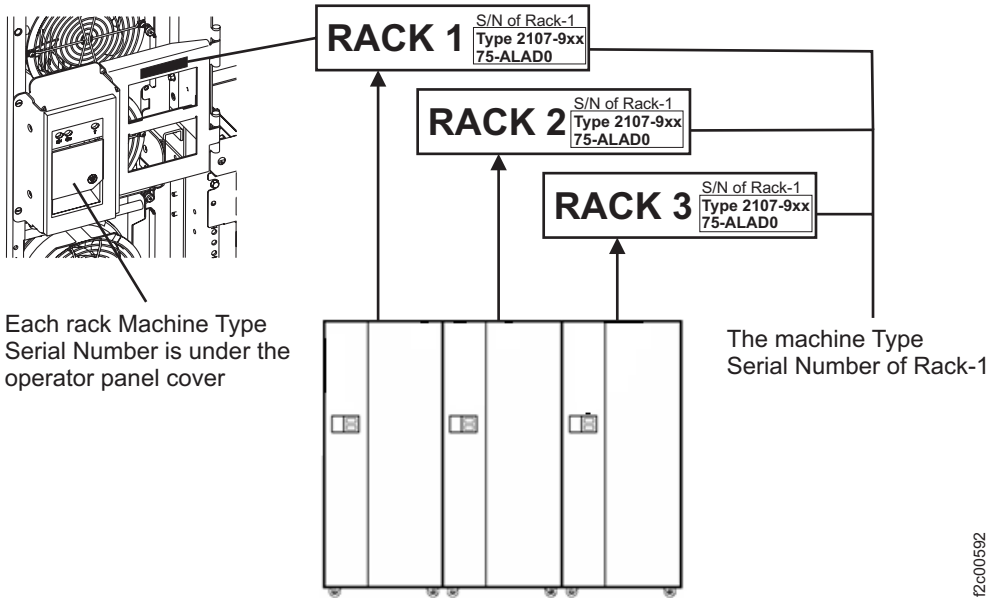


Figure 219. Rack serial number

4. Move Rack-1 to its permanent location. If installing on a raised floor, position the rack so the rear tailgate, especially the rightmost opening for the mainline power cables, is directly over the floor tile cutouts.
5. Install the wheel chocks **1** (located in the ship group) on all four casters. Refer to Figure 220.

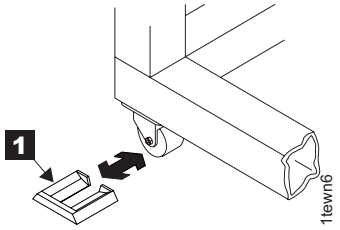


Figure 220. Wedge chocks

6. Ensure the rack operator panel UEPO switch clear access cover is present. If it is not installed, read the note below.

   Note: Some racks may be shipped with the cover removed and stored in a plastic bag in the document enclosure above the rack operator cover. The cover pivots on two small tabs at the top of the cover. To install the cover engage the left side tab **1**, push the cover gently to the right and then engage the right tab **2**. See Figure 221 on page 280.

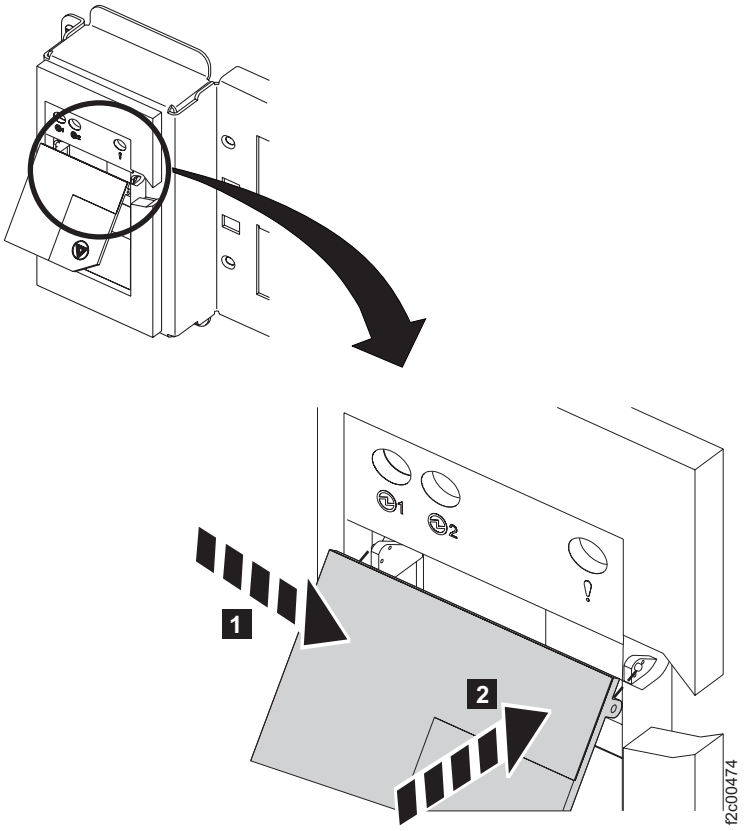


Figure 221. UEPO cover

7. Open the left rear cover (customer access area).

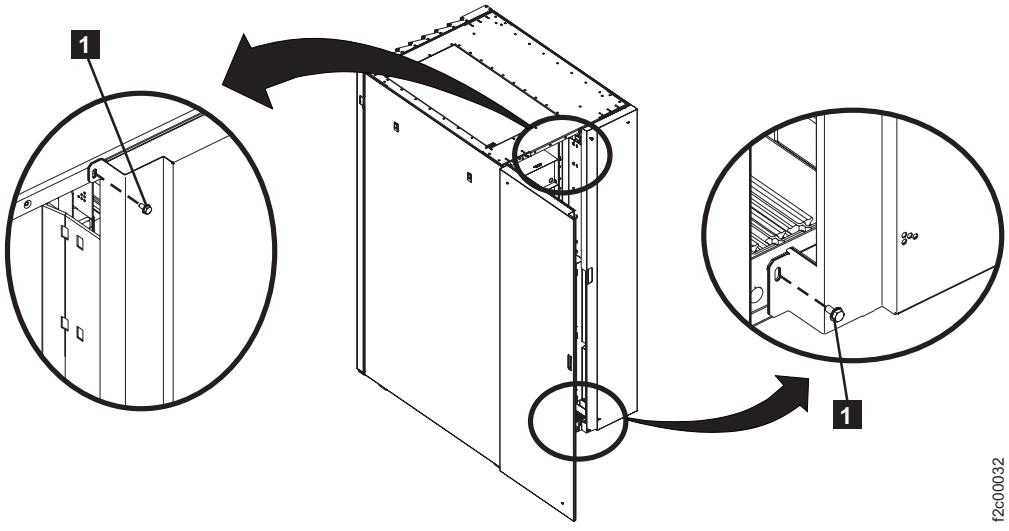


Figure 222. Removing retaining screws on right rear machine cover

8. Remove the orange shipping bracket from the rear of each CEC enclosure to prevent the CECs from overheating.
   a. Do not discard the shipping brackets, store them in the open space inside the rack beneath the lower CEC enclosure or in the document enclosure (top left at the front of the rack).

b. Do not discard or reinstall the shipping bracket screws, store them in the document enclosure (top left at the front of the rack).

9. Open the right rear cover (trained service personnel access area only). Use a 3mm hex wrench to remove the screws **1**. See Figure 222 on page 280.

   Note: The screws must be reinstalled when the cover is closed to prevent customer access.

10. Locate the 208VDC bus bar gate. Refer to Figure 223. Remove the two screws **1** and swing it out to the service position **3**.

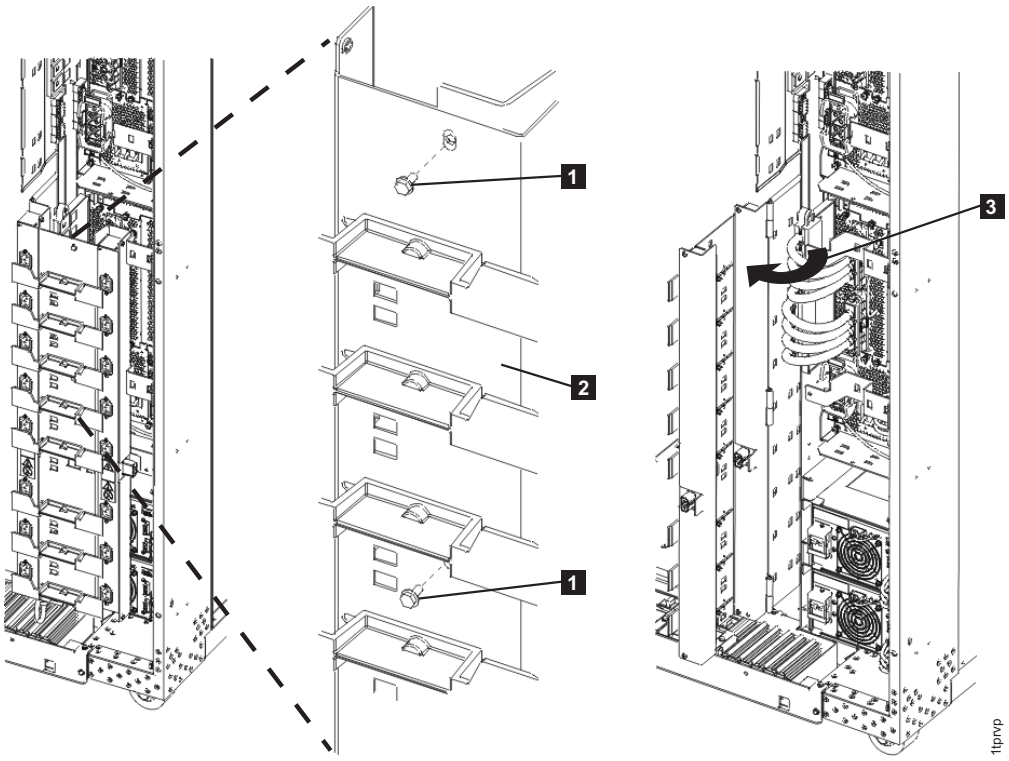


Figure 223. 208VDC bus bar gate

11. Remove the tailgate frame bracket. Remove two screws **2** as shown in Figure 224 on page 282. Loosen but do not remove the two top screws **1**. Slide the bracket out.

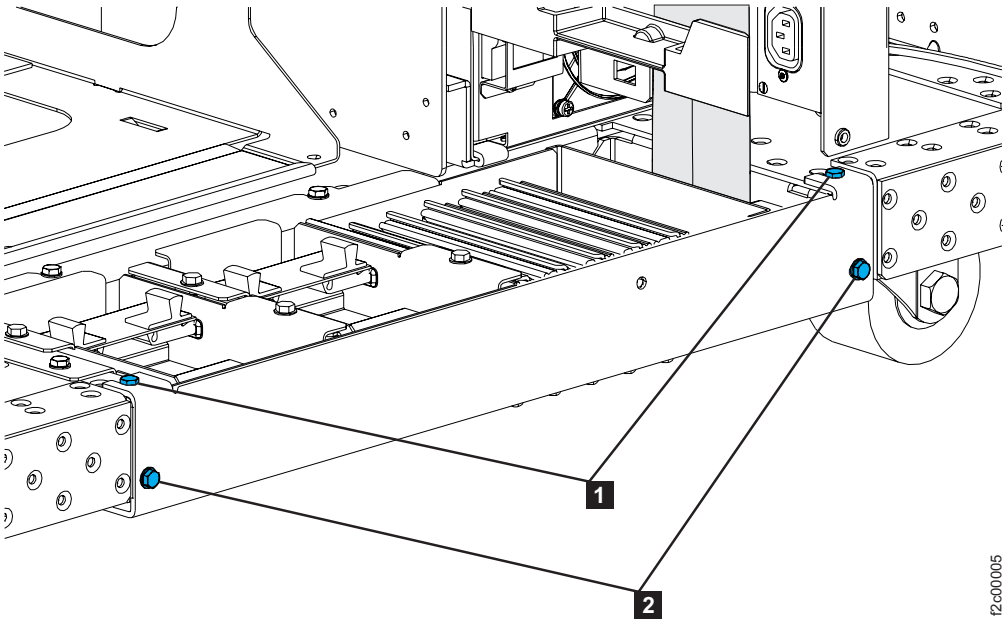


Figure 224. Tailgate frame bracket

12. Does this rack have the Weight Reduction Feature (FC 0200) installed?

    Note: FC 0200 removes storage enclosures and sometimes rack battery modules to lighten the rack to meet weight limits of floors and/or elevators. The removed parts arrive on shipping pallets. If more than one rack has FC 0200 installed, it is critical that parts are not accidentally intermixed between the racks.

    - Yes, go to Chapter 8, "Installing hardware removed by weight reduction feature FC 0200," on page 231. Return here and continue when the Storage Enclosures have been reinstalled.
    - No, continue with the next step.
13. Check all cables to ensure they are connected and latched. Give special attention to these cables:
    - Gently push and pull on each big black RIO cable to ensure it is latched (CEC enclosures and I/O enclosures).

      Note: Loose RIO cables will cause difficult problems to repair after power up.
    - Gently push and pull on each blue FC-AL cable connector to ensure it is latched (I/O enclosures and storage enclosures).
14. Does the new storage facility contain a management console (HMC)?
    - Yes, continue with the next step.
    - No, go to step 16.
15. Will this be the second management console in this storage complex?
    - Yes, go to "Disconnecting the internal Ethernet cables to the secondary management console prior to power on" on page 30.
    - No, continue with the next step.
16. Does the storage facility to be installed have one or more storage expansion racks?
    - Yes, go to "Installing additional storage racks" on page 30.

- No, go to "Preparing to check DS8000 and customer power" on page 52.

Disconnecting the internal Ethernet cables to the secondary management console prior to power on

1. Locate the Ethernet switches in the rear of the Rack-1 that is being relocated. See Figure 225.

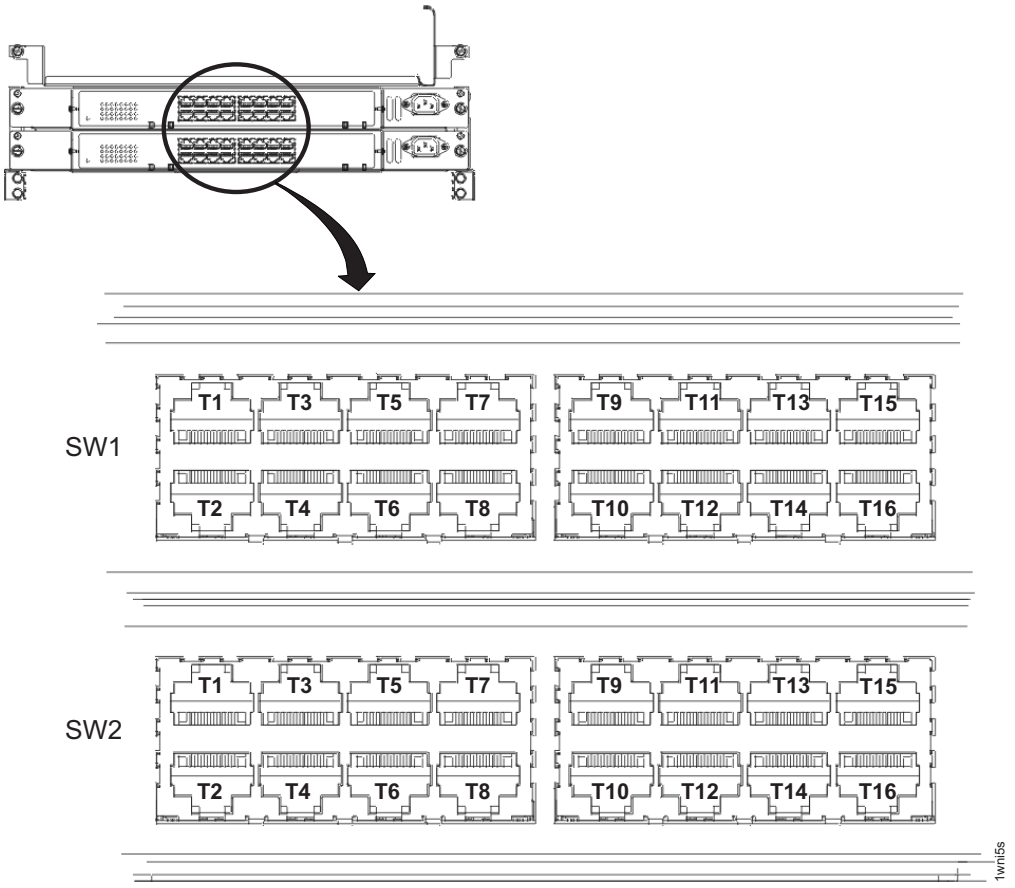


Figure 225. Ethernet switch port designations (SW1, SW2 - Tx)

2. Disconnect the management console cables that plug into SW1-T1 and SW2-T1. They will be reconnected in a later section.
3. Does the storage facility to be installed have one or more storage expansion racks?
   - Yes, go to "Installing additional storage racks."
   - No, go to "Preparing to check DS8000 and customer power" on page 306.

Installing additional storage racks

Use the following sections to install additional storage racks.

Removing right end and left rear covers from Rack-1

1. Observe the right end cover (viewed from the front) of Rack-1 to determine which version you have.
   - Older version has two cover retaining brackets as shown in Figure 226 on page 284. Go to the next step.

- Newer version does not have the two cover retaining brackets as shown in Figure 226. Go to step 3 on page 285.

2. Remove the old version of the right end cover (viewed from the front) from Rack-1.
   a. Release the two cover retaining brackets (pull them downward). See Figure 226. The cover is still secured to the frame by multiple "hook and loop" fasteners along each side of the cover.

      Note: Failure to follow the instructions in the following steps might result in a bent cover.

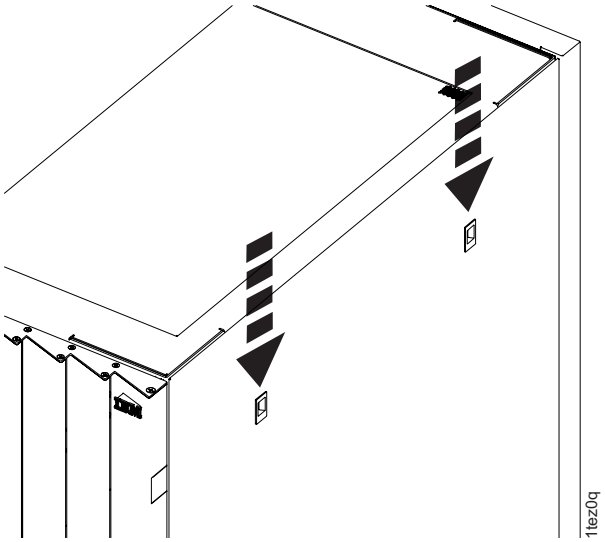


Figure 226. Disengaging the end cover

Attention: Pull lower down on each side of the cover to release it from the lower "hook and loop" fasteners. Failure to do this may bend the cover.

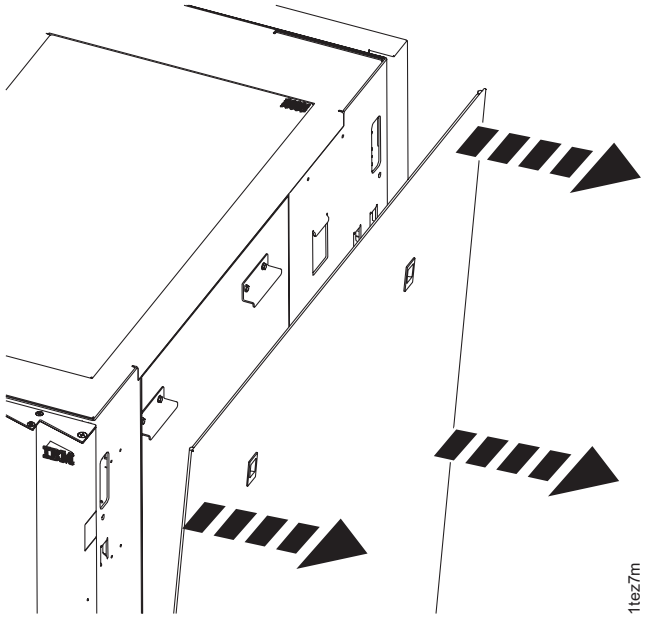


Figure 227. Removing the end cover

b. Pull the upper corners of the cover away from the rack to release the upper "hook and loop" fasteners and apply even pressure working your way down the sides. See Figure 227.

c. Further down, pull each side of the cover away from the rack to release the lower "hook and loop" fasteners and remove the cover.

d. Remove the two end cover catch brackets from the rack. They will be reinstalled on the new end rack later.

e. Go to step 4.

3. Remove the new version of the right end cover (viewed from the front) from Rack-1.

   a. Remove the two screws at the top of the end cover, they are not visible from the side of the rack. The cover is still secured to the frame by multiple "hook and loop" fasteners along each side of the cover.

      Note: Failure to follow the instructions in the following steps might result in a bent cover.

      Attention: Pull lower down on each side of the cover to release it from the lower ″hook and loop″ fasteners. Failure to do this may bend the cover.

   b. Pull the upper corners of the cover away from the rack to release the upper ″hook and loop″ fasteners and apply even pressure working your way down the sides. See Figure 227.

   c. Further down, pull each side of the cover away from the rack to release the lower ″hook and loop″ fasteners and remove the cover.

   d. Go to the next step.

4. Remove the left rear cover from Rack-1. Refer to Figure 228 on page 286.

   a. On the upper and lower door hinges, loosen the screw **1** and move the retention plate **2** that prevents the hinge pin **3** from being removed.

   b. Remove the hinge pins, remove the rear cover and place it in a safe location.

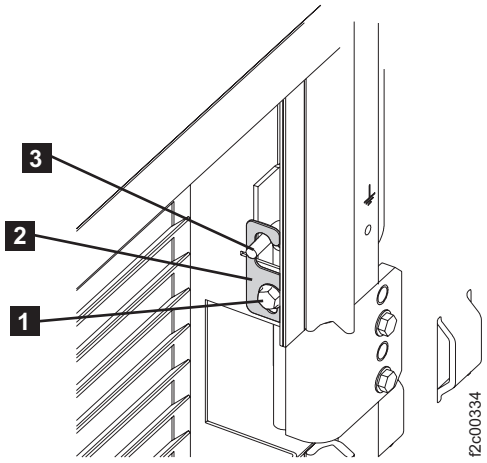


Figure 228. Removing rear left cover on Rack-1

5. Continue with "Positioning the storage racks."

Positioning the storage racks

If you have questions about floor loading and service clearances of the DS8000 racks, review the Site Requirements for the DS8000 section in the *IBM System Storage DS8000 Introduction and Planning Guide* which is available on the *IBM System Storage DS8000 series Service Documents CDROM*.

Perform steps 1 through 5 for each additional storage expansion rack that you install.

1. View the rack number label to determine the rack location and rack 1 serial number. See Figure 229 for the location of the rack number label.
2. Verify that the Rack 1 serial number on the label **1** matches the actual serial number of Rack-1.

   Attention: Do not continue with the installation if the serial numbers are different.

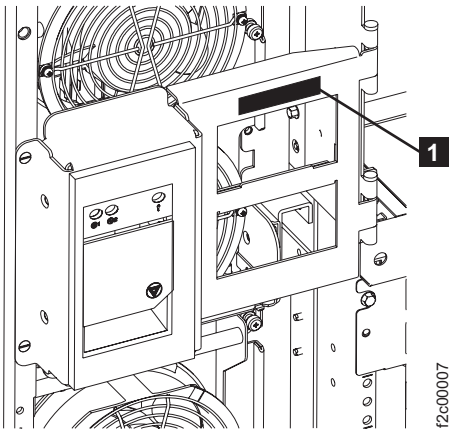


Figure 229. Rack operator panel label

3. Facing the front of Rack-1, all additional racks will be installed to the right. Move the storage expansion rack into position approximately 3″ (75mm) from the existing rack.

4. Locate 4 x spacer studs P/N 22R5046, 7 x spacer mounting bolts P/N 1621545 and 7 x M8 washers P/N 84X5850 located in the ship group.
5. Install the bottom spacer stud at the rear of the existing rack (Rack 1 or the storage expansion rack that is already installed).
   a. Refer to Figure 230. Install a spacer stud **3** in the lower rear left corner of the rack using a mounting bolt **1** and a washer **2**. Leave the bolt loose so that it will be easier to align the spacer stud with the bolt from the new frame.

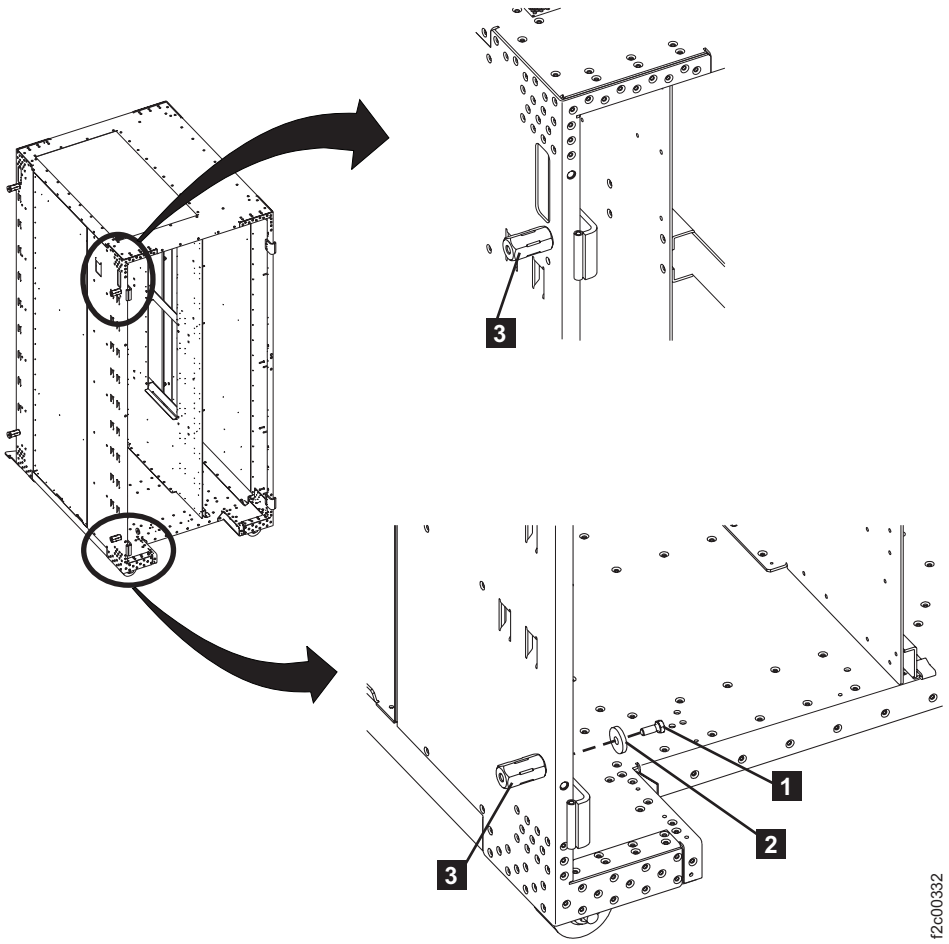


Figure 230. Interrack spacer studs

6. Determine the part number (P/N) of the interrack decorative side covers in your ship group. The P/N is printed near the middle of each side cover. There are two side covers and one top cover in the long narrow shipping box.
   - P/N 22R0786 (original version) go to step 7.
   - P/N 22R4964 (new version) go to step 8 on page 288.
7. In the upper rear left corner of the existing rack, next to the hinge, there are two holes; one above the other. Use the upper hole and install a spacer stud **3** using a mounting bolt **1** and a washer **2**, see Figure 230. **Do not** tighten the bolt fully as some alignment will be needed. You can hold the side cover next to the spacer studs to ensure the spring clips align properly before going to step 9.

Note: On early frames, it may be necessary to remove the rear left top hinge and spacer plate to allow the mounting bolt to be inserted. Reinstall the hinge and plate when the bolt has been tightened.

8. In the upper rear left corner of the existing rack, next to the hinge, there are two holes; one above the other. Use the lower hole and install a spacer stud 3 using a mounting bolt 1 and a washer 2, see Figure 230 on page 287. **Do not** tighten the bolt fully as some alignment will be needed. You can hold the side cover next to the spacer studs to ensure the spring clips align properly before going to step 9.

   Note: On early frames, it may be necessary to remove the rear left top hinge and spacer plate to allow the mounting bolt to be inserted. Reinstall the hinge and plate when the bolt has been tightened.

9. On the rear of the storage expansion rack being installed, perform the following steps to remove the right cover.
   a. Open the rear left machine cover.
   b. Remove and retain the two screws 1 and open the rear right machine cover. Refer to Figure 231.

      Note: The screws must be reinstalled later to prevent non-service personnel from accessing a hazardous section of the machine.

   c. On the upper and lower door hinges, loosen the screw 1 and move the retention plate 2 that prevents the hinge pin 3 from being removed. Refer to Figure 228 on page 286.
   d. Remove the hinge pins, remove the rear cover and place it in a safe location.

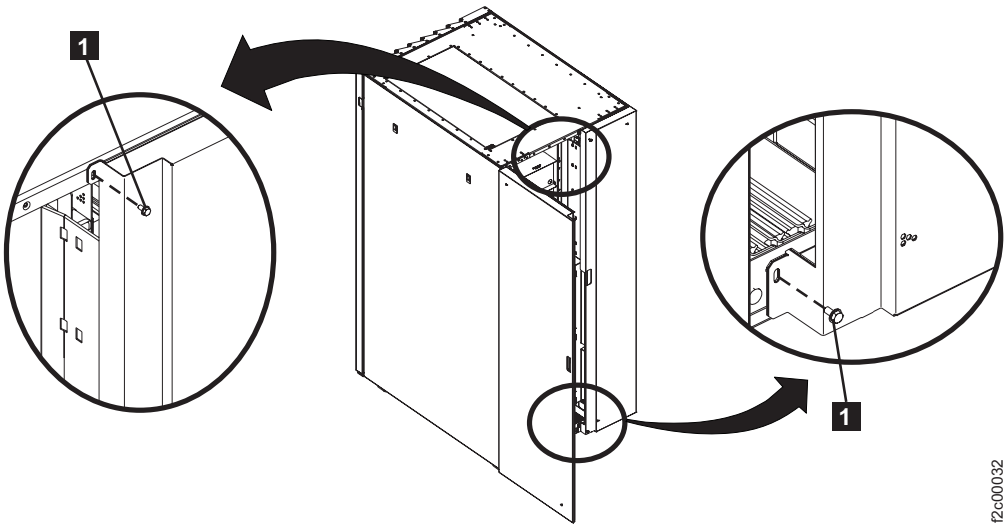


Figure 231. Removing retaining screws on right rear machine cover

10. Return to the front of the racks. Do not remove any front covers. Install 2 spacer studs on the front left of the storage expansion being installed.
    a. Install a spacer stud in the lower front left corner of the rack using a mounting bolt and a washer. **Do not** tighten the bolt fully as some alignment will be needed.
    b. Install a spacer stud in the upper front left corner of the rack using a mounting bolt and a washer. **If there are two frame holes near the hinge,**

use the same hole (upper or lower) as you did at the rear of the rack. Do not tighten the bolt fully as some alignment will be needed.

11. Move the storage expansion rack being installed to its final position.
12. At the rear, secure the storage expansion rack being installed to the existing rack using one bolt and washer in the upper position only. The bolt is screwed into the spacer stud previously installed. Do not tighten the bolt fully.

    Note: It is not possible to install the bolt at the bottom of the rack because the 208VDC bus bars block access.
13. At the front, insert two bolts and washers from the left rack and screw into the spacer studs previously installed in the right rack. When the alignment is correct, tighten all the bolts that have been installed.
14. Install the wheel chocks **1** (located in the ship group) on all four casters. If caster locks are available, engage the caster locks on all casters. Refer to Figure 232.

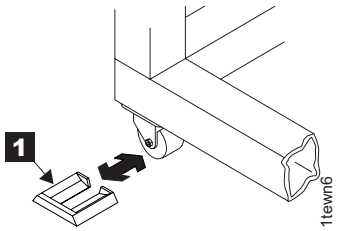


Figure 232. Wedge chocks

Reinstalling the right end cover on the right-most rack

The right end cover was previously removed in the task "Removing the right end cover from the existing rack".

1. Which version of the Rack-1 end cover do you have?
   - Old version has two cover retaining brackets. Go to the next step.
   - New version has two screws at the top of the cover. Go to step 3.
2. Install the two cover catch brackets from Rack 1 on the expansion rack. Install the right end cover (removed earlier) on the expansion rack, then go to step 4.

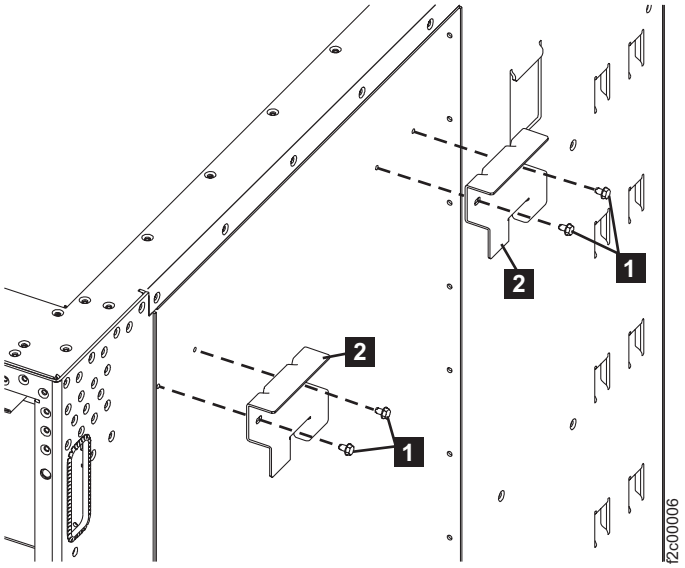


Figure 233. Removing/replacing right end cover

3. Does the expansion rack have the two screw holes in the top of the rack for the right end cover?
   - Yes, install the right end cover (removed earlier) on the expansion rack securing it with the two top screws.
   - No, call the next level of support. You will need to order the old version right end cover, retaining brackets and screws. Continue the installation without the right end cover.
4. Continue at the next section.

Checking for weight reduction feature

The weight reduction feature removes storage enclosures and/or battery modules to reduce the total rack weight. These parts are then shipped on a separate pallet and must be reinstalled.

1. Was the Weight reduction feature (FC 0200) ordered for this storage expansion rack?

   Note: If FC 0200 was ordered, the Storage Enclosures will have been removed in manufacturing and shipped separately.

   - Yes, go to Chapter 8, "Installing hardware removed by weight reduction feature FC 0200," on page 231. Return here and continue when the Storage Enclosures have been reinstalled.
   - No, continue with the next step.
2. Continue with "Routing and connecting the interrack cables" on page 291.

Routing and connecting the interrack cables

Perform the following steps for each storage expansion rack that you install.

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous.

To avoid shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet. Ensure outlet supplies proper voltage and phase rotation according to the system rating plate.**
- **Connect any equipment that will be attached to this product to properly wired outlets.**
- **When possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
- **Connect and disconnect cables as described below when installing, moving, or opening covers on this product or attached devices.**

To disconnect:

1. **Turn everything OFF (unless instructed otherwise).**
2. **Remove power cords from the outlet.**
3. **Remove signal cables from connectors.**
4. **Remove all cables from devices.**

To connect:

1. **Turn everything OFF (unless instructed otherwise).**
2. **Attach all cables to devices.**
3. **Attach signal cables to connectors.**
4. **Attach power cords to outlet.**
5. **Turn device ON.**

(D005)

1. There are two versions of the Air baffle, determine which one you have:
   - Old version - one piece of sheet metal that must be removed before the 208VDC bus bar gate to the right of the baffle can be swung to the open position. Go to the next step.
   - New version - sheet metal with a flexible plastic cutout at the right rear that bends out of the way when the 208VDC bus bar gate is swung open. Go to step 3.
2. Remove the two screws **1** and take out the Air baffle **2** Figure 234 on page 292. Retain the parts for later re-installation.

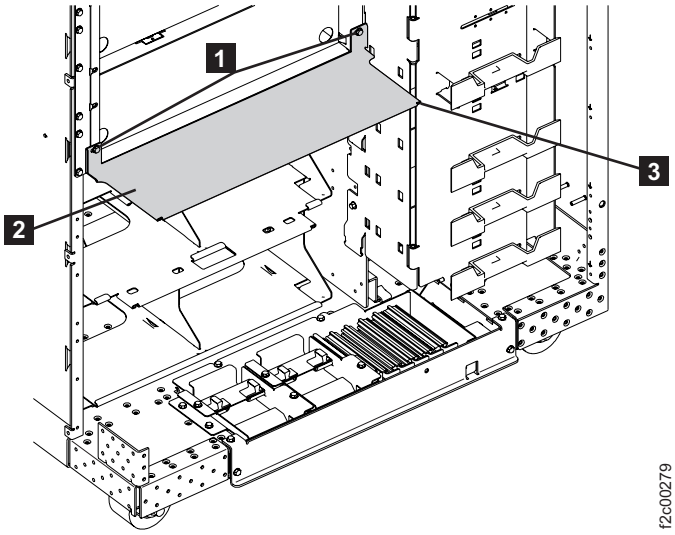


Figure 234. Air baffle

3. Remove the two screws **1** and pivot the 208VDC bus bar gate to the service position **2**, as shown in Figure 235.

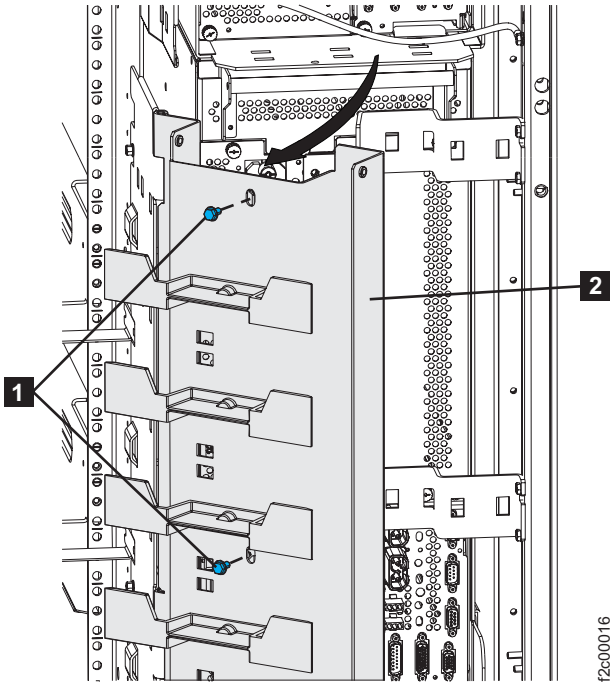


Figure 235. 208VDC bus bar gate service position

4. Remove the tailgate frame bracket. Remove two screws **2** as shown in Figure 236 on page 293. Loosen but do not remove the two top screws **1**. Slide the bracket out.

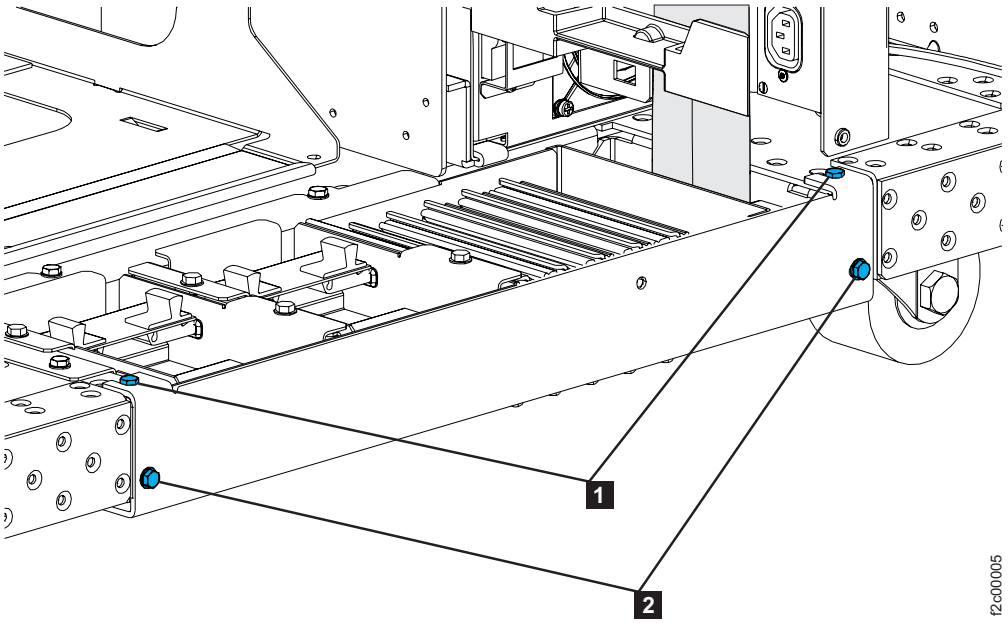


Figure 236. Tailgate frame bracket

5. Route and connect cables to RPC cards.
   a. Locate the two RPC cables in the top rear of the expansion rack. Route the cables through the hole at the top rear right side to the RPC cards in Rack 1. If this is not Rack 2, then the cables will need to be routed through all the intermediate racks between this one and Rack 1.

   Note: On early production racks the cables may be labeled with 'Base Rack'. On later production racks they will be labeled as Rack 1.
6. Plug the cables into the RPC connector as indicated in Table 89 and Figure 237 on page 294.

   Note: On some early production storage expansion racks, the cables were labeled RPC-0 and RPC-1. The cable labeled RPC-0 must be plugged to RPC1 and the cable labeled RPC-1 must be plugged to RPC2.

   Important: It is very important that the cables are not crossed between the RPC cards. This could result in an unscheduled power drop during repair activities. If the RPC number labeling is not clear, then trace the cables back to the PPS. The cable to RPC1 originates from connector J1 on both PPSs. The cable to RPC2 originates from connector J2 on both PPSs.

Table 89. Rack numbers and RPC connector locations

Rack Number	2	3	4	5	6	7
RPC 1 and RPC 2 connector	3	5	7	9	11	13

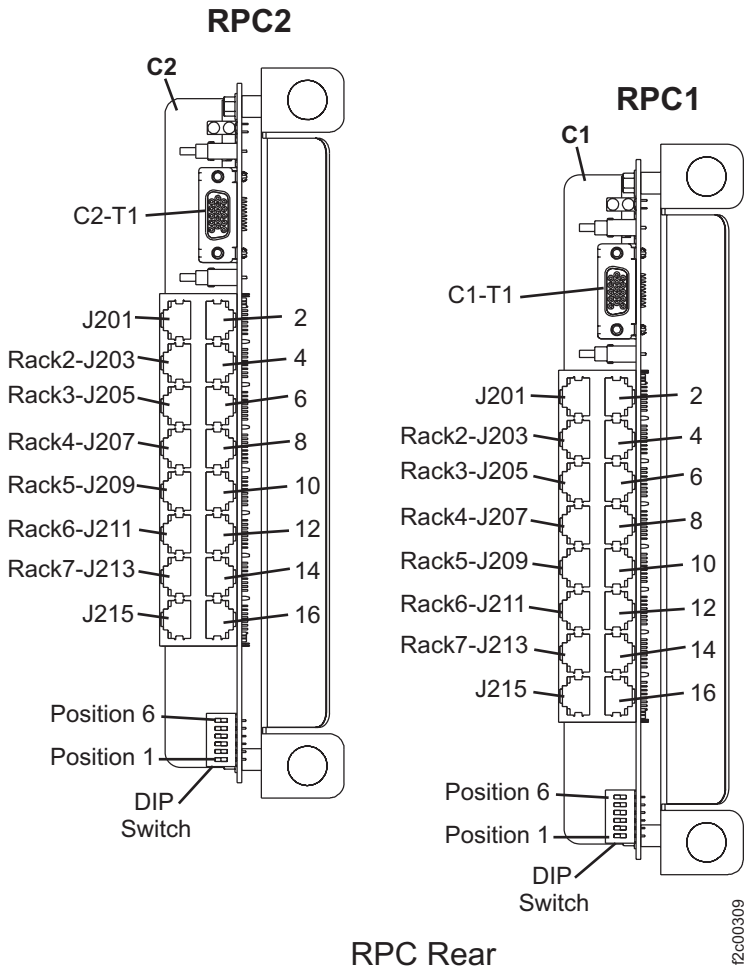


Figure 237. RPC card locations

7. Determine if this expansion rack has FC-AL blue cables to be routed and connected to another rack.

   Note: The FC-AL cables create the loops that connect storage enclosure FCIC cards to other storage enclosure FCIC cards or to I/O enclosure device adapter cards.

   Does this expansion rack have four I/O enclosures at the bottom of the rack?

   - Yes, all FC-AL cables in this rack are already connected. Go to step 11 on page 297.
   - No, this rack has FC-AL cables that need to be routed and connected to another rack. Go to step 10 on page 297.

8. The unconnected end of the FC-AL cables to be routed are coiled at the top of the rack. Check the front or rear of the rack to find them. The cable connectors have black rubber protective covers. Uncoil the cables. Locate the attached labels that identify the destination rack and storage or I/O enclosure number. Route the cables through the holes at the top of the rack to the destination rack and enclosure. Use existing cable trays and "hook and loop" fastener straps. Refer to Figure 238 on page 295 and Figure 239 on page 296.

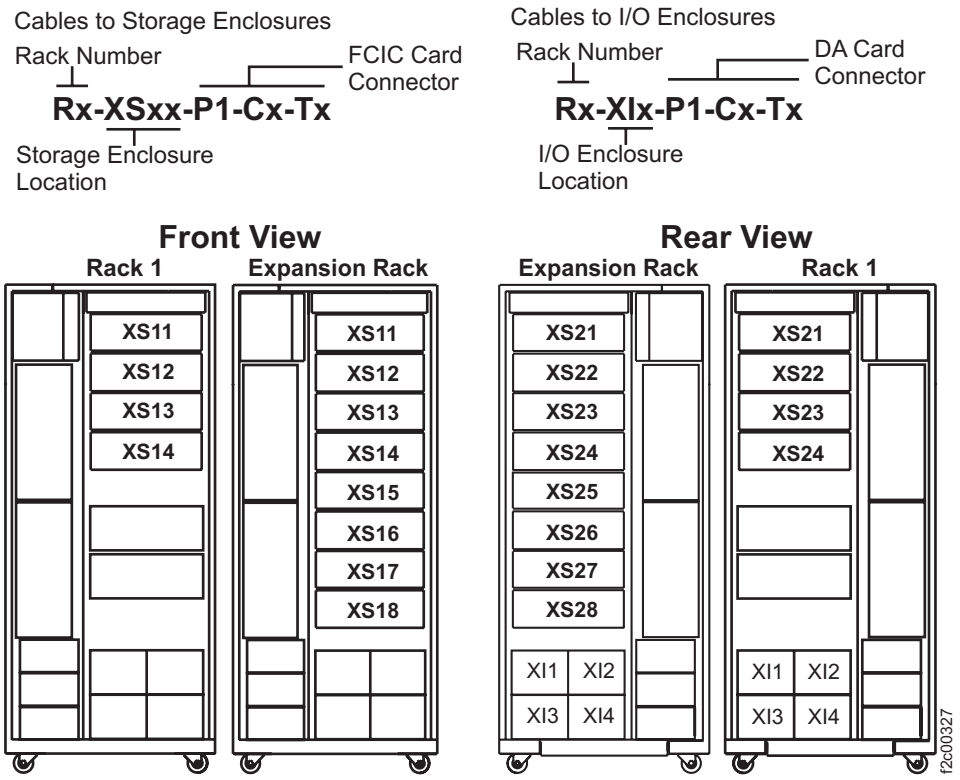


Figure 238. Cable labels, storage and I/O enclosure locations

Note: Figure 238 shows a fully configured expansion rack. Additional racks may be installed. Expansion racks may not contain I/O enclosures or be fully populated with Storage Enclosures.

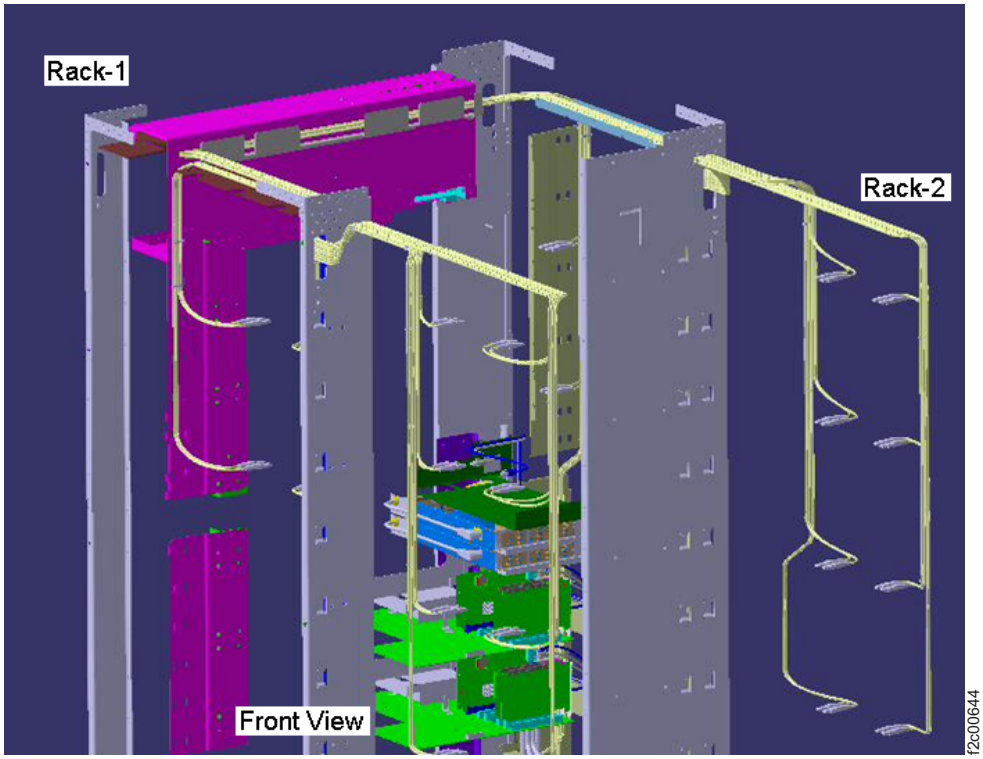


Figure 239. Mechanical routing of the FC-AL cables (rack-to-rack)

9. Remove the black rubber protective connector covers and then plug the FC-AL cables into the connectors on the DA cards in the I/O enclosures or FCIC cards in the storage enclosures as indicated on the cable labels. Refer to Figure 240 on page 297.

   Note: Do not discard the connector covers, you can store them in the rack 1 documents enclosure (front upper left).

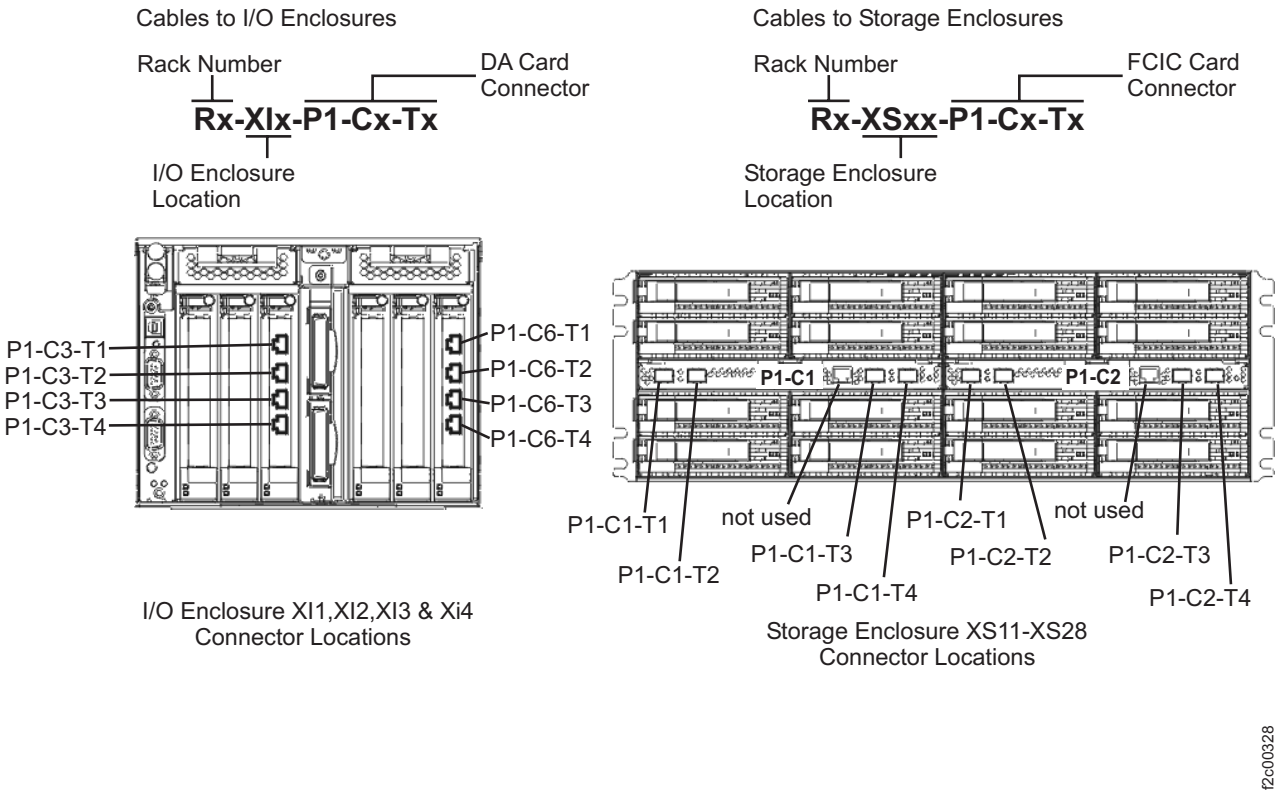


Figure 240. Cable labels to I/O Enclosures and Storage Enclosures

10. Continue with "Installing the interrack decorative covers kit" on page 50.
11. Prepare the tailgate in the new and existing racks.
    a. For the earlier version of the tailgate (five cable slots to the right) as shown in Figure 241 on page 298, remove the cable retention clamps **3**, as appropriate, in the tailgate of the Rack being installed and in the destination rack. Do this by removing the screws **1** from the underside and releasing the retention pins **2**.
    b. For the later tailgate design (four cable slots on the left end; two cable slots on the right end), no additional preparation is needed.

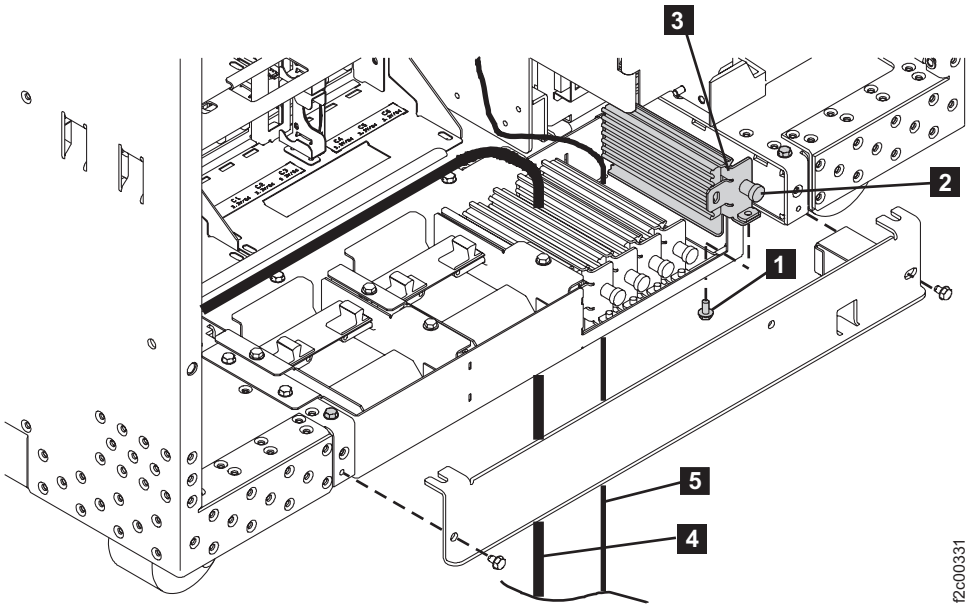


Figure 241. RIO & SPCN cable (remove or install)

12. This step shows an overview of the rack-to-rack routing of the RIO and SPCN cables. Do not route or connect the cables until directed in later steps.
    - On a raised floor, the cables are run down through the tile cutouts and underneath the floor.
    - On a non-raised floor, the cables are run beneath the racks.

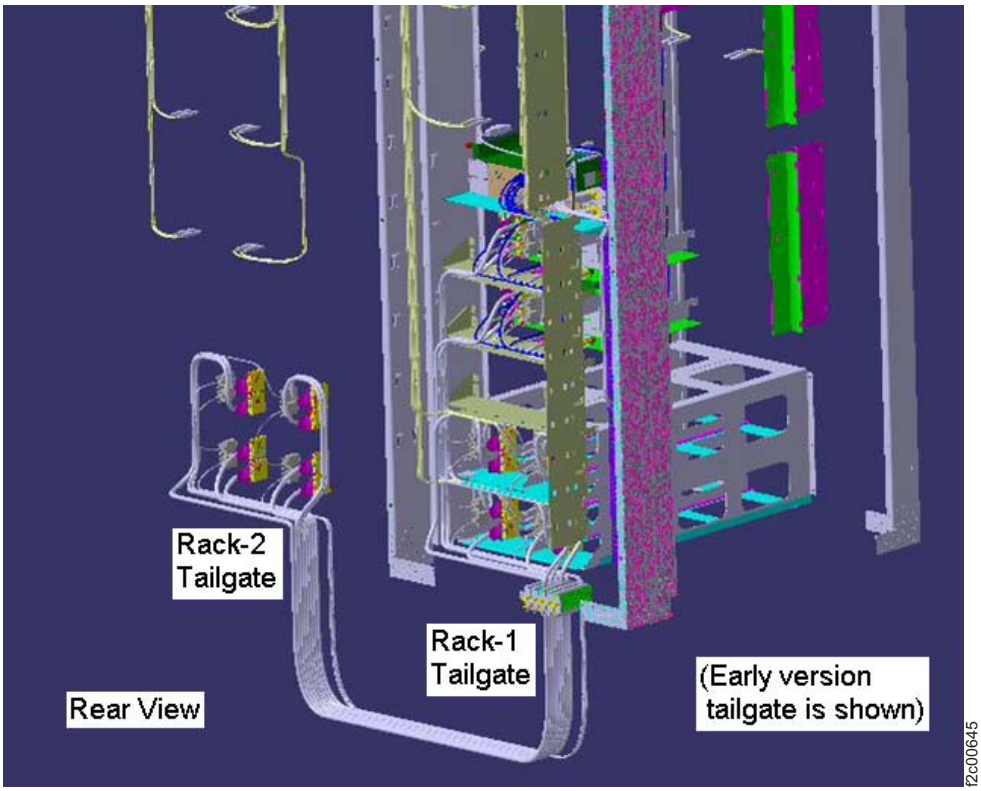


Figure 242. Mechanical routing of the RIO and SPCN cables (rack-to-rack)

13. Locate the RIO cables that will be coiled near the tailgate and uncoil them. Locate the destination labels that are attached to the cables and identify to which rack and I/O enclosure the cables need to be routed. Refer to Figure 243 on page 300.

    Note: On early production racks the cables may be labeled with 'Base Rack' or 'Expansion Rack.' On later production racks they will be labeled with the Rack number.

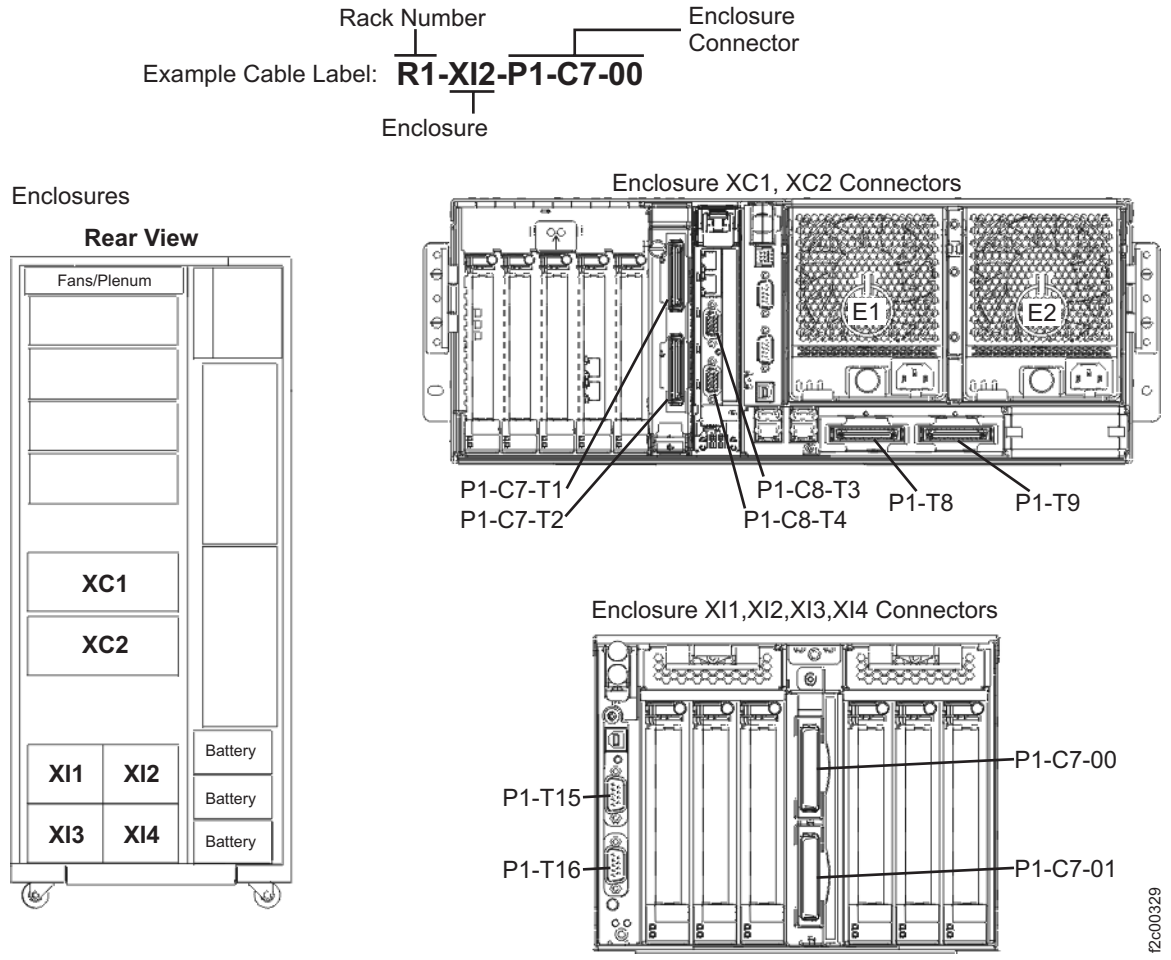


Figure 243. RIO and SPCN cable label locations

14. Route the RIO cables.
    - For cable routing inside of the rack, see Figure 244 on page 301.
    - If you have the earlier version of the tailgate (all five cable slots on the right side of the tailgate), route all RIO cables through slot 3. See Figure 244 on page 301.
    - If you have the later version of the tailgate (four cable slots on the left and two cable slots on the right), route the RIO cables as follows:
      – Route the RIO cables on the left side of the rack through slot 1. See Figure 245 on page 302.
      – Route the RIO cables on the right side of the rack through slot 6. See Figure 245 on page 302.

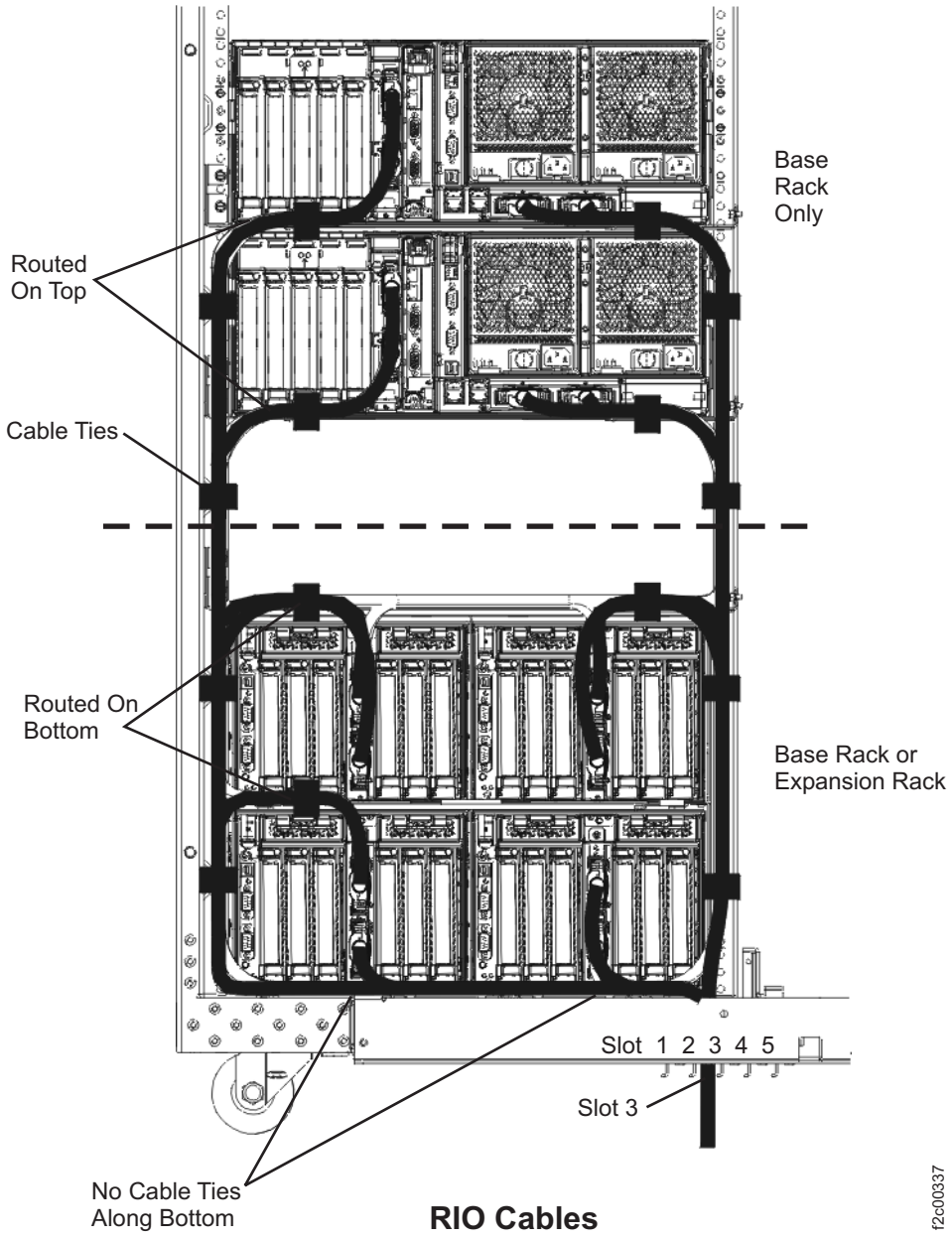


Figure 244. RIO cable routing (early version tailgate)

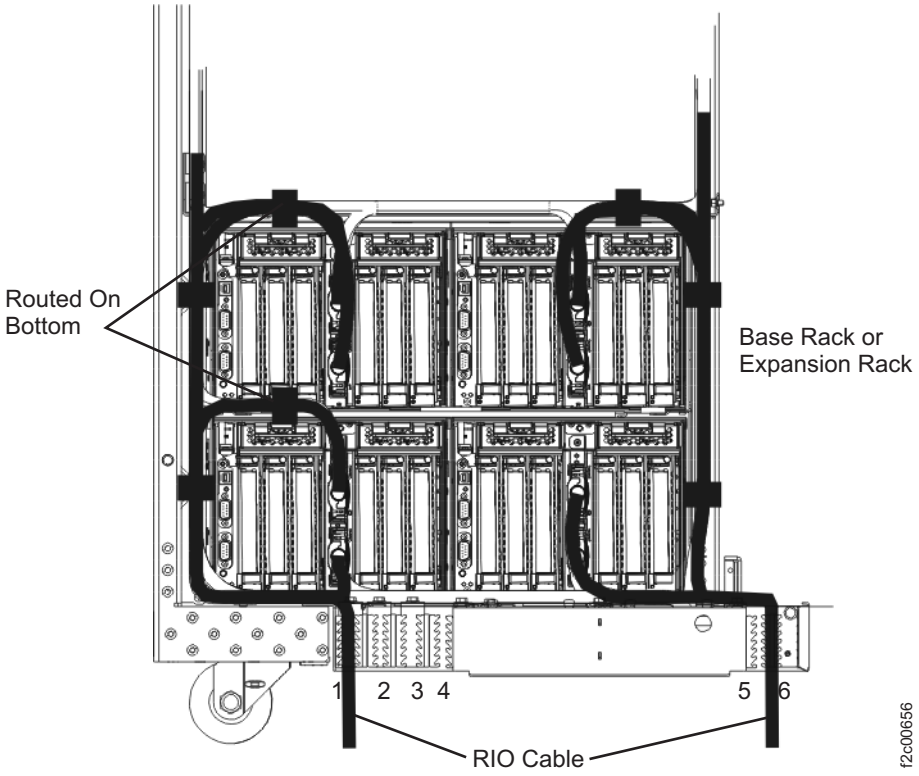


Figure 245. RIO cable routing through the tailgate (later version tailgate)

15. Locate the SPCN cables that will be coiled near the tailgate and uncoil them. Locate the destination labels that are attached to the cables and identify to which rack and I/O enclosure the cables need to be routed.

    Note: On early production racks the cables may be labeled with 'Base Rack' or 'Expansion Rack.' On later production racks they will be labeled with the Rack number.

16. Route the SPCN cables.
    - For cable routing inside of the rack, see Figure 246 on page 303.
    - If you have the earlier version of the tailgate (all five cable slots on the right end of the tailgate), route all SPCN cables through slot 5. See Figure 246 on page 303.
    - If you have the later version of the tailgate (four cable slots on the left and two cable slots on the right), route the SPCN cables as follows:
      – Route the SPCN cables on the left side of the rack through slot 2. See Figure 247 on page 304.
      – Route the SPCN cables on the right side of the rack through slot 5. See Figure 247 on page 304.

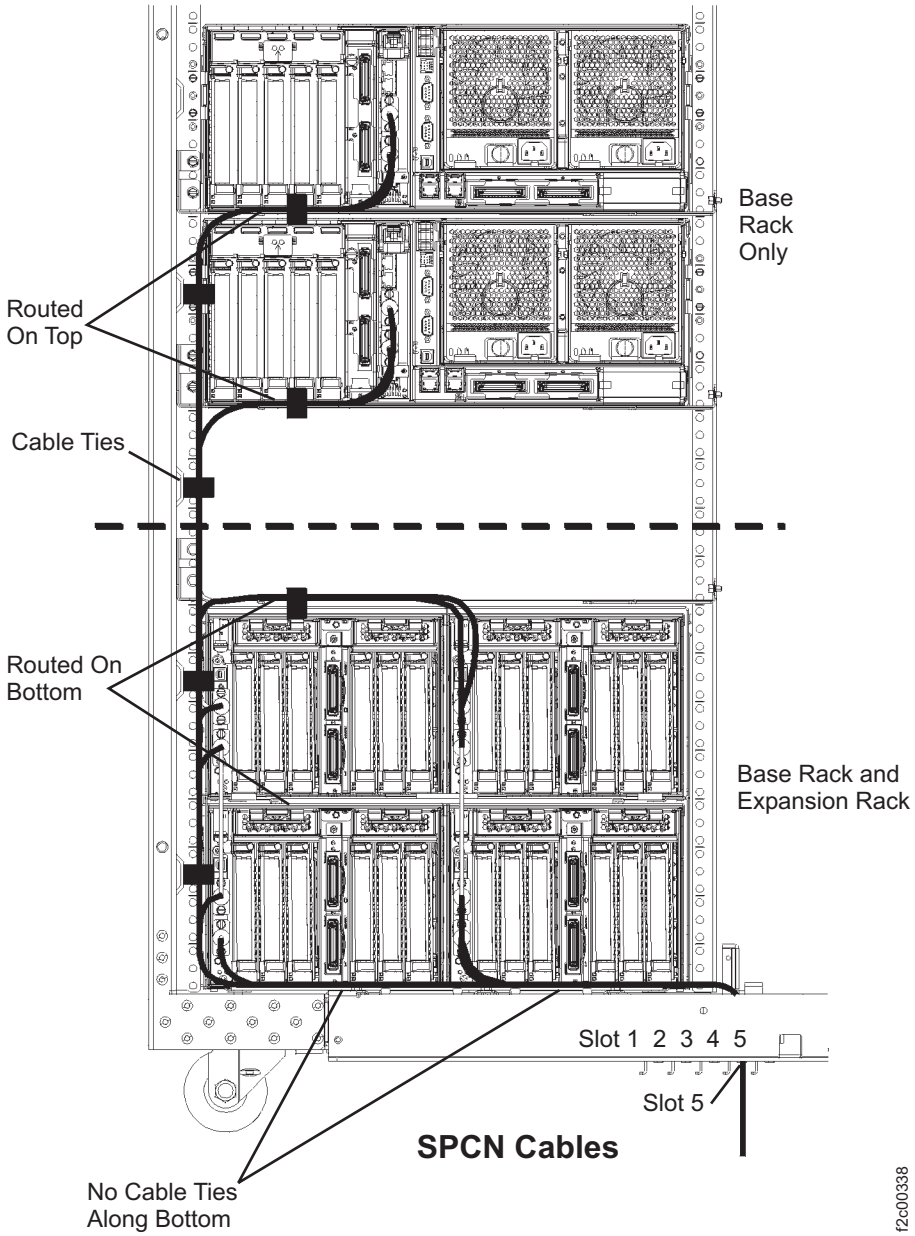


Figure 246. SPCN cable routing (early version of tailgate)

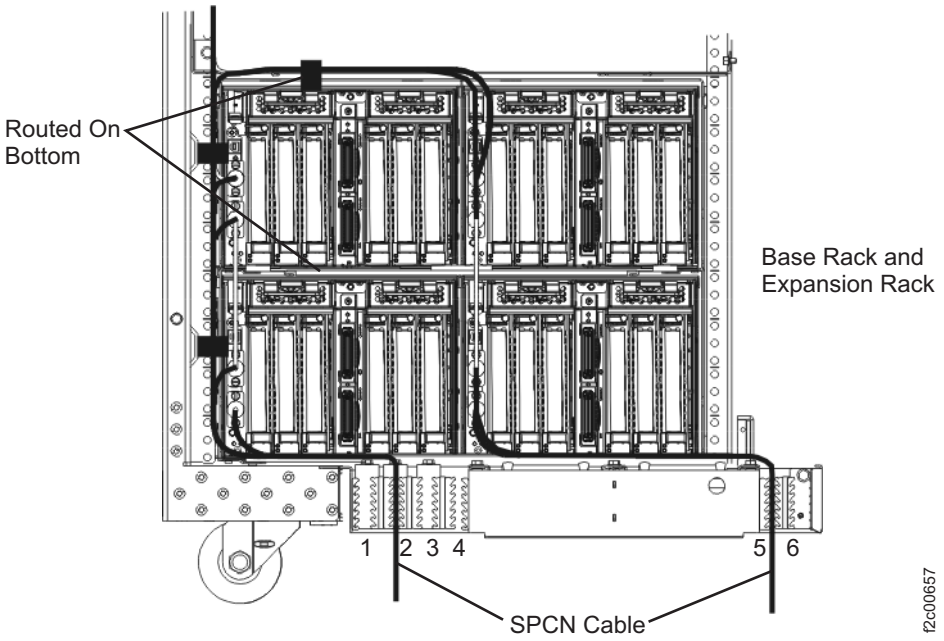


Figure 247. SPCN cable routing through the tailgate (later version tailgate)

17. Plug the RIO-G and SPCN cables into the indicated connector on the destination I/O enclosure. The connector locations are shown in Figure 243 on page 300.
18. Reinstall the tailgate cable retention clamps to secure the RIO and SPCN cables in the tailgate.
19. Continue with "Installing the interrack decorative covers kit."

Installing the interrack decorative covers kit

Perform the following steps for each storage expansion rack that you are installing.

1. Locate the interrack decorative covers kit. It contains two side interrack covers and one top interrack cover. There are two versions of the interrack decorative covers kit.
   - Early version - the covers are packaged in a long narrow cardboard box normally taped to the expansion rack. The side interrack covers are one piece. Go to step 3.
   - Later version - the covers are packaged in the large ship group box. Each side interrack cover is in two pieces that are hinged together. Go to the next step.
2. Assemble each of the side interrack covers as follows:
   a. Open the hinged side interrack cover **1** so that it is straight. See the following figure.
   b. Loosen the two nuts **2** on the threaded studs next to the hinge points.
   c. Slide the plate **3** so that it engages both studs.
   d. Tighten both nuts.

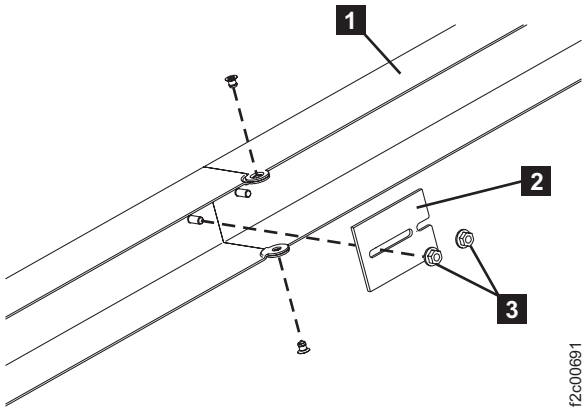


Figure 248. Assembling the later version of the interrack decorative side covers

3. Install each of the two interrack side covers **1** by pushing the cover into place over the interrack spacing studs. Take care not to interfere with any interrack cables. See Figure 249.
4. Install the top interrack cover **2** by pressing it down squarely. The spring clips should hold the cover in place. See Figure 249.

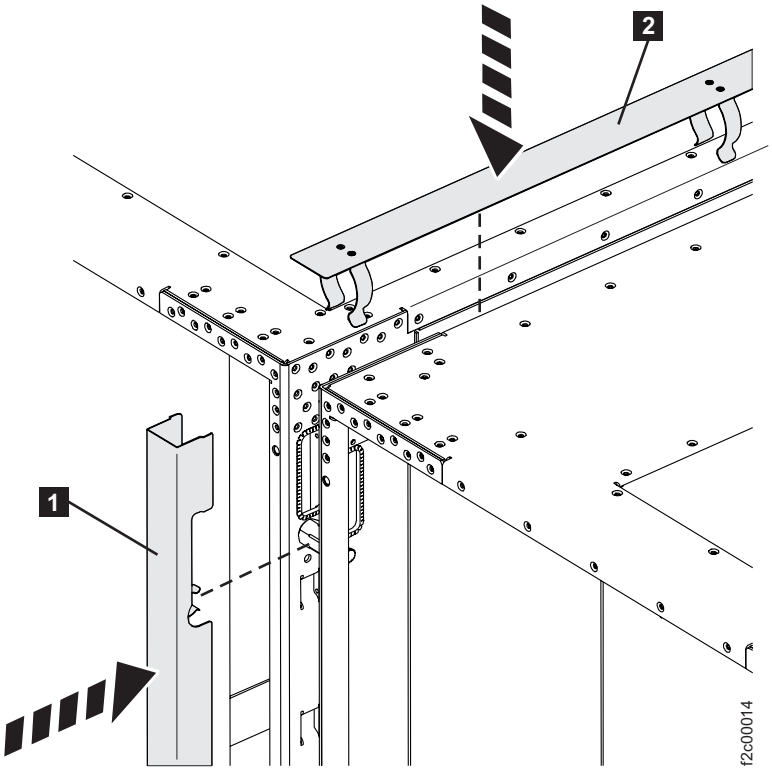


Figure 249. Installing the interrack decorative covers

5. Continue with "Performing the power and safety checks."

Performing the power and safety checks

Use the tasks in the following topics to complete the power and safety checks for the DS8000.

Preparing to check DS8000 and customer power

DANGER

Lethal voltages are present in this area of the machine.

You will need the following tools to perform the power safety checks:

- For resistance checks, IBM analog ohmmeter P/N 00P7029 (Mastech Model 7040).
- For voltage checks, IBM digital multimeter P/N 8496278 (Fluke Model 179).
- For probing, high voltage test probe tips P/N 43L0951.

Note: Use the listed part number (P/N) or an equivalent P/N that is approved by IBM.

Steps

1. Read the Danger notice and requirements above.
2. Continue with "Determining mainline power cable type (plug in or wired)" on page 308.

Routing the mainline power cables

Repeat the following steps for each rack that you are installing.

1. Uncoil the mainline power cables from the ship group.
2. The mainline power cable that connects to PPS-1 (upper) **5** is longer than the mainline power cable that connects to PPS-2 (lower) **6** . See Figure 250 on page 307. Use the cable label and part number (P/N) to identify the longer cable.

Table 90. Cable label and part number

Feature Code	P/N of shorter cable	P/N of longer cable
1090 - 3 phase 60A non EMEA	22R1190	22R2222
1091 - 3 phase 60A EMEA	22R3794	22R3795
1092 - 3 phase 60A Japan	22R1191	22R2224
1093 - 3 phase 60A Chicago	22R1188	22R1189

CAUTION:
Do not connect the DS8000 mainline power cables to customer power until instructed to do so.

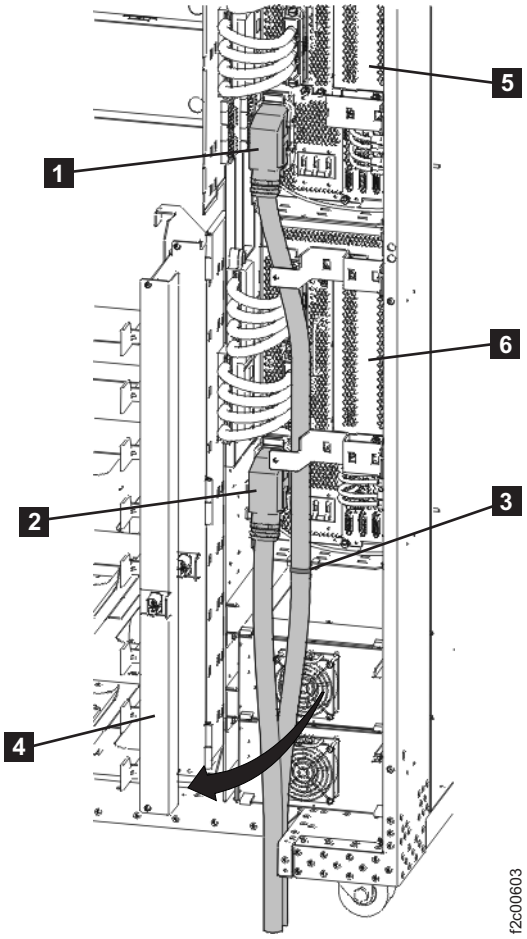


Figure 250. Base rack power cables

3. Ensure the 208VDC bus bar gate **4** is in the open position. See Figure 250.
4. For a base rack or expansion rack, complete the following steps.
   a. Route the longer mainline power cable **1** up through the tailgate as shown and connect it to PPS-1 (upper).
   b. Use a "hook and loop" fastener cable tie **3** to fasten it to the bracket.
   c. Route the shorter mainline power cable **2** up through the tailgate as shown and connect it to PPS-2 (lower).

   Notes:

   - If this is on a raised floor, route the cables down through the floor cutout and near the customer power connectors.
   - If this is not on a raised floor, route the cables underneath the frame behind the rear caster so they exit to the side. The cables must not exit the rack in the front or rear service areas.
5. Route and connect the mainline power cables. For this task, you have the option of disconnecting the 5/12V DDM "Y" power cables. See Figure 251 on page 308. The four screws **2** that secure these cables to the PPSs are not captive, so do not let them fall when you remove them.
   a. Route the longer mainline power cable **3** up through the tailgate and behind the 5/12V DDM "Y" power cables **1**. See Figure 251 on page 308. To make this easier, you can temporarily disconnect the right-most connector of each "Y" power cable.

b. Connect the mainline power cable to PPS-1 (upper). Use a "hook and loop" fastener cable tie **3** to fasten the upper cable to the bracket.

c. Route the shorter cable **2** up through the tailgate. Connect it to PPS-2 (lower) similarly to what is shown in Figure 250 on page 307.

Notes:

a. If this is on a raised floor, route the cables down through the floor cutout and near the customer power connectors.

b. If this is not on a raised floor, route the cables underneath the frame behind the rear caster so they exit to the side. The cables must not exit the rack in the front or rear service areas.

CAUTION:
Do not connect the DS8000 mainline power cables to customer power until instructed to do so.

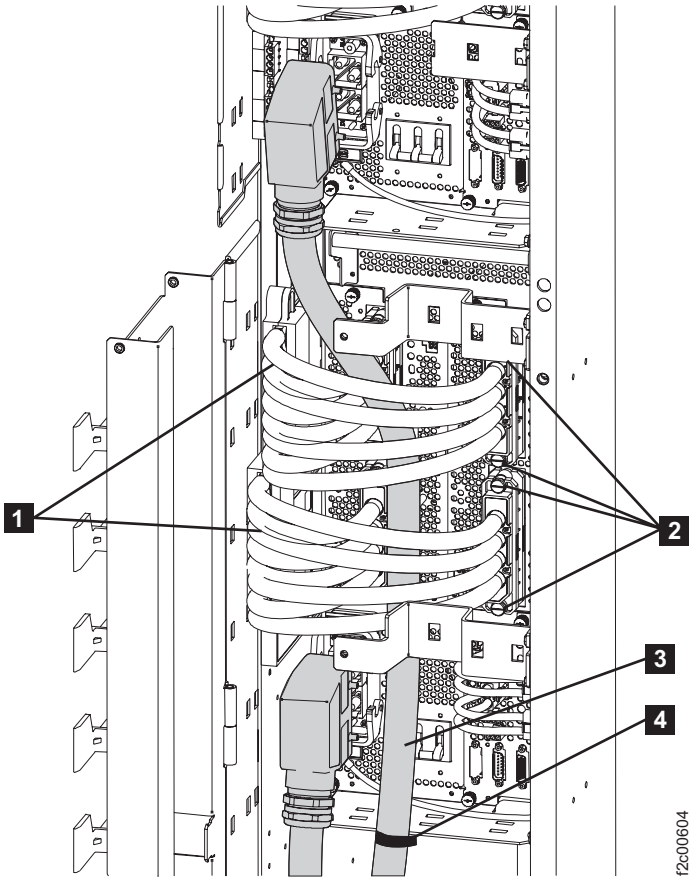


Figure 251. Expansion rack power cables

Determining mainline power cable type (plug in or wired)

Repeat the following steps for each DS8000 rack that you are installing.

1. Locate the customer end of the mainline power cables from all the DS8000 frames that you are installing.
2. Determine if the customer end of the mainline power cables are for plug- in or wired installations.

- Plug-in: The mainline power cable has a plug at both ends. Go to “Checking customer power for a plug-in mainline power cable.”
- Wired: The mainline power cable has a plug at one end and loose wires at the other end. Go to “Checking customer power for a ″wired″ mainline power cable” on page 311

Checking customer power for a plug-in mainline power cable

Repeat the following sections for both mainline power cables in each rack being installed.

Checking customer receptacle ground pin continuity with customer CB off (plug in)

1. Prepare the multimeter to measure 1.0 V ac or less. Measure the voltage at the customer’s AC power outlet between the ground pin and the building ground.

   Is the voltage less than 1.0 V ac?

   - Yes, go to step 3.
   - No, continue with the following step.
2. Voltage is present at a customer outlet with the customer circuit breakers off.

   DANGER

   Inform the customer that, even though the circuit breaker is off, voltage higher than 1.0 V ac is measured at the failing customer voltage outlet pins. Do not continue until the voltage is less than 1.0 V ac. (1003)
3. Prepare the multimeter to measure 1.0 ohm or less of resistance.
4. Measure the resistance between the customer AC power outlet ground pin and the building ground. Refer to Figure 252 for the location of the ground pin.

   Is the resistance 1.0 ohm or less?

   - Yes, continue with “Checking customer receptacle voltage pins with customer CB off (plug in).”
   - No, inform the customer. **Do not continue until the resistance is 1.0 ohm or less.**

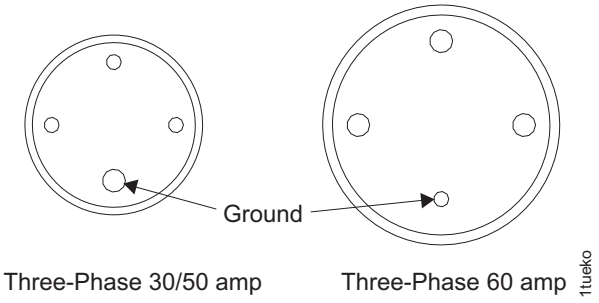


Figure 252. Three-phase amp

Checking customer receptacle voltage pins with customer CB off (plug in)

Prepare the multimeter to measure 1.0 V ac or less. Measure the voltage between each pair of voltage pins (**A**, **B**, and **C**) on the customer outlet. Also, measure the

voltage between each voltage pin and ground pin on the customer outlet. Did any voltage measure more than 1.0 V ac? Refer to Figure 253 for the location of the voltage pins.

- Yes, inform the customer that one or more voltage pins on the customer receptacle measured greater than 1.0 V ac even though the circuit breaker is off. **Do not continue until the voltage is less than 1.0 V ac.**
- No, continue with the next task, "Checking customer receptacle voltage pins with customer CB on (plug in)."

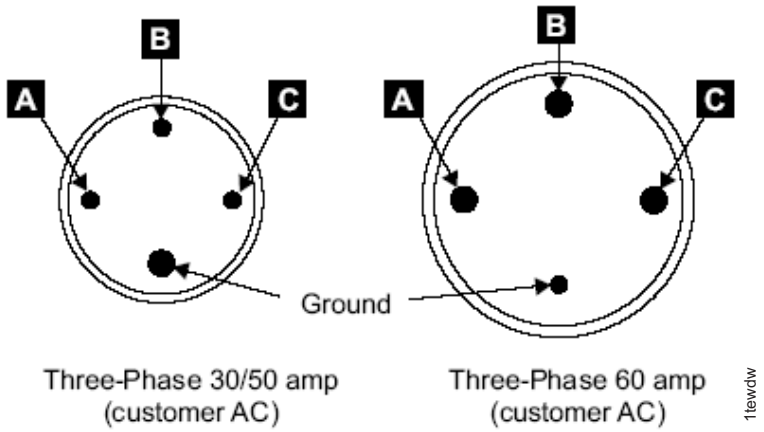


Figure 253. Measuring voltage between each pair of pins

Checking customer receptacle voltage pins with customer CB on (plug in)

1. Remove the "Do Not Operate" tag and the lockout padlock from each customer mainline AC voltage circuit breaker and then switch on the customer circuit breaker.
2. Prepare the multimeter to read line voltage AC.

   DANGER

   Dangerous voltages may be present. Do not touch the internal parts (pins and connectors) of the customer receptacle.

3. Measure the voltage between the ground pin and each voltage pin (**A** , **B** , and **C**)) on the customer outlet. Refer to Figure 254 on page 311 for the location of the voltage pins.

   Are the voltages within 10% of each other?

   - Yes, continue with the next step.
   - No, inform the customer that the voltages are not correct. **Do not continue until the voltages are correct.**
4. Locate the DS8000 information label located near the top of the left side panel at the rear of the DS8000. Measure the voltage between each pair of voltage pins (**A** to **B** , **B** to **C** , and **C** to **A**) on the customer outlet. Refer to Figure 254 on page 311 for the location of the voltage pins. Verify that the customer AC input voltage that you just measured matches the machine input voltage information on the label.

   Do the voltages correspond with the label?

   - Yes, continue with "Connecting the mainline power cables on the racks (plug in)" on page 311.

- No, **do not continue with the installation**. Contact the marketing representative to confirm that the DS8000 was ordered with the correct power input feature.

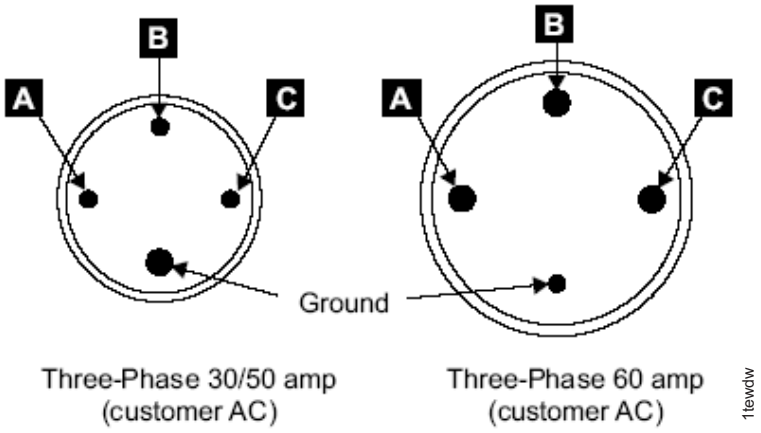


Figure 254. Measuring voltage between each pair of pins

Connecting the mainline power cables on the racks (plug in)

Repeat steps 1 through 3 for each rack that you install.

1. Switch the customer circuit breaker to Off for the mainline power cables.

   Attention: Attach a "Do Not Operate" tag (S229-0237) and the safety lockout padlock to each circuit breaker.
2. Verify the mainline circuit breaker (CB00) on the rear of each primary power supply is set to Off (down).
3. Connect each storage facility mainline power cable plug to the customer AC outlet.
4. Continue with "Checking the Rack-1 switch settings" on page 316

Checking customer power for a "wired" mainline power cable

Use the following power sections to check the customer's power for a wired mainline power cable. Repeat the following steps for each rack being installed.

Check power system ground continuity and voltage (wired)

Attention: Use an IBM-approved analog multimeter. Do not use a digital meter.

Repeat the following steps for each rack that you are installing.

1. Switch off the customer circuit breaker that supplies the AC voltage to the mainline power cables.

   CAUTION:
   Do not connect the mainline power cables until instructed to do so.
2. **Attention:** Attach a "Do Not Operate" tag (S229-0237) and the safety lockout padlock to each customer circuit breaker that was switched off. Refer to the *Electrical Safety for IBM Customer Engineers*.
3. Verify the MAIN LINE circuit breaker **1** (CB00) on the rear of each primary power supply is set to Off (down). Refer to Figure 255 on page 312.

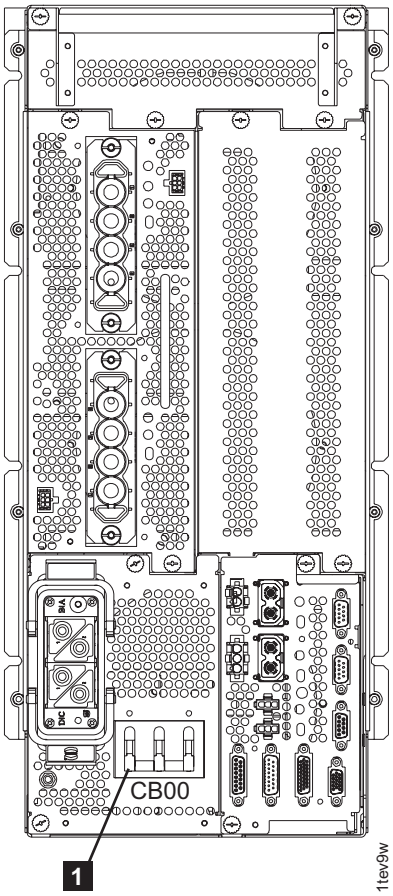


Figure 255. Rear view of PPS showing CB00

4. Verify the DS8000 mainline power cables are not connected to the customer power.
5. Connect the DS8000 mainline power cable to each primary power supply (PPS) input power connector.

   Note: Ensure that you connect the long mainline power cord to the upper primary supply and the short mainline power cord to the lower primary supply.
6. Prepare the multimeter to measure 0.1 ohm or less resistance. Place one lead of the multimeter on the green and yellow wire at the customer end of each mainline power cable. Place the other lead on the conductive metal of each PPS enclosure. Refer to Figure 256 on page 313.

   Is there more than 0.1 ohm of resistance?

   - Yes, go to "MAP2330 Repair rack ground continuity" on page 618.
   - No, continue with the next step.

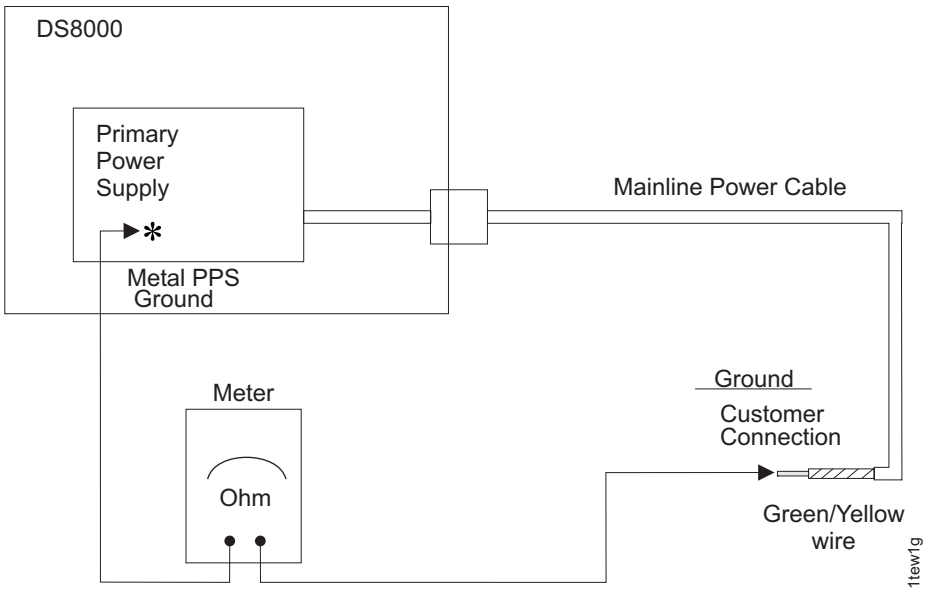


Figure 256. Prepare multimeter to measure ohm resistance

7. Disconnect the DS8000 mainline power cables from each PPS input power connector.
8. Instruct the customer to call a licensed electrician to connect each wired mainline power cable to the customer mainline power source.

   Attention: For EMEA installations, provide the following information to the electrician.

   EMEA Electrician Information

   The mainline power cord of this machine must be connected to the customer's mainline power source by a licensed electrician. The mainline power cable cannot be modified in any way.

   - For 3-phase machines:

     This machine must be connected to a 3-phase AC power. The mainline power cable is a four-conductor cable with the following color code:

     – L1 (phase 1) = black
     – L2 (phase 2) = blue
     – L3 (phase 3) = brown
     – PE (ground) = green/yellow

   Note: The connection to the AC power must be made without neutral, the blue wire must be used as a phase.
9. Continue with "Checking customer ground continuity with customer CB off (wired)."

Checking customer ground continuity with customer CB off (wired)

1. Prepare the multimeter to measure 1.0 V ac or less. Measure the voltage on the female ground pin on each mainline power cable and building ground. Refer to Figure 257 on page 314.

   Is the voltage less than 1.0 V ac?

   - Yes, go to step 3 on page 314.
   - No, continue at the following step.

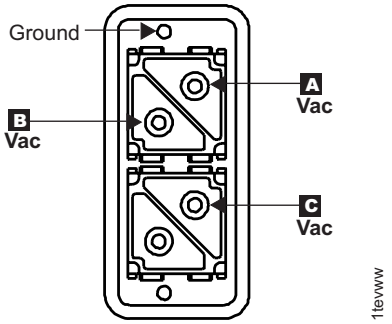


Figure 257. Mainline power cable connector

2. Voltage is present at a customer outlet with the customer circuit breakers off.

   DANGER

   Inform the customer that even though the circuit breaker is off, voltage higher than 1.0 V ac is measured at the failing customer voltage outlet pins.

   Do not continue until the voltage is less than 1.0 V ac.

3. Prepare the multimeter to measure 1.0 ohm or less of resistance.
4. Measure the resistance between the female connector ground pin on each mainline power cable and the building ground.

   Is the resistance 1.0 ohm or less?

   - Yes, continue with "Checking customer voltage with customer CB off (wired)."
   - No, inform the customer. **Do not continue until the resistance is 1.0 ohm or less**.

Checking customer voltage with customer CB off (wired)

1. Prepare the multimeter to measure 1.0 V ac or less.
2. Measure the voltage between each pair of voltage pins on the female connector on each mainline power cable. Also, measure the voltage between each voltage pin (**A**, **B**, and **C**) and the ground pin on each mainline power cable. Refer to Figure 258 on page 315.

   Did any voltage measure more than 1.0 V ac?

   - Yes, inform the customer that one or more voltage pins on the customer supply measured greater than 1.0 V ac even though the circuit breaker is off. **Do not continue until the voltage is less than 1.0 V ac.**
   - No, continue with "Checking customer voltage with customer CB on (wired)" on page 315.

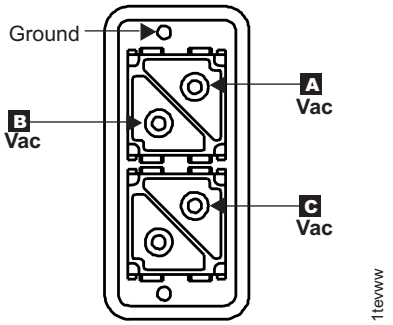


Figure 258. Mainline power cable connector

Checking customer voltage with customer CB on (wired)

1. Remove the "Do Not Operate" tag and the lockout padlock from each customer mainline AC voltage circuit breaker and then switch on the customer circuit breaker.
2. Prepare the multimeter to read line voltage AC.

   DANGER

   Dangerous voltages may be present. Do not touch the internal parts (pins and connectors) of the customer receptacle.

3. Measure the voltage between the ground pin and each voltage pin (**A** , **B** , and **C**) on each mainline power cable. Refer to Figure 259.

   Are the voltages within 10% of each other?

   - Yes, continue with the next step.
   - No, inform the customer that the voltages are not correct. **Do not continue until the voltages are correct.**

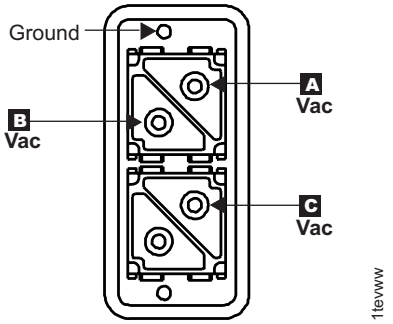


Figure 259. Mainline power cable connector

4. Locate the DS8000 information label located on the top of the left side panel at the rear of the storage facility. Measure the voltage between each pair of voltage pins (**A** to **B** , **B** to **C** , and **C** to **A**) on each mainline power cable. Refer to Figure 259. Verify that the customer AC input voltage that you just measured matches the machine input voltage information on the label.

   Does the voltage measured match the voltage on the DS8000 information label?

   - Yes, continue with "Connecting the mainline power cables on the racks (plug in)" on page 311.

- No, **do not continue with the installation.** Contact the marketing representative to confirm that the DS8000 was ordered with the correct power input feature.

Connecting the mainline power cables on the racks (wired)

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (D004)

Repeat steps 1 through 3 for each rack that you install.

1. Switch the customer circuit breaker to Off for the mainline power cables.

   Attention: Attach a "Do Not Operate" tag (S229-0237) and the safety lockout padlock to each circuit breaker.
2. Verify the mainline circuit breaker (CB00) on the rear of each primary power supply is set to Off (down).
3. Connect each storage facility mainline power cable plug to the PPS then continue with "Checking the Rack-1 switch settings."

Checking the Rack-1 switch settings

1. Verify the setting of the following switches on Rack-1.

Table 91. Switch settings and locations

Switch	Setting	Location	Figure reference
Battery enclosure circuit breakers CB0 and CB1.	On (up)	On each battery assembly (rear of rack)	4 in Figure 260 on page 317
UEPO red switch	Off (down)	Rack operator panel (front of rack) **Note:** Press the recessed switch towards the bottom. It will appear flat when off.	n/a
RPC card DIP switches 1, 2, 4, 5, 6 (Both cards)	Off (right)	Both RPC cards (top rear of rack)	1 in Figure 260 on page 317
RPC card DIP switch 3 (Both cards)	Off (right)	System z™ power feature **is not** installed (LR card) **Note:** The ZLR card shown in 2 in Figure 260 on page 317 differs from the LR card in that it has four large connectors on the left side.	1 in Figure 260 on page 317
	On (left)	System z power feature **is** installed (ZLR card)	1 in Figure 260 on page 317
Local Remote switch	Local (down)	LR or ZLR card (rear of rack)	2 in Figure 260 on page 317

Figure 260 on page 317 shows the rear view of the rack:

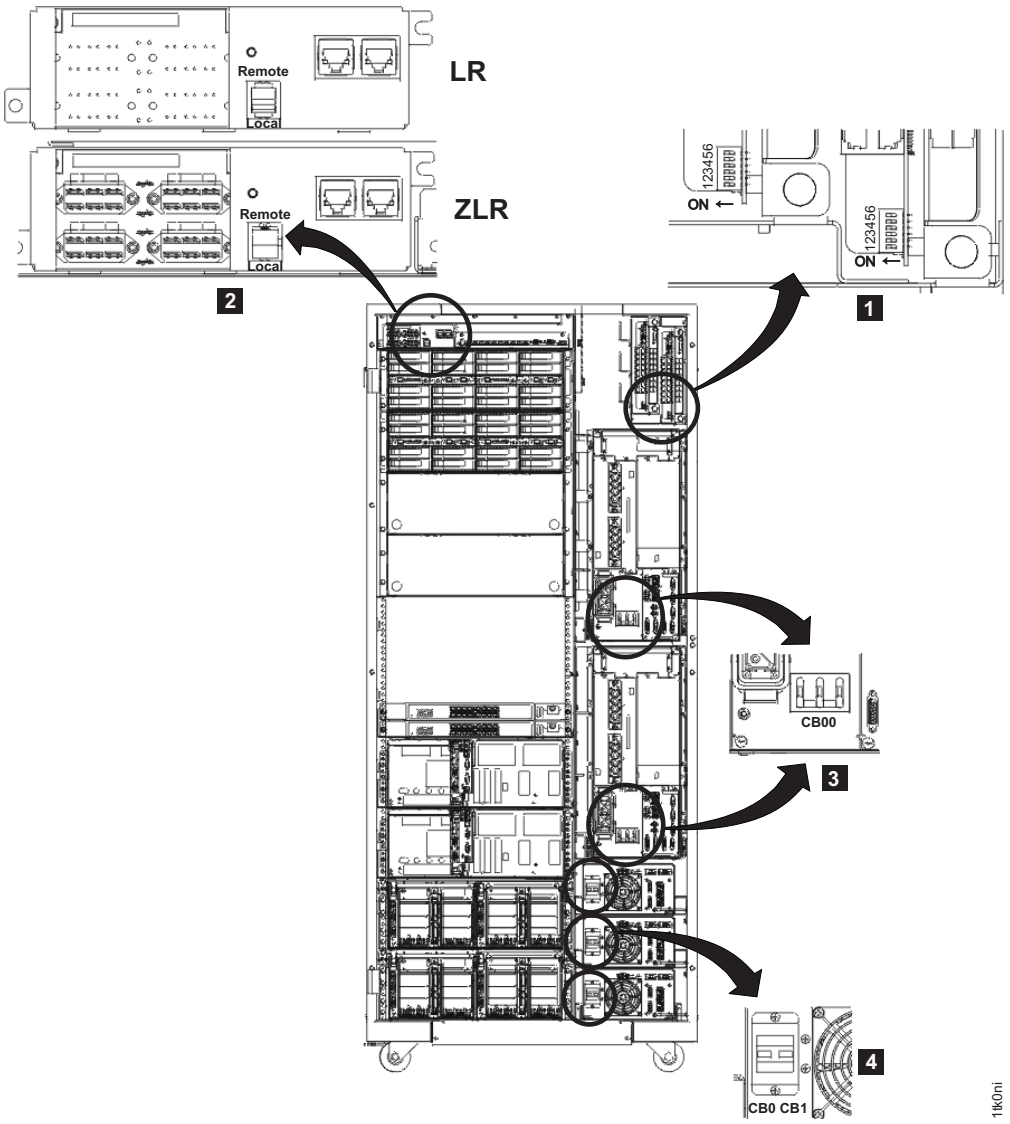


Figure 260. Rack rear view

Figure 261 on page 318 shows the enable disable switches for the primary power supply sequencer module.

2. Continue verifying the settings of the following switches on Rack-1.

Table 92. Switch settings and locations

Switch	Setting	Location	Figure reference
Primary power supply circuit breaker CB00	Off (down)	On each PPS, on the AC input power module (rear of rack)	3 in Figure 260
Primary power supply sequencer module three enable/disable switches	Enabled (up)	Three switches on each PPS (rear of rack)	1 in Figure 261 on page 318

Table 92. Switch settings and locations (continued)

Switch	Setting	Location	Figure reference
Enable/disable switches on the PPS 5/12 V DDM power module	Enabled (up)	Two switches on each PPS (rear of rack)	1 in Figure 262 on page 319

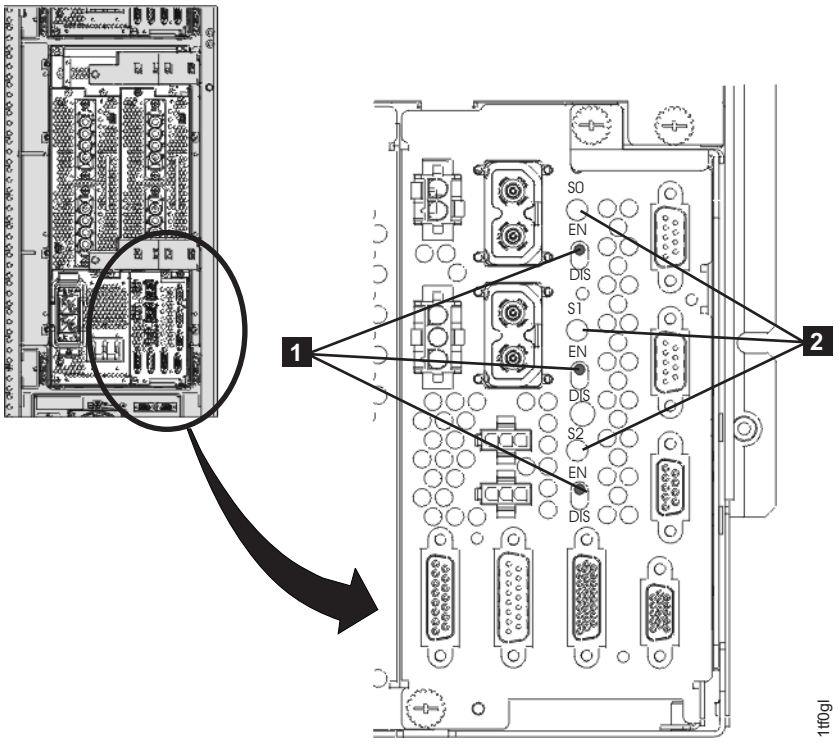


Figure 261. PPS sequencer module and LED enable/disable switch

Figure 262 on page 319 shows the enable disable switches for the primary power supply DDM.

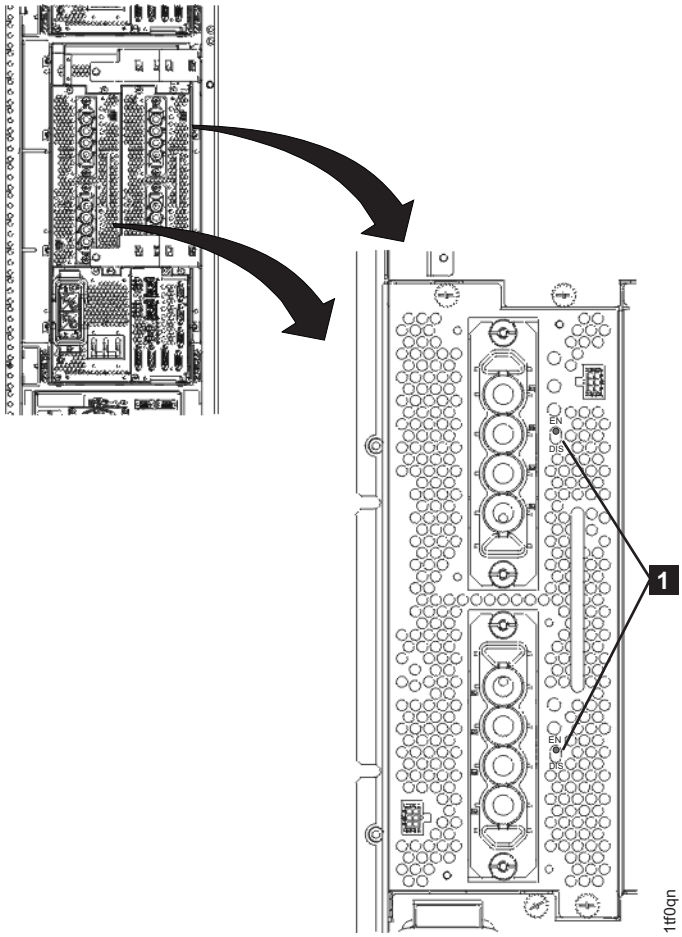


Figure 262. Enable/disable switches on a 5/12 V DDM power module (PPS)

3. Do you have additional storage expansion racks?
   - Yes, continue with step 3.
   - No, continue with step 4.
4. Verify the setting of the following switches on each expansion rack. Each rack has:
   - One UEPO switch
   - Two PPSs
   - Zero to three battery enclosures

Table 93. Switch settings and locations for storage expansion racks

Switch	Setting	Location	Figure reference
UEPO red switch	Off (down)	Rack operator panel (front of rack) **Note:** Press the recessed switch towards the bottom. It will appear flat when off.	n/a
Primary power supply sequencer module enable/disable switches	Enabled (up)	On PPS modules (rear of rack)	1 in Figure 261 on page 318

Table 93. Switch settings and locations for storage expansion racks (continued)

Switch	Setting	Location	Figure reference
Primary power supply DDM module enable/disable switches	Enabled (up)	On PPS modules (rear of rack)	1 in Figure 261 on page 318
Primary power supply CB00	Off (down)	On AC input power module	3 in Figure 260 on page 317
Battery enclosure circuit breakers CB0 and CB1.	On (up)	On each battery enclosure (rear of rack)	4 in Figure 260 on page 317

5. Continue with "Checking rack UEPO switch operation."

Checking rack UEPO switch operation

Repeat the following steps for eachstorage facility that you are installing.

Important: Start with Rack-1 and leave the Rack-1 UEPO switched ON before you continue with subsequent racks in the subsystem. Failure to do so can result in unexpected PPS error conditions.

1. Remove the "Do Not Operate" tag and the lockout padlock from each customer mainline AC voltage circuit breaker that supplies power to the storage facility that you are installing.
2. Switch on each customer circuit breaker.
3. Switch the MAINLINE CB00, on the rear of each primary power supply to On (up).
4. Observe the six vertical LED indicators at the front of each primary power supply (to the left of the fans).

   Use Table 94 to find the condition that applies:

   - If you are here for Rack-1, the Rack-1 UEPO switch must already be in the Off position as indicated in the section "Checking the rack switch settings" on page 63.
   - If you are here for a subsequent Rack, the Rack-1 UEPO switch must already be in the On position as indicated in step 5 on page 321.

Table 94. LED indicators when MAINLINE CB00 is on

AC INPUT GOOD	UEPO LOOP GOOD	PPS Display Panel	Action
On	Off	Ignore	Normal condition, continue with the next step
On	On	Ignore	UEPO fault, go to "MAP21F0 UEPO loop good LED should be off" on page 595
Off	Off	Ignore	Input power fault, go to "MAP2050 Loss of AC Input to a single primary power supply" on page 552. **Note:** If both PPSs are failing, then repeat the customer voltage checks done previously.

5. Push a thin paper clip through the small hole in the operator panel to reset the UEPO red switch to the On (up) position.

   Find the condition that applies:

Table 95. LED indicators when UEPO switch is on

AC INPUT GOOD	UEPO LOOP GOOD	PPS Display Panel	Action
On	On	Blank, U0 or XC **Note:** Some levels of PPS firmware will cause an XC error code to be displayed. This is a false error. The condition will remain until the DDM power supply is turned on in a later step. No action is required. Continue with the next step.	Normal condition, continue with the next step.
On	On	Error code	Go to "MAP21A0 PPS fault isolation during install" on page 592.
On	Off	N/A	UEPO fault, go to "MAP21E0 UEPO Loop Good LED should be on" on page 594.

6. Observe the six vertical LED indicators at the front of each primary power supply (to the left of the fans). Use Table 94 on page 320 to find the condition that applies.
7. Swing the 208VDC bus bar gate back into its non-service position. Reinstall and tighten the two retaining screws.
8. For an expansion rack, if you removed the air baffle **2** earlier to allow the 208VDC bus bar to swing open, reinstall it. See Figure 263 on page 322.

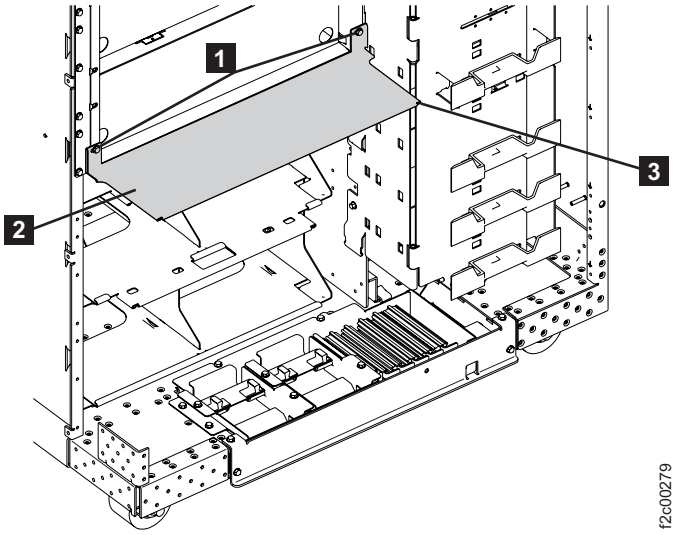


Figure 263. Air baffle

9. Continue with "Determining the management console configuration."

Configuring the management console

Determine which management console task you need to perform.

Determining the management console configuration

1. Review the following information for an overview of a storage plex and management console MC 1 versus MC 2:
   a. A storage complex is one or more storage facilities that share one or two management consoles (HMCs).
   b. The storage facilities in a storage complex have Ethernet cables that connect their internal rack mounted Ethernet switches together into a private network.
   c. The first HMC for a storage complex MUST BE assigned the role of primary management console (MC 1).
   d. MC 1 runs a DHCP server to assign the IP addresses on the private networks (gray and black). It also collects and maintains all information about the storage complex hardware and code.
   e. If there is a second HMC for the same storage complex, it MUST BE assigned the role of secondary management console (MC 2).
   f. The secondary HMC can be:
      - an external HMC installed in an IBM or customer-provided utility rack that is cabled to the same storage complex.
      - an internal HMC in a storage facility that is part of the same storage complex.
   g. MC 1 and MC 2 both run DHCP servers. DHCP lease information and other storage complex data is automatically synchronized between them. MC 1 and MC 2 provide backup for each other to ensure continuous availability of HMC functions in the event of a single HMC failure.
   h. MC 1 must be completely installed and configured before MC 2 can be connected to the private network. This ensures MC 2 gets a complete copy of all the needed information from MC 1.

i. If two storage facilities each having an internal HMC are being installed at the same time:
   - The first storage facility in the storage complex must have the primary management console (MC 1)
   - The other storage facility must have the secondary management console (MC 2)
   - The install of the second storage facility will have to wait until the install of the first storage facility has completed the section titled "Testing of management console communications". This will ensure MC 1 is completely configured and ready to provide a copy of its information to MC 2 when it is connected into the storage complex.

2. If you are:
   - Reinstalling the first or only storage facility in a storage complex, go to Table 96.
   - Adding or re-adding a storage facility to an existing storage complex, go to Table 97.

Table 96. Reinstalling the first storage facility in a storage complex

The 2107 storage facility being installed contains:	**Action**
One integrated management console (one in Rack 1).	Go to "Configuring the management console in rack 1 as the primary management console"
One integrated management console and one external management console.	Go to "Configuring the management console in rack 1 as the primary management console"

Table 97. Adding or re-adding a storage facility to an existing storage complex

The 2107 storage facility being installed contains:	**Action**
One management console (in Rack 1).	Go to "Configuring the management console in rack 1 as the secondary management console" on page 326.
No management consoles. It will be connected to management consoles in other storage facilities	Go to "Connecting a relocated storage facility to an existing storage plex" on page 330.

Configuring the management console in rack 1 as the primary management console

1. Observe the power LED on the front of the management console server. See Figure 264 on page 324 (X335 server) or Figure 265 on page 324 (X336 server).

   Is the power LED off?
   - Yes, go to "MAP6520 Management console power problem" on page 817.
   - No, continue with the next step

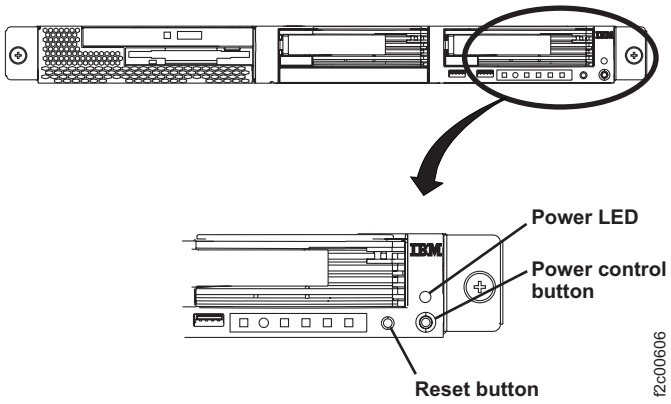


Figure 264. X335 management console server (front view)

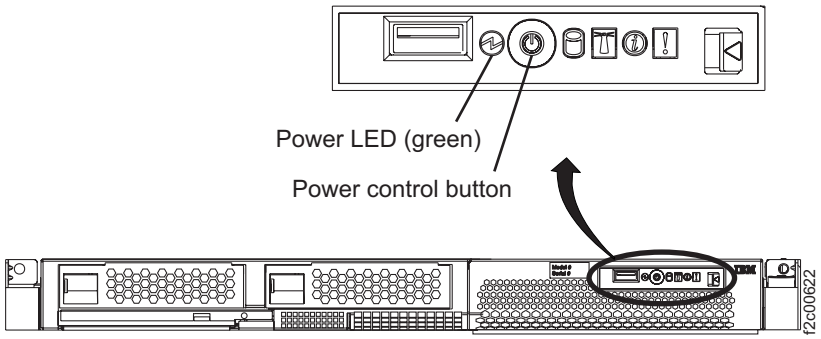


Figure 265. X336 management console server (front view)

2. Is the power LED flashing?
   - Yes, push in the power control button and then continue with the next step.
   - No, continue with the next step.
3. Refer to the following table to determine if HMC configuration changes are needed and take the indicated action.

   Note: Other HMC customization and testing will be done later.

Table 98. Management console tasks

Action to be performed	Procedure
HMC role change from secondary to primary.	1. Logon to the HMC with user ID `CE` and password `serv1cece`. If any "License Agreement" pop-up panels appear, then accept the agreements. 2. Select **Service Applications → Service Focal Point → Service Utilities** 3. Select a listed Storage Facility, click on **Selected** and then **Get HMCs** 4. Select the HMC, click on **Selected** and then **Query /Activate HMC Role Selection** 5. Click on **Change HMC Role** and then **OK**. 6. Click on Yes to force a reboot of the HMC. 7. The HMC role selection menu will appear when the HMC reboots. 8. Type 1 and press **Enter**. 9. Type Yes and Press **Enter** to confirm the selection. 10. Locate the HMC #1 label located in the ship group. Attach the label to the front of the management console keyboard tray.

Table 98. Management console tasks (continued)

Action to be performed	Procedure
Time zone or time change.	1. Logon to the HMC with user ID `CE` and password `serv1cece`. If any "License Agreement" pop-up panels appear, then accept the agreements. 2. Select **HMC Management → HMC Configuration → Customize Console Date and Time**. 3. Set the local date and time to the local time 4. Choose a location that has the same time zone and daylight savings settings as the storage facility location. 5. Click **OK** on the Reboot warning panel, but do not reboot at this time. **Note:** The date, time, and time zone that you select will be used later by an automated process to update those settings in the storage facility. Ensure that you set this accurately.
Network settings for customer Ethernet connection.	1. Logon to the HMC with user ID `CE` and password `serv1cece`. If any "License Agreement" pop-up panels appear, then accept the agreements. 2. Select **HMC Management → HMC Configuration → Customize Network Setting** 3. Set the Console Name, Domain Name and description per the worksheets. 4. Click on the **LAN adapters** tab, select eth2, click on details and set up the customer network connection. 5. Click on the **Name Services** tab and configure the customer's DNS (if required). 6. Click on **Routing** tab and configure the customers Gateway (if required). Set the Gateway Device to **eth2**. 7. Perform a quality check of all the entered data. 8. Press **Apply**.
Any of the above.	Continue with step 4.
None of the above.	Continue with step 5.

4. Did you change the time or network settings in step 3 on page 324?
   - Yes, logoff and reboot the management console by performing the following steps:
     a. From the task bar, click on **Console**.
     b. Select **Exit**, and then click **Exit now**.
     c. From the selection box, select **Reboot Console**.
     d. Click **OK**.
     e. Wait for the management console logon panel to display.
     f. Continue with step 5.
   - No, continue with step 5.
5. Route and connect the customer Ethernet cable.
   a. Locate the customer-supplied Ethernet cable.
   b. Route the Ethernet cable through the tailgate and up to the rear of the management console server.
   c. Connect the cable to the customer Ethernet port (eth2) on the management console. See Figure 266 on page 326 (X335 server) or Figure 267 on page 326 (X336 server).

      Note: If the customer requests the Media Access Control (MAC) address of the HMC port they will connect to, refer to *MAP6010 Displaying the HMC MAC address for the customer connection*.

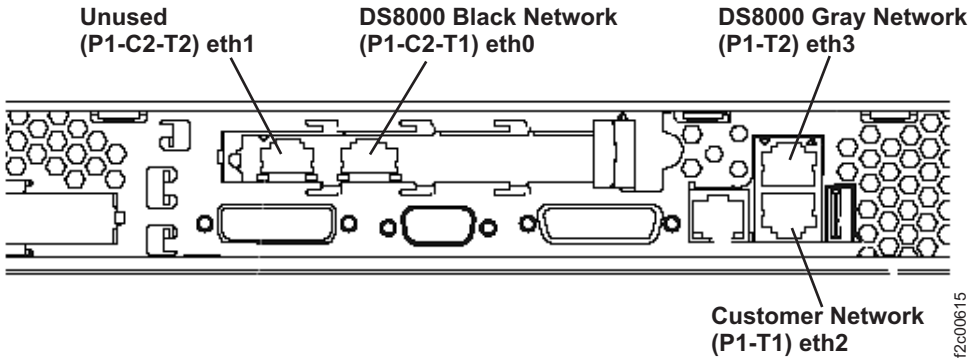


Figure 266. Ethernet connectors on the rear of the X335 management console server

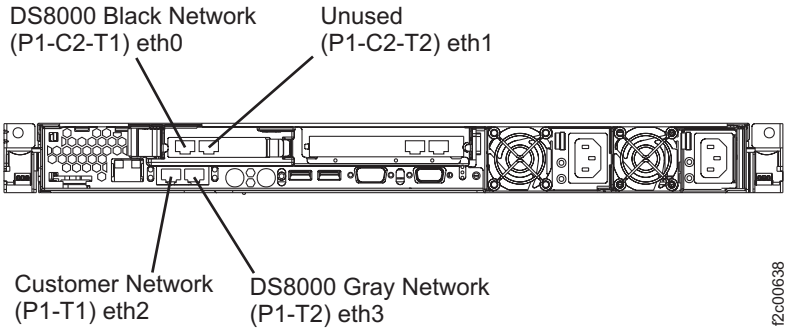


Figure 267. Ethernet connectors on the rear of the X336 management console server

6. Route and connect the customer phone line cable by performing the following steps:
   a. Route the customer phone line cable through the storage facility tailgate.
   b. Plug the other end of the telephone cable into the customer's telephone line connector.
7. Continue with "Powering on and verifying the storage facility" on page 331.

Configuring the management console in rack 1 as the secondary management console

Perform the following steps to configure a secondary management console (HMC #2) in rack 1.

1. Observe the power LED on the front of the management console server. See Figure 268 on page 327 (X335 server) or Figure 269 on page 327 (X336 server).

   Is the power LED off?
   - Yes, go to "MAP6520 Management console power problem" on page 817.
   - No, continue with the next step

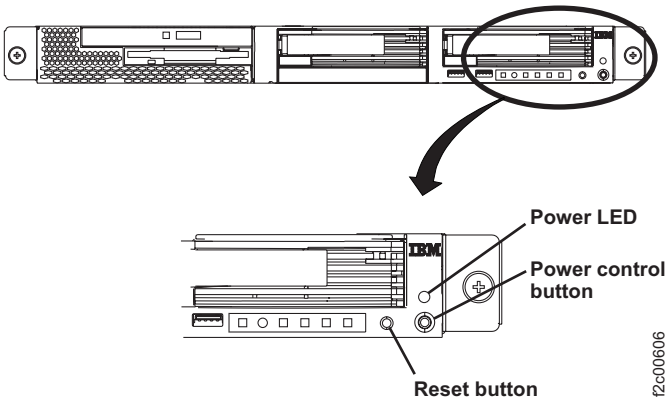


Figure 268. X335 management console server (front view)

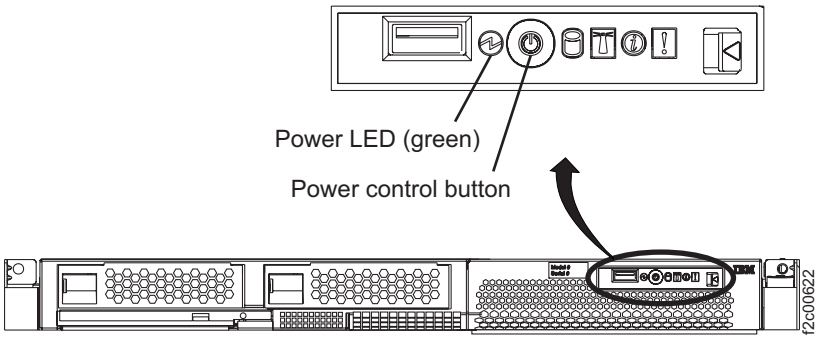


Figure 269. X336 management console server (front view)

2. Is the power LED indicator flashing?
   - Yes, push in the Power control button and then continue with the next step.
   - No, continue with the next step.
3. Is this relocation a physical move only? For example, the storage facility is being reconnected to the same storage plex with no configuration changes.
   - Yes, continue with step 6.
   - No, continue with the next step.
4. Was this management console previously a secondary management console?
   - Yes, a clean up is required, continue with the next step.
   - No, continue with step 6.
5. Perform the following sub-steps to temporarily change the secondary management console back to a primary management console. Note: this step forces a clean up of the management console files when the management console (HMC) was previously a secondary.
   a. Logon to the HMC with user ID `CE` and password `serv1cece`.
   b. Select **Service Applications → Service Focal Point → Service Utilities**
   c. Select a listed Storage Facility, click on **Selected** and then **Get HMCs**
   d. Select the HMC, click on **Selected** and then **Query /Activate HMC Role Selection**
   e. Click on **Change HMC Role** and then **OK**.
   f. Click on Yes to force a reboot of the HMC.
   g. The HMC role selection menu will appear when the HMC reboots.

h. Type 1 and press **Enter**.
i. Type Yes and Press **Enter** to confirm the selection.
j. Continue with step 6. Ensure that you change the management console back to a secondary.

6. Refer to Table 99 to determine which HMC configuration changes are needed and take the indicated action.

   Note: Other HMC customization and testing will be done later.

Table 99. Management console tasks for secondary management console

Action to be performed	Procedure
HMC role change from primary to secondary.	1. Logon to the HMC with user ID `CE` and password `serv1cece`. If any "License Agreement" pop-up panels appear, then accept the agreements. 2. Select **Service Applications** → **Service Focal Point** → **Service Utilities** 3. Select a listed Storage Facility, click on **Selected** and then **Get HMCs** 4. Select the HMC, click on **Selected** and then **Query /Activate HMC Role Selection** 5. Click on **Change HMC Role** and then **OK**. 6. Click on Yes to force a reboot of the HMC. 7. The HMC role selection menu will appear when the HMC reboots. 8. Type 2 and press **Enter**. 9. Type Yes and Press **Enter** to confirm the selection. 10. Locate the HMC #2 label located in the ship group. Attach the label to the front of the management console keyboard tray.
Time zone or time change.	1. Logon to the primary HMC and note the Date/Time and the difference relative to a reference source. For example, a wall clock or a speaking clock. 2. Set the date and time on this (secondary HMC) to the same value as the primary HMC. **Note:** The time on the secondary HMC must be within 40 seconds of the time on the primary HMC. 3. Click **OK** on the Reboot warning panel but do not reboot at this time.
Network settings for customer Ethernet connection.	1. Logon to the HMC with user ID `CE` and password `serv1cece`. If any "License Agreement" pop-up panels appear, then accept the agreements. 2. Select **HMC Management** → **HMC Configuration** → **Customize Network Setting** 3. Set the Console Name, Domain Name and description per the worksheets. 4. Click on the **LAN adapters** tab, select eth2, click on details and set up the customer network connection. 5. Click on the **Name Services** tab and configure the customer's DNS (if required). 6. Click on **Routing** tab and configure the customers Gateway (if required). Set the Gateway Device to **eth2**. 7. Perform a quality check of all the entered data. 8. Press **Apply**.

7. Shutdown and power off the management console by performing the following steps:
   a. From the task bar, click on **Console**.
   b. Select **Exit**, and then click **Exit Now**.
   c. Click **OK**.
   d. Wait until the following message is displayed on the monitor: `Master Resource Control: runlevel 0 has been reached`.

e. Press the power control button on the management console server. See Figure 268 on page 327 (X335 server) or Figure 269 on page 327 (X336 server). The server will power off and the green power LED will begin flashing.

8. Route and connect the customer Ethernet cable.
   a. Locate the customer-supplied Ethernet cable.
   b. Route the Ethernet cable through the tailgate and up to the rear of the management console server.
   c. Connect the cable to the customer Ethernet port (eth2) on the management console server. See Figure 270 (X335 server) or Figure 271 (X336 server).

      Note: If the customer requests the Media Access Control (MAC) address of the HMC port they will connect to, refer to *MAP6010 Displaying the HMC MAC address for the customer connection*.

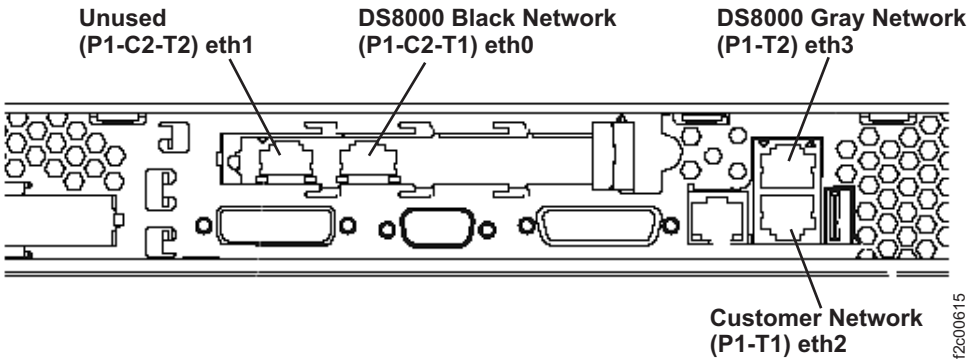


Figure 270. Ethernet connectors on the rear of the X335 management console server

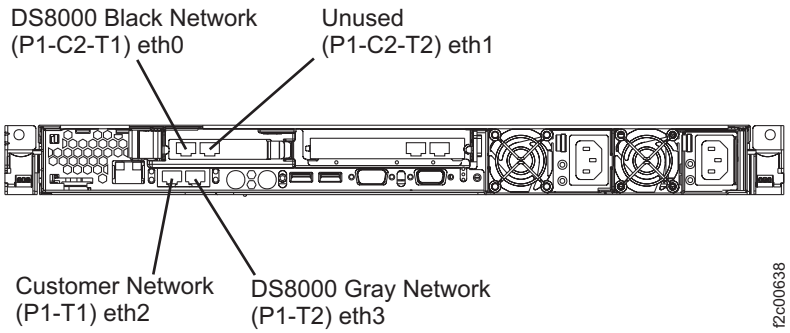


Figure 271. Ethernet connectors on the rear of the X336 management console server

9. Route and connect the customer phone line cable.
   a. Locate the customer's phone line cable.
   b. Connect the customer's phone line cable to the line connector on the modem card at the rear of the management console server. SeeFigure 272 on page 330 (X335 server) or Figure 273 on page 330 (X336 server).
   c. Route the customer phone line cable through the storage facility tailgate.
   d. Plug the other end of the cable into the customer telephone line connector.

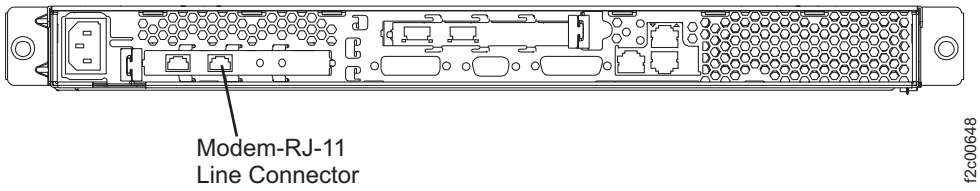


Figure 272. The modem connector (RJ-11 phone line) on the rear of the X335 management console server

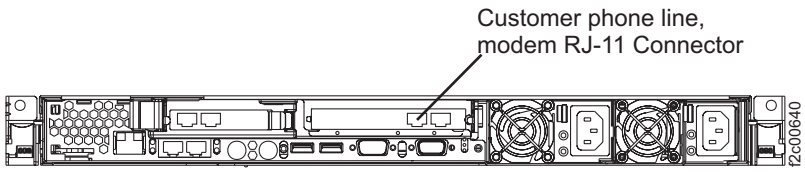


Figure 273. The modem connector (RJ-11 phone line) on the rear of the X336 management console server

10. Continue with "Connecting a relocated storage facility to an existing storage plex."

Connecting a relocated storage facility to an existing storage plex

This section provides the additional steps to connect a relocated storage facility to an existing storage plex.

Attention: If you are installing multiple storage facilities at the same time, you must completely perform this section and the "Powering on and verifying the storage facility" on page 331 section on one storage facility before connecting the next storage facility. Connect only one new storage facility at a time.

1. Assign an SF number to the new storage facility, that must be the first free unassigned SF number (2-8) in an ascending order. The first free SF number can be determined by observing the Ethernet switches in the storage facility that houses the primary management console. Refer to Figure 274 on page 331 and Table 100 on page 331 to find the first unused SF position.

   Notes:

   a. If gaps are left in the sequence due to SFs being removed from the storage plex they become free for allocation and **must** be used first.
   b. The management console microcode will assign the SF number based on the above rules. This **must** match the cable plugging.

2. Label, route and connect one Ethernet cable from Port T16 (OUT) on each of the two Ethernet switches (SW1 & SW2) on the storage facility being installed to the assigned port on the corresponding Ethernet switches (SW1 & SW2) in the storage facility that houses the first or only management console. See Figure 274 on page 331.

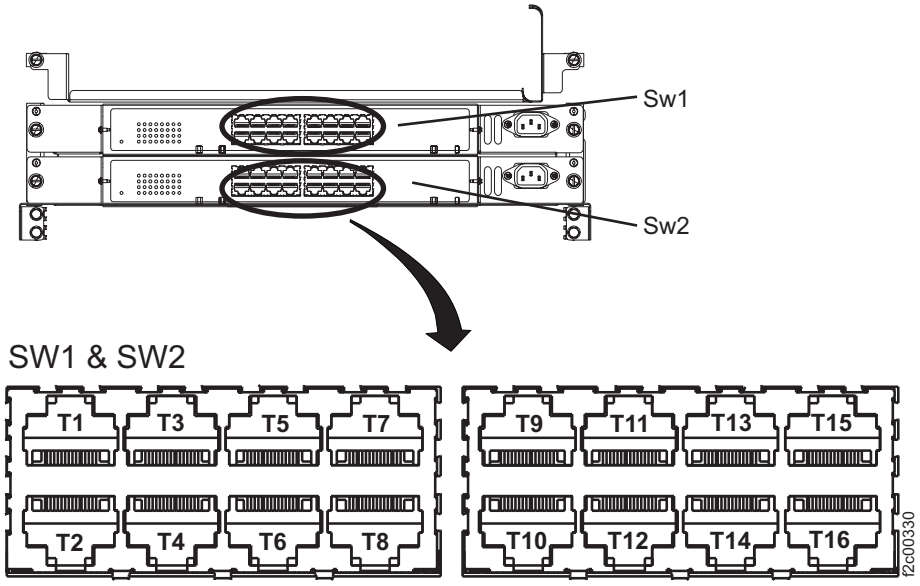


Figure 274. Ethernet switch port designations (SW1 & SW2)

Table 100. Ethernet switch port designations

T-1 HMC1	T-3 FSP1	T-5 ESS01	T-7 ESS02	T-9 SF #8	T-11 SF #6	T-13 SF #4	T-15 SF #2
T-2 HMC2	T-4 FSP2	T-6 ESS11	T-8 ESS12	T-10 SF #7	T-12 SF #5	T-14 SF #3	T-16 OUT

Example:

If you are installing storage facility 4, and HMC1 is installed in storage facility 1, then:

1. Route one Ethernet cable from Switch 1 Port T-16 in SF#4 to Switch 1 Port T-13 in SF#1.
2. Route one Ethernet cable from Switch 2 Port T-16 in SF#4 to Switch 2 Port T-13 in SF#1.

3. Continue with "Powering on and verifying the storage facility."

Powering on and verifying the storage facility

DANGER

The DS8000 will be powered on automatically during this procedure. Hazardous voltages will be present. Ensure that all safety covers are in place and that normal safety precautions are taken.

1. On Rack-1 set the Local/Remote switch on the LR/ZLR card to Remote (↑ up).

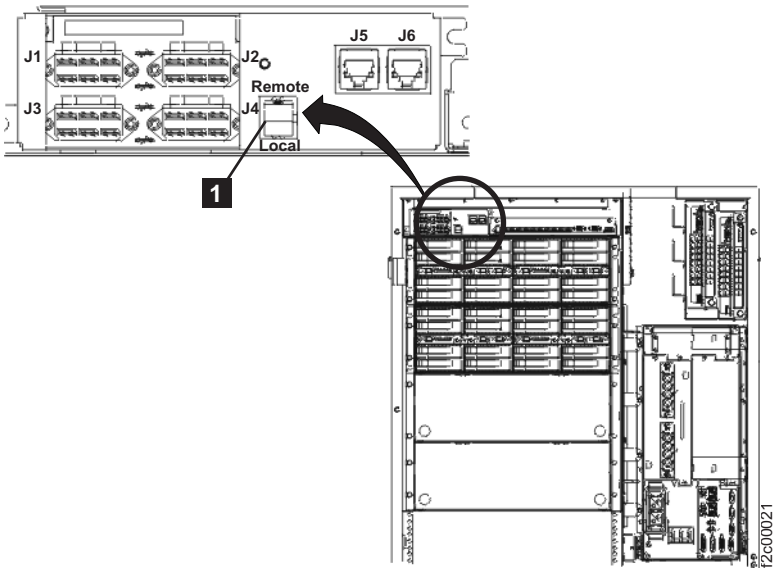


Figure 275. LR, ZLR card location

2. If you are adding a new Storage Facility to an existing Storage Complex, then ensure that the Ethernet cables have been installed and connected to the Storage Facility that contains the primary management console (MC 1).

   Note: If you are installing a storage facility containing a secondary management console, then do not reconnect the secondary management console cables until instructed to do so in a later section.

3. Power on and verification of the new storage facility must be performed from the primary management console (MC 1). If not done previously, slide the keyboard/display drawer out to the service position and raise the panel display. If not done previously, log on to the management console. The CE user ID and password are as follows:

   ID: CE
   Password: serv1cece

   Note: If the management console panel is not functioning correctly, go to "MAP6020 Management console problem determination" on page 768.

4. Display the storage facility Install State.
   a. Log into the management console (HMC) for rack 1.
   b. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   c. Open **Service Applications** → **Service Focal Point**.
   d. In the right content area, select **Install/Add/Remove Hardware**. A window displays a list of storage facilities.
   e. Observe the displayed Install State for the storage facility being installed.
5. Is the Machine Type and Serial Number for the storage facility being installed listed on the panel as "Ready for Install" or "New"?
   - Yes, select the storage facility to be installed. Go to the next step.
   - No, go to step 1 of "MAP1400 HMC is reporting an installation error prior to serviceable events being created" on page 531.

6. Click on **Selected**, and then from the drop-down select **Storage Facility Field Install**.
7. Follow the on-screen instructions to perform the following tasks:
   a. The certify DDM process must be performed for all installations.

      Notes:

      - Record the start date and time for the Monitor Certify DDM phase in Table 21 on page 19, in section "Recording information for the installation report" on page 17.

   b. Confirm if a call home is required on completion of the certify DDM phase. If you will leave the customer site before the certify DDM completes, a call home is required so the customer can be notified by the next level of support that the storage facility is ready for use. If you will stay onsite until the certify DDM is complete and you will notify the customer, then the call home is not required.
   c. If prompted, install the storage facility configuration CD into the HMC CD/DVD-RAM drive. The CD/DVD is included in the ship group.

      Note: The CD should be in the CE envelope. If it is not in the envelope, check the customer envelope and the shipping material for the rack.
8. The on screen message will indicate that the Storage Facility Field Install process will now start. This action may take up to 1.5 hours to complete.

   Note: If errors occur during the automated install process, on-screen messages will direct you to "MAP1400 Repair a problem found during install storage facility process". Use the guidance in that MAP to resolve the problem and then restart the install process. To display the MAP, open the service Information Center on the management console, then open the **Isolation MAPs and Symbolic FRU procedures** section to locate the MAP. If the serviceable events have FRUs that are connected to cables you have installed, check the connections for the cables before replacing the other listed FRUs.
9. While the Storage Facility Field Install process is in progress, you should perform two separate install processes in parallel to minimize the installation time. Use tables Table 101 and Table 102 on page 334 to perform **Install Process A** and **Install Process B** at the same time.

Table 101. Install Process A

Install Process A	
A1	**Do not** log off or reboot the management console.
A2	Check the WebSM GUI every 10 minutes and respond to any pop-up messages from the installation process that may appear. If an error is detected, follow the on-screen directions to go to "MAP1400 HMC is reporting an installation error prior to serviceable events being created" on page 531 to repair the problem and restart.
A3	A message will display that indicates Field Installation Verification for the Storage Facility has completed. You may be asked to check if any problems were logged. Read the on-screen instructions carefully, **keep the message box open** and **do not reply to the message until after you have checked for problems**.
A4	A message will display that indicates Certify DDM has started. Continue with the remaining actions in this installation section.

Table 102. Install Process B

Install Process B	
B1	Do one of the following: • If you are installing a storage facility that contains an integrated management console, then continue with "Completing the management console customization and configuration" on page 85. • If you are installing a storage facility which does not contain an integrated management console then continue with "Completing the install" on page 92.

Completing the management console customization and testing communications

Use the following sections *as required* to complete the customization of the management console. If you are reinstalling a relocated storage facility that contains a management console, you can use this section to test management console communications.

Completing the management console customization and configuration

Perform these steps if you reinstalled a relocated storage facility that contains a management console. Otherwise, go to "Completing the reinstallation of a relocated storage facility" on page 339.

1. Are you relocating a storage facility containing a secondary management console?
   - Yes, continue with the next step.
   - No, continue with step 5.
2. Locate the management console cables that were previously disconnected. Relabel and connect them to the SW1-T2 and SW2-T2 positions as follows:
   a. Relabel the Ethernet cable previously removed from SW1-T1 to SW1-T2 and plug it into the Ethernet cables in SW1-T2.
   b. Relabel the Ethernet cable previously removed from SW2-T1 to SW2-T2 and plug it into the Ethernet cables in SW2-T2.
3. Press the power control button to power on the management console.
4. Wait for the HMC logon panel to appear and then logon with the user ID ″CE″ and password ″serv1cece″.
5. Does the relocation and reinstallation require that any customization settings be changed?

   Note: Refer to the types of settings listed in step 6 and step 7.
   - Yes, go to step 6.
   - No, go to "Testing management console communications" on page 336.
6. Set the HMC remote support options using customer work sheets.

   To access the management console navigation item listed in the second column of Table 103 on page 335, do the following:
   a. In the HMC Navigation area, open the **Management Environment**, select and open the HMC.
   b. Open **Service Applications** → **Remote Support**, in the right content area, select the desired HMC Remote Support options.

Note: Additional guidance is available through the on-line Help button and the *IBM System Storage DS8000 Introduction and Planning Guide*.

Table 103. Management console customization tasks for remote support

Task	Management console navigation option	Customer Work Sheet	Done
Customer information	**Customize Customer Information**	Company information work sheet.	
Outbound connectivity	**Customize Outbound Connectivity → Local Modem** **Note:** To set the Dial prefix, click the **Modem configuration** button.	Company Information work sheet and Outbound (call home) work sheet.	
Outbound connectivity	**Customize Outbound Connectivity → Internet VPN**	Outbound (call home) work sheet	
Outbound connectivity	**Customize Outbound Connectivity → Pass Through**	Management console network settings work sheet	
Inbound Connectivity	**Customize Inbound Connectivity**	Inbound (remote services) work sheet	

7. Set the HMC service agent options using customer work sheets.

   To access the management console navigation item listed in the second column of Table 104, do the following:

   a. In the HMC Navigation area, open the **Management Environment**, select and open the HMC.
   b. Open **Service Applications → Service Agent**, in the right content area, select the desired HMC Service Agent options.

   Note: Additional guidance is available through the on-line Help button and the *IBM System Storage DS8000 Introduction and Planning Guide*.

Table 104. Management console customization tasks for Service Agent

Task	Management console navigation option	Customer Work Sheet	Done
MRPD settings FOR MC 1 ONLY! See **Note 1**	**Transmit Service Information → Transmit** • Click **Schedule when to transmit the service information** • Set the Frequency to 14 (days) • Set the Time when the storage facility will be powered on.	Not used.	
FTP settings	**Transmit Service Information → FTP** **Note:** This is only required if the customer has chosen to allow dumps and traces to be sent by FTP. • Leave the default settings for the FTP server. • If required, enter the customer firewall information. • Check 'Enable FTP offload of service information'.	Outbound (call home) work sheet.	
Customer e-mail notification	**Service Agent → Customer notification**	E-mail notification work sheet.	
SNMP alert	**Service Agent → Customer notification**	SNMP trap notification work sheet.	
Note 1: If you have a primary HMC (MC 1) and secondary MC 2) management console, only set MC 1 to send MRPD data.			

8. Continue with "Testing management console communications."

Testing management console communications

Perform these steps if you installed a storage facility that contains a management console. Otherwise, continue with "Completing the install" on page 92.

1. Are you installing a storage facility that contains a management console?
   - Yes, go to step 2.
   - No, continue with "Completing the reinstallation of a relocated storage facility" on page 339.
2. Test the service communication methods.

Table 105. Tests for management console communications

Communication method	How to test
Remote support - Modem	Select **Service Applications → Remote Support → Customize Outbound Connectivity → Local Modem → Test**
Remote support - VPN	Select **Service Applications → Remote Support → Customize Outbound Connectivity → Internet VPN → Test** If the test fails, go to "MAP1301 Isolating Call Home/remote services failure" on page 520. **Note:** If this test identifies incorrect network settings that require a management console reboot, do not reboot until the storage facility verification and DDM certification has completed.
Call Home	1. Select **Service Application → Service Focal Point → Service Utilities**. 2. Click on the storage facility that you are installing. 3. From the **Selected** drop down, click on **Test problem notification (PMH, SNMP, Email)**. 4. Ask the support center to verify that a test PMH was created on Retain. **Note:** You have previously verified that this storage facility is registered in Retain earlier in this installation. If the test fails, go to "MAP1301 Isolating Call Home/remote services failure" on page 520.
Remote Access **Note:** Follow your geographical guidelines to determine if this test is needed.	1. Select **Service Applications → Remote Support → Customize Inbound Connectivity**. 2. For Unattended Session, put a check for **Allow unattended sessions**. 3. For Duration, select **Temporary**, then click **OK**. 4. Ask the support center to test remote access. 5. After the test is complete, restore the Inbound Connectivity settings to the customer choice on the worksheets.

3. Test the customer communication methods.

Communication method	How to test
Customer e-mail notification	Select **Service Applications** → **Service Agent** → **Customer notification** → **Test e-mail**. Ask the customer if the e-mail was received. **Note:** If the test fails, go to "MAP1310 Isolating e-mail notification problems" on page 525.
Customer connection to DS8000 Storage Manager server in the management console	Ask the customer to test the access of the application or method that they will use to connect to the DS8000 Storage Manager in the management console. For information on testing the connection, see *IBM System Storage DS8000 User's Guide* included on the service and customer documentation CDROM. **Note:** If the test fails, go to "MAP1301 Isolating Call Home/remote services failure" on page 520.

4. Only perform this step if this storage facility is at code bundle 6.1.600.41 (October 2005 release) or higher.
   Set the management console heartbeat options (frequency and enable/disable):
   a. In the HMC Navigation area, open the **Management Environment**. Select and open the HMC.
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Service Utilities**. A window lists the storage facilities that are managed by this HMC.
   d. Select the storage facility, click Selected (on top tool bar), and then select **Get HMCs**. A window lists the HMCs.
   e. Select the HMC, click Selected (on top tool bar), and then select **View/Change Heartbeat Configuration**.
   f. Select the frequency of the heartbeat (7 days is recommended).
   g. Click **Schedule Heartbeat**. The window will refresh and display the current settings.
   h. Click **Send Heartbeat Now** to send the first heartbeat.

   Note: The management console heartbeat function verifies that the HMC continues to be available for call home and remote service. It will use the VPN connection if configured, or the modem if VPN is not configured. The service representative sets the frequency (1, 7, 14, or 28 days) selected by the customer. The recommended setting is 7 days. The heartbeat function uses the HMC to create a serviceable event (SE) with SRC BEF00012. The SE contains the frequency setting, and is sent to IBM with the normal SE call home function. If IBM does not receive these SEs at the recommended frequency, a service action to determine the cause can be initiated by next level of support.
5. Continue with "Routing and connecting customer cables to the storage facility" on page 92.

Creating, sending, and verifying the management console public key-file

The management console public key file must be uploaded to IBM to allow the next level of support to access the management console remotely.

1. Create and send the management console public key-file by completing the following:
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Service Utilities**.
   d. Select the storage facility. Click **Selected** (on top tool bar), and then select **Get HMCs**.
   e. Select the HMC. Click **Selected** (on top tool bar), and then select **Generate HMC Public Key**. Click **Yes** to confirm the action.
   f. A serviceable event with `SRC=BEF00010` should be created immediately.
2. Determine if a serviceable event with `SRC=BEF00010` was created. Display open serviceable events as follows:
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Manage Serviceable Events**. A window displays a list of selection criteria.
   d. In the Error criteria section, click the down arrow for the reference code (SRC) criteria and look for `BEF00010`. The reference code is listed only if the serviceable event was created.

      Is the reference code `BEF00010` listed?

      - Yes, select the `BEF00010` reference code and click **OK** to display the serviceable event overview, then continue at the next step.
      - No, repeat step 1 and if a serviceable event is still not created, call the next level of support.
3. Verify that the HMC public key was successfully delivered to the Retain system server.
   a. From the Serviceable Event Overview window, select the Problem #, click **Selected** (from the top tool bar), and then select **View Details**.
   b. In the Field Name column of the serviceable events details, scroll to the Data (EED) Offload status field. Read the text message to the right of this field. Select one of the following that applies:
      - Message includes the text "`successfully transmitted problem information or SUBMITTED SUCCESSFULLY`", go to step 6 on page 339.
      - Message indicates `Unavailable`, go to step 4.
4. It can take up to one hour for the serviceable event to be called home and then stored away successfully. The serviceable event Data (EED) Offload Status field will be automatically updated when the process is complete. Redisplay the serviceable event details looking for a status of good. Are you running a level of code released prior to October 2005 (Bundle 6.1.600.41)?
   - Yes, go to step 5.
   - No, go to step 6.
5. The call home may have been successful, but the EED field may not be displaying the correct status. You can use the following alternate procedure to check the status:

a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
b. Open **HMC Management → HMC Configuration**.
c. In the right content area, select **View Console Events**. A window opens that displays a list of console events.
d. The View Console Events window displays event log text messages.
e. Look for a Console Event log with text similar to:

```
Successfully transmitted problem information:
  EED: /extra/data/vr/23/23.zip
Reporting system:
 rashmc33a Machine type-model/serial: 2107-922/1300310 Problem..."
```

Is the above console message log text listed?

- Yes, the call home was successful, return to the procedure that sent you here.
- No, the call home has not occurred yet, go to step 6.

6. You can continue other service activities now, but before you leave the customer account you must ensure the call home of the public key is successful. If it is not successful, remote support will not be possible.

Note: If the management console call home tests in the prior section did not complete successfully, manually offload the public key file to a laptop directly connected to the private network and then upload it to IBM. Refer to the article "Retrieving the WebSM Public Key locally" on the DS8000 - Engineering Web site.

Completing the reinstallation of a relocated storage facility

Route and connect the host cables

1. Ask the customer to supply a diagram or output from the DS8000 Storage Manager to define the connectivity between the DS8000 host card ports and system host card ports.
2. Label the ESCON and fibre host cables from each customer host adapter.
3. Route the cables to the rear of the appropriate DS8000 frame.

Note: To allow correct connection and disconnection of external cables, label cables using the customer's current cable-identification plan and the labels provided by your customer.

4. In the tailgate, squeeze the black release levers **2**, pivot the retention bracket up and then remove it.

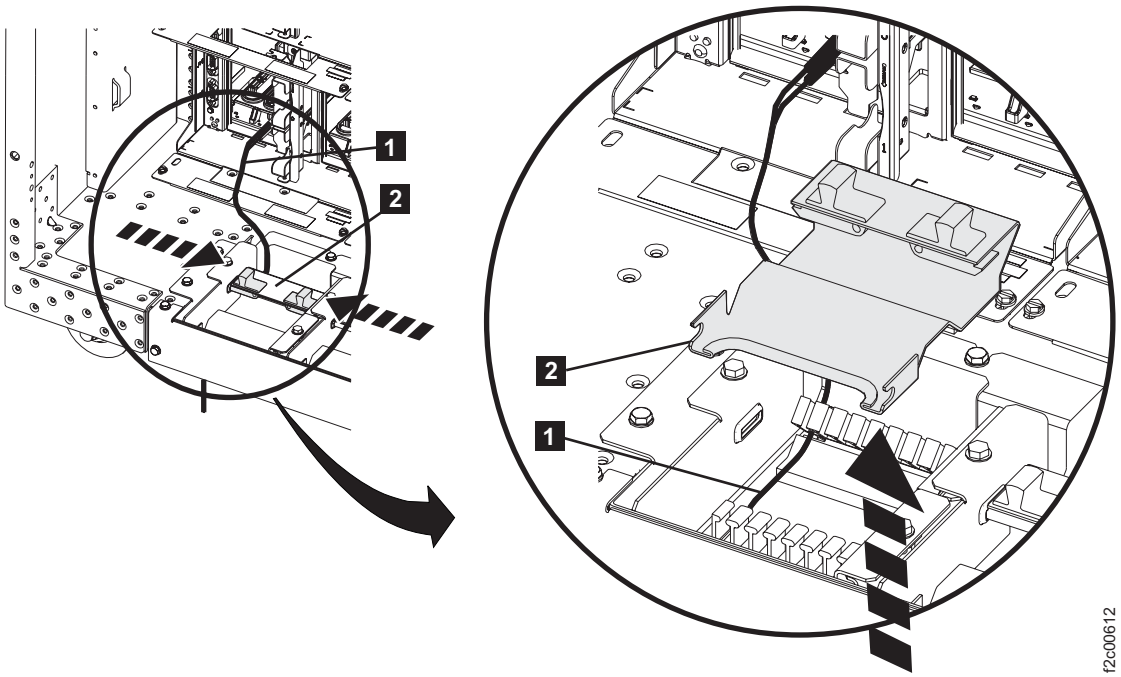


Figure 276. Tailgate cable and fibre channel cable retention

5. Identify the I/O enclosure that contains the host card and port to which the host cables from the host will be attached. See Figure 277.

   Note: The syntax of the location code shown on the ICAT configuration tool might differ slightly from the syntax used by RAS. For the device adapter card connectors, the syntax might be R*x*-I*x*-C*x*-T*x* (the backplane identifier of P1 is missing and I*x* is equivalent to XI*x*).

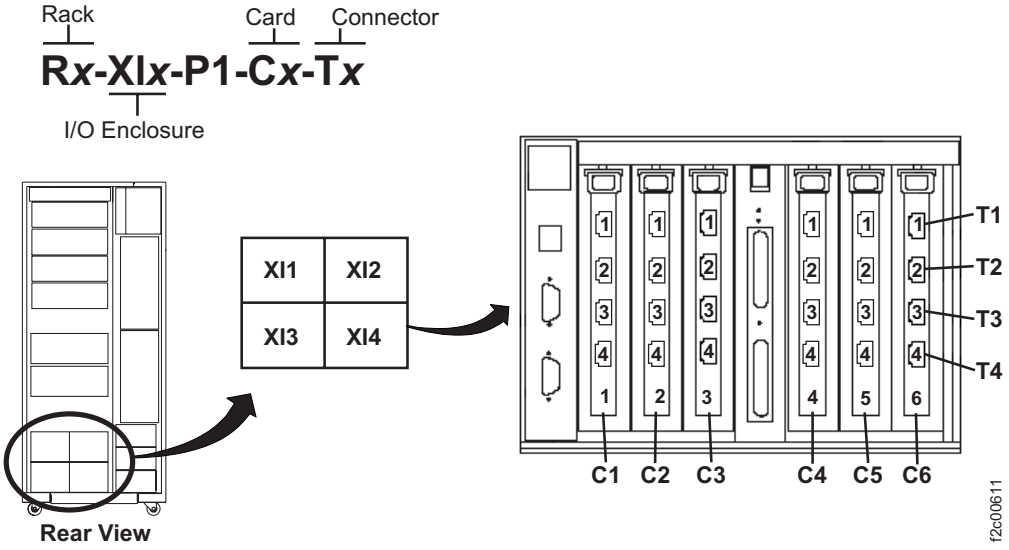


Figure 277. Location codes for the device adapter card connectors

6. Feed the host cables up through the tailgate and route them to the destination I/O enclosure and host card and plug them in.

   Notes:

- Save the wrap tools removed from each Fibre or ESCON host card. The wrap tool can be used as a dust cover and also a wrap tool for diagnosis and repair.
- There are two types of fibre channel cards:
  - Short wave
  - Long wave

7. Secure the host cables in the cable guide by pressing them into the slots.
8. Reinstall the retention bracket removed earlier.
9. Reinstall the tailgate brackets in all frames using the screws **2** removed earlier. Tighten all four screws **1** and **2**. See Figure 278

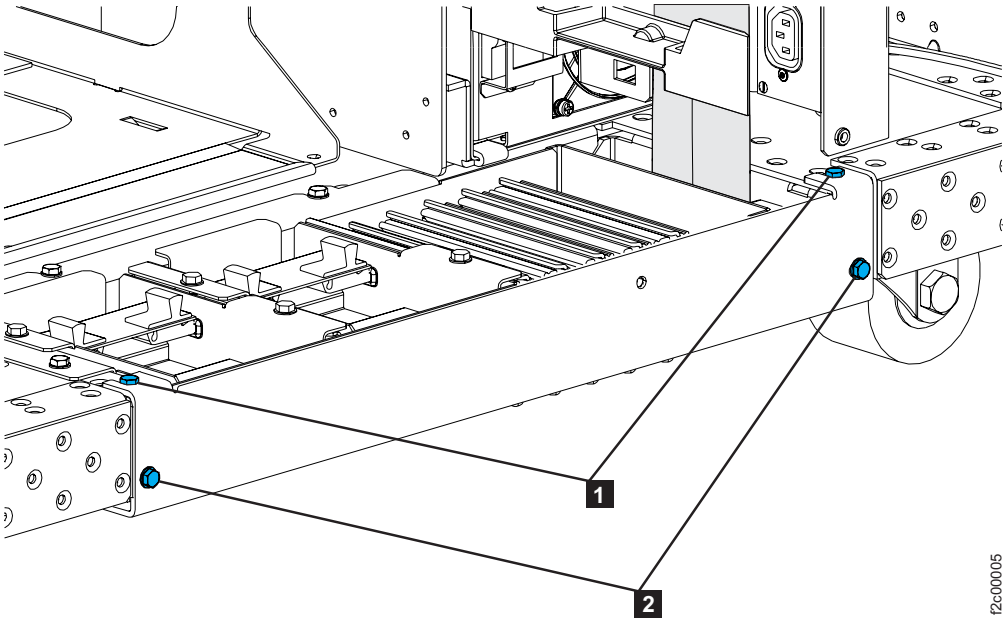


Figure 278. Tailgate frame bracket

10. Continue with "Finish install and cleanup."

Finish install and cleanup

1. Is there an external management console that is to be installed?
   - Yes, go to Chapter 5, "Installing an external management console," on page 105. Return here and continue with step 2 when installation has been completed.
   - No, continue with the next step.
2. Has the customer ordered the remote power control feature?
   - Yes, go to the next step.
   - No, go to step 4 on page 342.
3. Route the remote power control cables **1** from each host up through the tailgate to the ZLR remote power control card. See Figure 279 on page 342.

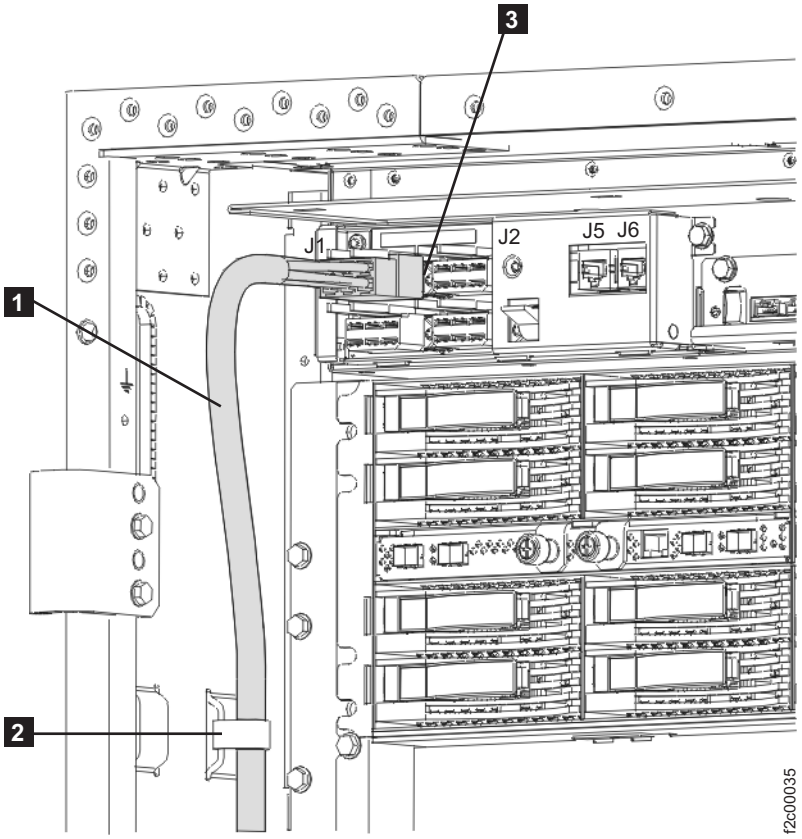


Figure 279. Remote power control cables from host to ZLR card

Attention: The remote power control feature will be enabled in the next step. Remind your customers that they must test it.

4. Set the storage facility rack power control mode that the customer has chosen on the configuration worksheet. For more information, see "MAP2460 Configuring and overview of the DS8000 Power Control Mode" on page 625.To display the MAP, open the service Information Center on the management console (MC), then open the **Isolation MAPs and symbolic FRU procedures** section to locate the MAP.
   a. In the HMC Navigation area, open **Management Environment**, select and open the HMC.
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Service Utilities**. A windows displays a list of Storage Facilities.
   d. Select the Storage Facility that is being installed from the list. Click **Selected** from top tool bar, and then select **Manage Power Control**.
   e. Make the desired customer selections from the worksheets.
5. Verify the following Control Switch settings against the Customization Worksheets.

Table 106. Control switch settings

Control Switch Setting	Default Value
AS400 LUN Serial Suffix number	0
Fibre LUN Access Control	0 (Off)
CUIR support	0 (Off)

Do the control switch settings need to be changed from the default values shown?

- Yes, from the HMC GUI perform the following steps to alter the Control Switch Settings for each storage facility image that needs to be updated.
  a. In the HMC Navigation area, open **Management Environment**, select and open the HMC.
  b. Open **Service Applications** → **Service Focal Point**.
  c. In the right content area, select **Service Utilities**. A window displays a list of Storage Facilities.
  d. Select the Storage Facility that is being installed from the list. Click **Selected** from the top tool bar, and then select **Get Storage Facility Images**. A window displays a list of Storage Facility Images.
  e. Select the Storage Facility Image to be updated. Click **Selected** and choose Enable/Disable Control Switches.
  f. Update the values from the Customization Worksheets. Click **Set**, then **OK** in the message box, then **Cancel** to exit.
  g. Continue with the next step.
- No, continue with the next step.

6. Perform the following steps if you are installing a storage facility with a management console. Ensure the schedule to back up the HMC critical console data to DVD-RAM disc is set.

   Note: Microcode bundles at 6.2.xx.xx or later should preset the values to every Friday at 3:00:00 AM for an indefinite period of time.

   a. In the HMC Navigation area, open **Management Environment**, select and open the HMC.
   b. Open **HMC Management** → **HMC Configuration**.
   c. In the right content area, select **Schedule Operations**. A window displays a list.
   d. Select the management console that you want to back up and click **OK**.
   e. If the existing values are Friday, 3:00:00 AM, Indefinite, exit the screen and go to step 7. If the existing values are not set, continue.
   f. Click **Options** from the top tool bar, and then select **New**.
   g. In the Add a Scheduled Operation window, select **Backup Critical Console Data** and click **OK**.
   h. In the appropriate fields, enter the time and date that you want this backup to occur.
   i. Click the **Repeat** tab and set the schedule to repeat with a 1 weekly interval with Infinite repetitions.
   j. When you are finished setting the backup time and date, click **Save**. When the Action Completed window opens, click **OK**.

7. Will you be installing additional racks, storage enclosures, or other hardware features to this storage facility as part of this installation activity?
   - Yes, the backup of critical console data will occur after all installation activity is complete. Go to step 11 on page 344.
   - No, the backup of critical console data will occur now. Go to step 8 on page 344.

8. Locate the critical console data back up DVD disc for each HMC on this storage plex. The DVD disc should be in the ship group during an installation or kept in the HMC DVD-RAM drive after installation.

   There are two versions of the DVD disc:

   - Newer version is labeled with the HMC machine type model S/N and "HMC Critical Console Data Backup DVD, Keep in HMC DVD-RAM drive". If you have this version, go to 10.
   - Older version has no preprinted label, it should have the HMC machine type model S/N hand printed by the service representative. If you have this version, go to the next step.

9. Is the HMC machine type model and S/N printed on the DVD disc?
   - Yes, go to the next step.
   - No, hand print the HMC machine type model and S/N and "HMC Critical Console Data" on the DVD disc. For example: `HMC machine type model S/N: 8837-PLM 75KKTWT8R, HMC Critical Console Data`. Go to the next step.

10. Perform the following steps to back up critical console data on each HMC for this storage plex. Use the DVD disc with the HMC machine type model S/N for this HMC.
    a. In the HMC Navigation area, open **Management Environment**, select and open the HMC.
    b. Open **Licensed Internal Code Maintenance → HMC Code Update**.
    c. In the right content area, select **Back up Critical Console Data**.
    d. Select **Back up to DVD on local system** and click **Next**.
    e. Insert a formatted DVD-RAM media into the drive.
    f. Enter a description for the archive data.
    g. Click **OK** to store your critical console data on the DVD-RAM.

11. Place the following items in the front document enclosure for future reference:
    - Copies of the configuration worksheets
    - Spare ship group components
    - CD-ROMs
    - Spare labels
    - Cable planning worksheets
    - Host card wrap tools

12. Go to "MAP7000 Entry point for DS8000 private network problems" on page 855, step 4 to verify connectivity on the Private Network and save the configuration. Return here and continue when you have completed the action.
13. Reference the pack/unpack instructions for return/discard information. Discard the shipping material locally.
14. The storage facility is now regarded as "Installation complete".
    a. Record the stop date and time for the End of Install and Clean-up phase in Table 19 on page 18, "Recording information for the installation report" on page 17.
    b. Update the account records to show the install is complete.
    c. Record any additional time to install features, ECs, MESs to the correct service code. Do not charge the additional time to the DS8000 installation.
    d. Go to the next step.

15. Determine the current storage facility LIC level and compare it to the "Required level" that was found on the PFE Website.

a. In the HMC Navigation area, open **Management Environment**, select and open the HMC.
b. Open **Licensed Internal Code Maintenance → Licensed Internal Code Updates**
c. In the right content area, select **Change Internal Code**. A window displays a list of Storage Facilities.
d. Select the Storage Facility that is being installed from the list. Click **Selected** from the top tool bar, and then select **Display Installed Code Levels**.

Does the storage facility LIC need to be updated?

- Yes, go to step 19.
- No, go to the next step.

16. Did you choose the recommended option for the storage facility to call home on certify DDM completion?
    - Yes, go to 17.
    - No, go to 18.
17. The on-site service actions are now complete.
    a. Inform the customer that the machine will be available for configuration when the DDM certification completes.
    b. Upon receipt of the call-home, the IBM support center will call the contact name and telephone number entered earlier and inform them that the DS8000 is now available.
    c. Go to 22 on page 346 to complete the storage facility Install Report.

    Note: There are three fields in the report for Monitor Certify DDM. Please enter the value "00.0" in each field as you will not be waiting for the certify to complete. This value will indicate that you selected the call home on Certify DDM completion option.
18. Monitor the certify DDM process for completion.
    a. In the HMC Navigation area, open the **Management Environment**, select and open the HMC.
    b. Open **Service Applications → Service Focal Point**.
    c. In the right content area, select **Service Utilities**, a window displays a list of Storage Facilities.
    d. Select the Storage Facility that is being installed from the list. Click **Selected** from the top tool bar, and then select **Certify DDM**.
    e. When the certify DDM process is complete, inform the customer that the storage facility is now available for configuration.

    Note: Use Table 21 on page 19, "Recording information for the installation report" on page 17 to record the stop date and time for the Monitor Certify DDM phase.

    f. Go to 22 on page 346 to complete the storage facility Install Report.
19. Monitor the certify DDM process for completion.
    a. In the HMC Navigation area, open **Management Environment**, select and open the HMC.
    b. Open **Service Applications → Service Focal Point**.
    c. In the right content area, select **Service Utilities**. A window displays a list of Storage Facilities.

d. Select the Storage Facility that is being installed from the list. Click **Selected** from the top tool bar, and then select **Certify DDM**.

e. Wait until the certify DDM process is complete.

Note: Use Table 21 on page 19, "Recording information for the installation report" on page 17 to record the stop date and time for the Monitor Certify DDM phase.

f. Use the supplied LIC Installation Instructions to update the storage facility LIC.

Note: Use the table in "Recording information for the installation report" on page 17 to record the start date and time for the SF Code Upgrade (SC33) phase.

g. When the LIC is complete, inform the customer that the storage facility is now available for configuration.

Note: Use the table in "Recording information for the installation report" on page 17 to record the start date and time for the SF Code Upgrade (SC33) phase.

h. Go to step 22.

20. If the customer has purchased LIC features, the customer is responsible for retrieving the keys and activating the licenses by using the procedures in the *IBM System Storage DS8000 User's Guide* (see Activating Licenses).

Note: If the customer cannot access the keys on the DSFA Web site the customer is instructed to open a service call. The service representative can have PFE (via the next level of support) manually generate and provide the keys to the customer.

21. If the customer has problems creating the logical configuration, they may come to you for help. You can check for any open serviceable events related to the I/O enclosures or storage enclosures to be repaired. If there are none, have the customer contact IBM support and ask for software help with the logical configuration and the GUI interface.

22. Complete the storage facility Install report.

a. In the HMC Navigation area, open **Management Environment**, select and open the HMC.

b. Open **Service Applications → Service Focal Point**.

c. In the right content area, select **Service Utilities**, a window displays a list of Storage Facilities.

d. Select the Storage Facility that is being installed from the list. Click **Selected** from the top tool bar, and then select **Generate Storage Facility Install Report**.

Chapter 12. Discontinuing a storage facility

This section contains important notes about discontinuing a storage facility.

Attention:

1. **ONLY** use this procedure when the customer wants to discontinue the storage facility. **All customer data will be destroyed**. Verify that the customer has removed all data that needs to be saved. If the storage facility is being relocated within the same customers enterprise, and the data must be retained, go to Chapter 10, "Relocating a storage facility," on page 259
2. To discontinue a storage facility, all of the logical configuration of the storage facility **MUST** be removed before the storage facility is disassembled. The logical configuration removed consists of: extent pools, ranks, arrays, volumes, logical subsystems and host connections. Any physical configuration changes (for example: removal of host adaptors, storage enclosures) will require a separate RPQ. The removal RPQ must either be completed before starting the discontinue procedure or after the subsystem is installed in a new account. Any hardware changes made between the discontinue and the next install are highly discouraged, and unsupported. Unsupported changes, or a failure to follow the discontinue procedure, could cause the reinstallation of the storage facility to fail. Recovery from this type of installation failure will require the assistance of product engineering, this assistance is billable to the customer.

This procedure will:

- Allow the repair of all existing problems.
- Remove the logical configuration from thestorage facility.
- Provide instructions to mechanically disconnect and package the subsystem.

Attention: If the storage facility being discontinued contains an integrated HMC or provides a connection point for an external HMC then additional considerations may apply. They will be addressed in the next section.

Continue with "Discontinuing a storage facility using the management console."

Discontinuing a storage facility using the management console

1. Is the storage facility being discontinued part of a storage complex which contains multiple storage facilities?
   - Yes, continue with the next step
   - No, continue with step 4 on page 348.
2. Does the storage facility contain an integrated HMC which is the only HMC managing the storage complex?
   - Yes, an additional HMC must be installed before this storage facility is discontinued. Do not proceed until an additional HMC is installed. **Note:** The new HMC would need to become HMC1 after this HMC1 is removed from the private networks.

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- No, continue with the next step.

3. Does this storage facility provide a connection point for an external HMC into the storage complex private network?
   - Yes, review the network topology and if necessary recable the external HMC to a different storage facility in the storage complex.
   - No, continue with the next step.
4. Log on to the management console with the following user ID and password:

   ID: `CE`
   Password: `serv1cece`
5. From the WebSM GUI select: **Service Focal Point → Manage Serviceable Events** and check for open problems on this storage facility.
6. Use the **Repair Serviceable Event** to repair all Open problems.
7. Contact the next level of support for the procedure to create the configuration DVD, set the Storage Facility SF back to "Ready for Field Install", cleanup the HMC and clear the logical configuration.
8. To complete the discontinuance, use the following sections in Chapter 10, "Relocating a storage facility," on page 259:
   - "Power off the storage facility" on page 262.
   - "Disconnect mainline power cables from each rack" on page 264.
   - "Disconnect control and interface cables" on page 267.
   - "Disconnecting storage expansion racks" on page 270.
   - "Moving the storage facility" on page 272.

   Note: Only do the steps in this procedure that are necessary to discontinue or relocate the storage facility racks using their shipping containers.

Chapter 13. Isolation MAPs and symbolic FRU procedures

This section lists the ranges for the isolation MAPs and symbolic FRU procedures.

These procedures should only be used when you are sent here from elsewhere in the maintenance package. If you need help to begin a service action, go to Chapter 1, “Start here,” on page 1.

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Chapter 14. A Procedures

ACMODUL

An AC module or power supply might be failing. This procedure will help you determine the failing part. If the system powers on normally or stays powered on after an external power failure, no replacement of parts are needed.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Go to "PWR1911" on page 922. If the problem is not resolved, return here and continue with the next step.
2. Find the enclosure in the table below. The link to locations information will provide you with all of the information you will need to replace the appropriate part.

Table 107. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC or 7311 D11 I/O Enclosure	E1, E2	Refer to Chapter 34, "Exchanging parts," on page 991

This ends the procedure.

AIRMOVR

A fan might be failing.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Before replacing any field replaceable units (FRUs), verify that all cables are seated correctly.
2. Use the following tables to determine the failing fan. Then, see Chapter 44, "Location codes in serviceable events," on page 1415 and Chapter 34, "Exchanging parts," on page 991.

Table 108. For CEC Enclosure

Unit reference code	FRU
7610, 7611	A1
7620, 7621	A2
7650, 7651	F5

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This ends the procedure.

AJDG301

The Licensed Internal Code (LIC) is the failing item.

Call your next level of support for assistance. This problem might be resolved by installing the latest version of LIC.

This ends the procedure.

AJDGP01

This section describes the symbolic FRU AJDGP01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer™ family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

AJEDA00

This section describes the symbolic FRU AJEDA00.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

AJEGP01

This section describes the symbolic FRU AJEGP01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

AJEQU00

This section describes the symbolic FRU AJEQU00.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

AJGAM01

This section describes the symbolic FRU AJGAM01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

AJGDF01

This section describes the symbolic FRU AJGDF01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

AJGFN00

This section describes the symbolic FRU AJGFN00.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

AJGJ601

This section describes the symbolic FRU AJGJ601.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

AJGJQ01

This section describes the symbolic FRU AJGJQ01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

AJGLD01

This section describes the symbolic FRU AJGLD01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

AJGW701

This section describes the symbolic FRU AJGW701.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

AJLAF01

This section describes the symbolic FRU AJLAF01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

AJLAG01

This section describes the symbolic FRU AJLAG01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

AJLYC01

This section describes the symbolic FRU AJLYC01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

AJLYD01

This section describes the symbolic FRU AJLYD01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

AJSDJ01

This section describes the symbolic FRU AJSDJ01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

ALTMANL

This section describes the symbolic FRU ALTMANL.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

AMBTEMP

A processor (critical/warning) over-temperature fault occurred.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Is the room ambient temperature within normal range (less than 35 degrees C or 95 degrees F)?
   - Yes, continue with the next step.
   - No, notify the customer. The customer must bring the room temperature within normal range.
2. Are the system front and rear doors free of obstructions?
   - Yes, continue with the next step.
   - No, notify the customer. The system must be free of obstructions for proper air flow.
3. Do all the positions in the processor subsystem contain processors or fillers?
   - Yes, continue with the next step.
   - No, fill any open positions with supplies or fan books. Retry the procedure that failed. **This ends the procedure.**
4. Do all the power supply positions contain power supplies or fan books?
   - Yes, continue with the next step.

- No, fill any open positions with supplies or fan books. Retry the procedure that failed. **This ends the procedure.**

5. Exchange the following field replaceable units (FRUs), if present, one at a time. See Chapter 44, "Location codes in serviceable events," on page 1415 and Chapter 34, "Exchanging parts," on page 991.
   - Processor 1, at location P2–C1
   - Processor 2, at location P2–C2
6. After each FRU is exchanged, is the error code that sent you to this procedure still reported?
   - Yes, replace the next FRU on the list. If all FRUs on the list have been replaced, call your next level of support. **This ends the procedure.**
   - No, the problem has been corrected. Return to the procedure that sent you here. **This ends the procedure.**

ANYBRDG

A problem has been detected with a PCI card or slot.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Find the location of the card reporting the problem and its corresponding PCI bus. Any cable, card, or card enclosure—not necessarily the card that reported the problem—connected to the same PCI bus might be causing the problem.

This ends the procedure.

ANYBUS

This section describes the symbolic FRU ANYBUS.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

ANYFC

This section describes the symbolic FRU ANYFC.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

ANYPROC

The failing component is one of the system processors.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Use Table 109 to determine what FRU to replace and how to replace it.

Table 109. Determining FRU replacement

Name of symbolic FRU to locate	FRU name	FRU location (replace one at a time in order - top to bottom)	Link to locations and Removal/Replace information
ANYPROC	Processor Card 1	Un-P2-C1	Chapter 44, “Location codes in serviceable events,” on page 1415
	Processor Card 2	Un-P2-C2	Chapter 34, “Exchanging parts,” on page 991

This ends the procedure.

AS4NTDD

This section describes the symbolic FRU AS4NTDD.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

Chapter 15. B Procedures

BACKPLN

A backplane or a connection to the backplane might be failing. Use this procedure to identify which backplane might be failing.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Before replacing any parts, verify the connections to the backplane.

1. Were you sent here by a power reference code (1*xxxxxxx*)?
   - Yes, go to "SYSBKPL" on page 964. **This ends the procedure.**
   - No, continue with the next step.
2. Determine the location of the failing FRU by performing the following:
   a. Use the location information in the service event, if it is available.
   b. If no location information is available, call your next level of support.

   This ends the procedure.

BATCHGR

This error is unexpected for this system.

If you are experiencing power problems go to "MAP2xxx range" on page 547 to resolve the problem.

This ends the procedure.

BATRY

This error is unexpected for this system.

If you are experiencing power problems go to "MAP2xxx range" on page 547 to resolve the problem.

This ends the procedure.

BPC

This section describes the symbolic FRU BPC.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

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The original eServer system model 570 procedure has been removed.

BRDGSET

The multi-adapter bridge hardware is having a problem with one or more PCI cards or adapters in the PCI bridge set, but the exact card or adapter cannot be identified. The problem might be with a card, a card slot, or an embedded adapter. The PCI bridge set is indicated by the Direct Select Address (DSA) in word 7 of the reference code. This symbolic FRU only appears in the serviceable event user interface when the LIC could not determine which PCI bridge set has the problem.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

This ends the procedure.

BRDGST1

This section describes the symbolic FRU BRDGST1.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

BRDGST2

This section describes the symbolic FRU BRDGST2.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

BRDGST3

This section describes the symbolic FRU BRDGST3.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

BSTWRPL

This section describes the symbolic FRU BSTWRPL.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

BUSVPD

This section describes the symbolic FRU BUSVPD.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

Chapter 16. C Procedures

CABLEH

This section describes the symbolic FRU CABLEH.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

CACHBAT

This section describes the symbolic FRU CACHBAT.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

CAPACTY

The failing component is the VPD card.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Replace the FRU listed below.

Table 110. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	VPD Card	Refer to Chapter 34, "Exchanging parts," on page 991.

Note: During the remove and replace procedure you will be required to restore the vital product data. If this procedure is not followed the system will fail to IPL.

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This ends the procedure.

CARDFLT

This section describes the symbolic FRU CARDFLT.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

CARDTMP

This section describes the symbolic FRU CARDTMP.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

CBLALL

A power cable might be the failing part.

If a location and part number is displayed in the serviceable event, replace that FRU first. To find a part number, go to Chapter 43, "Part numbers," on page 1323. For cable part numbers, look on the cable label.

Perform the following to determine the part number of the failing part.

1. Is the reference code or SRC for this serviceable event 1*xxxyyyy*, where *xxx* is any value and *yyyy* is 1502, 1512, 1522, or 1532?
   - Yes, go to step 2.
   - No, go to step 3.
2. Exchange the following parts one at a time until the problem is fixed. If the FRU is listed in a serviceable event, use that serviceable event to exchange the FRU. If the FRU is *not* listed in a serviceable event, use the **Service Focal Point → Exchange Parts** option to exchange the part.
   - SPCN cable connected to I/O enclosure
   - I/O enclosure backplane
3. Is the reference code or SRC for this serviceable event 1*xxxyyyy*, where *xxx* is any value and *yyyy* is 2612, 9012, 9013, 90F0, 9135, 9231, 9232, 9233, 9235, 9236, 9280, 9281, 9282, or C62E?
   - Yes, the failing item is the SPCN cable. Replace the SPCN cable. If the FRU is listed in a serviceable event, use that serviceable event to exchange the FRU.

If the FRU is not listed in a serviceable event, use the **Service Focal Point → Exchange Parts** option to exchange the part.

- No, display and repair any related open serviceable events. If there are none, call the next level of support.

4. Is the reference code 1*xxx*9133?
   - No, go to step 7.
   - Yes, continue with the next step.
5. Verify that the I/O enclosures are cabled correctly with both RIO cables and SPCN (system power control network) cable connections. Also ensure that the I/O enclosures are powered on and not indicating an error condition. Resolve any problems you discover. Does the SRC persist?
   - No, **this ends the procedure.**
   - Yes, continue with the next step.
6. There might be a problem in the SPCN (system power control network) connection. Check for other serviceable events with an SRC of 1*xxxxxxx* that surfaced around the same time as the 1*xxx*9133 SRC. Is such an SRC present?
   - No, call your next level of support. **This ends the procedure.**
   - Yes, go repair that open serviceable event. **This ends the procedure.**
7. Is the reference code 1xxx9137 or 1xxx9138?
   - No, **this ends the procedure.**
   - Yes, continue with the next step.

   Note: If you are performing maintenance on your system and as a result are now experiencing a 1*xxx*9137 or 1*xxx*9138 reference code, ensure your maintenance actions did not cause the reference codes before replacing any additional parts. Ignore the 1*xxx*9137 or 1*xxx*9138 reference codes if you are doing concurrent maintenance on the affected I/O enclosure RIO cable associated with the affected I/O enclosure, RIO cable, or RIO adapter card or planar.
8. Verify the following items:
   - RIO cables are connected and seated correctly.
   - All connected I/O enclosures are powered on and not indicating an error condition.

   Note: If you find a problem during any of these checks, resolve that problem. If your system is still producing an SRC, continue with the next step.
9. If your system produced SRC 1*xxx*9137, check the open serviceable events for SRC B700698*x* that surfaced around the same time as SRC 1*xxx*9137. Did your system produce SRC B700698*x*?
   - No, call your next level of support.
   - Yes, go repair the serviceable event with SRC B700698*x*.

   Note: If your system produced SRC 1*xxx*9138, you have a faulty location code or vital product data. Call your next level of support.

This ends the procedure.

CBLCONT

This symbolic FRU is used to show additional locations for the endpoints of cables.

This FRU appears in the serviceable event user interface of an operating system, service processor, or the management console, and is associated with the cable FRU that precedes it in the list. The location code associated with this FRU is the location of another end of the same cable. Cable FRUs are shown in the display by listing the cable's part number or symbolic FRU first with the location code of one end of the cable. Each additional cable endpoint is represented as a "CBLCONT" FRU with a location code for another endpoint.

Note: If question marks (???) appear at the end of the location code, the port could not be determined. Use the location code associated with the other end of the cable. If question marks appear for both port locations, use the isolation procedures suggested in the Description/Action column of the reference code table for this SRC.

This ends the procedure.

CDAWKLD

This section describes the symbolic FRU CDAWKLD.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

CDTRAY

This section describes the symbolic FRU CDTRAY.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

CHECK

This section describes the symbolic FRU CHECK.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

CLCKMOD

The logic oscillator is failing.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Replace the FRU listed below.

Table 111. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	I/O backplane	Refer to Chapter 34, "Exchanging parts," on page 991.

This ends the procedure.

CMPRES1

This section describes the symbolic FRU CMPRES1.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

COMIP01

This section describes the symbolic FRU COMIP01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

CONSOL1

This section describes the symbolic FRU CONSOL1.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

CRYPBAT

This section describes the symbolic FRU CRYPBAT.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

CTLPNL

The CEC enclosure control panel might be failing.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Replace the FRU listed below.

Table 112. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	Control panel	Refer to Chapter 34, “Exchanging parts,” on page 991.

This ends the procedure.

Chapter 17. D Procedures

DCA

This section describes the symbolic FRU DCA.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

DEVBPLN

A device backplane might be failing.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Use the location code to identify the backplane that needs to be replaced.
2. See Chapter 42, "Finding parts and locations using a visual index," on page 1317 for location, part number, and removal and replacement procedure information.

This ends the procedure.

DEVICE

This section describes the symbolic FRU DEVICE.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

DEVTERM

This section describes the symbolic FRU DEVTERM.

Note:

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This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

DIMM0

This section describes the symbolic FRU DIMM0.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

DIMM0_1

This section describes the symbolic FRU DIMM0_1.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

DIMM1

This section describes the symbolic FRU DIMM1.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

DIMM2

This section describes the symbolic FRU DIMM2.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

DIMM2_3

This section describes the symbolic FRU DIMM2_3.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

DIMM3

This section describes the symbolic FRU DIMM3.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

DISKDRV

This section describes the symbolic FRU DISKDRV.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

DISKIMG

This section describes the symbolic FRU DISKIMG.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

DPAC

This section describes the symbolic FRU DPAC.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

DRVSWCH

This section describes the symbolic FRU DRVSWCH.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

DSKIP03

This section describes the symbolic FRU DSKIP03.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

DSKUNIT

This section describes the symbolic FRU DSKUNIT.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

Chapter 18. E Procedures

EACODE

This section describes the symbolic FRU EACODE.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

EXTREMD

This section describes the symbolic FRU EXTREMD.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

EXTSCSI

This section describes the symbolic FRU EXTSCSI.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

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Chapter 19. F Procedures

FCCABLE

This section describes the symbolic FRU FCCABLE.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

FCCODE

This section describes the symbolic FRU FCCODE.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

FCDEV

This section describes the symbolic FRU FCDEV.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

FCGATE

This section describes the symbolic FRU FCGATE.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

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you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

FCINTF

This section describes the symbolic FRU FCINTF.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

FCIOA

This section describes the symbolic FRU FCIOA.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

FCPORT

This section describes the symbolic FRU FCPORT.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

FRPORT

This procedure locates the start of the failing RIO-G link.

The RIO-G node on one end of the link might be the failing item. If you were sent to this procedure as a result of a B7006985 SRC, and this is the only FRU in the FRU list, the system cannot see any I/O units on a RIO-G loop and there is at least

one cable attached to a port on that loop. In this case, go to "(B7*xxxxxx*) Licensed Internal Code (LIC) reference codes" on page 2017 and work from the full FRU list provided there.

Note: The other end of the link is given in the symbolic FRU "TOPORT" on page 966.

1. Record the bus number in the first half of word 7 of the reference code. Table 113 shows the reference code format.

Table 113. Reference code format

Word number							
1	2	3	4	5	6	7	8
TTTTUUUU	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	BBBB*xxxx*	*xxxxxxxx*

Key:
TTTT = Reference code type (B600*xxxx* or B700*xxxx*)
UUUU = Unit reference code
BBBB = RIO-G bus number

2. Find the failing RIO-G node by performing the following from the Service Focal Point on the management console:
   a. Select **Service Utilities** from the tasks.
   b. In the Service Utilities window, click once on the system you are working on. Then, from the selected drop down menu, select **View RIO Topology**.
   c. In the Current Topology area, scroll down until you find data for the RIO-G loop number you are working with.
   d. Each line in that RIO-G loop represents a RIO-G node. Find the first one with a leading port status of failed.
   e. Record the location code of the first failed resource.

This ends the procedure.

FSPSP01

A part vital to system function has been deconfigured.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Note word 6 of the reference code. Table 114 shows the reference code format.

Table 114. Reference code format

Word number							
1	2	3	4	5	6	7	8
TTTTUUUU	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*

Key:
TTTT = Reference code type
UUUU = Unit reference code

2. Is word 6 of the reference code `0000F234`?

- Yes, the system has detected a deconfigured memory controller that is required for the system to function, or it has detected that there is not enough memory or that the memory is plugged incorrectly. Continue with the next step.
- No, go to step 6.

3. Perform the following steps:
   a. Reseat all of the memory DIMMs. Refer to symbolic FRU "MEMDIMM" on page 896, but do not replace any memory DIMMs at this time.
   b. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
   c. Does the problem persist?
      - Yes, continue with the next step.
      - No, **this ends the procedure.**
4. Perform the following for each of the memory DIMMs:
   a. Replace the memory DIMM using "MAP4820 Performing a slow boot of a processor complex" on page 706.
   b. Perform a slow boot between each replacement. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
   c. Does the problem persist?
      - Yes, repeat this step and replace the next memory DIMM. If you have replaced all of the memory DIMMs, continue with the next step.
      - No, **this ends the procedure.**
5. Perform the following for each of the memory controllers until the problem is resolved:
   a. Replace the memory controller using "MEMCTLR" on page 895.
   b. Perform a slow boot between each replacement. See "MAP4820 Performing a slow boot of a processor complex" on page 706.

   This ends the procedure.
6. Is word 6 of the reference code `0000F237`?
   - Yes, the system has detected a problem with a clock card. Perform the following for each of the clock cards until the problem is resolved:
     a. Replace the clock card using symbolic FRU "CLCKMOD" on page 367.
     b. Perform a slow boot between each replacement. See "MAP4820 Performing a slow boot of a processor complex" on page 706.

     This ends the procedure.
   - No, continue with the next step.
7. Is word 6 of the reference code `0000F230`?
   - Yes, the system has detected that all of the planars are deconfigured. Perform the following steps:
     a. Review the system error logs for errors that called out planars. This will indicate which planars have problems and need to be replaced.
     b. Go to symbolic FRU "NODEPL" on page 899 to replace the appropriate planars.
     c. Perform a slow boot after replacing the appropriate planars. See "MAP4820 Performing a slow boot of a processor complex" on page 706.

     This ends the procedure.
   - No, continue with the next step.

8. Is word 6 of the reference code 0000F231?
   - Yes, the system has detected that all of the I/O bridges are deconfigured. Perform the following:
     a. Review the system error logs for errors that called out I/O bridges. This will indicate which I/O bridges have problems and need to be replaced.
     b. Replace the appropriate I/O bridges using symbolic FRU "IOBRDG" on page 422.
     c. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.

     This ends the procedure.
   - No, continue with the next step.
9. Is word 6 of the reference code 0000F236?
   - Yes, the system has detected that all of the I/O hubs are deconfigured. Perform the following:
     a. Review the system error logs for errors that called out I/O hubs. This will indicate which I/O hubs have problems and need to be replaced.
     b. Replace the appropriate I/O hubs using symbolic FRU "IO_HUB" on page 421.
     c. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.

     This ends the procedure.
   - No, return to "MAP1210 Displaying and repairing a serviceable event" on page 477. **This ends the procedure**.

FSPSP02

This procedure is for boot failures that terminate very early in the boot process. This error path is indicated when the SRC data words are scrolling automatically through the CEC enclosure control panel functions 11, 12, and 13, and the CEC enclosure control panel interface buttons are not responsive.

1. Reset the service processor card. See "MAP4810 Resetting the service processor card (FSP)" on page 700.
2. Did resetting the service processor card fix the problem?
   - Yes, you have fixed the problem but you should call your next level of support. Further incidents might be prevented by installing the latest version of Licensed Internal Code (LIC).
   - No, continue with step 3.
3. Exchange the service processor card.

Table 115. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	Service processor	Refer to Chapter 34, "Exchanging parts," on page 991.
CEC enclosure	I/O backplane	Refer to Chapter 34, "Exchanging parts," on page 991.

If the problem persists call your next level of support for assistance. This problem might be resolved by installing the latest version of Licensed Internal Code (LIC).

This ends the procedure.

FSPSP03

A system operator or user error has occurred.

Refer to the documentation for the function you were attempting to perform.

FSPSP04

A problem has been detected in the service processor firmware.

1. Are any hardware FRUs listed in the serviceable event that sent you here?
   - Yes, replace those FRUs first, if the problem still occurs, return here and continue at the next step.
   - No, continue at the next step.
2. The service processor card needs to be replaced, there is not a service representative procedure to reload the same firmware. Reference "LICCODE" on page 429.

FSPSP05

The service processor has detected a problem in the platform firmware.

Perform symbolic FRU "LICCODE" on page 429.

FSPSP06

The service processor reported a suspected intermittent problem.

Contact your next level of support.

FSPSP07

The time of day has been reset to the default value.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Have you just performed a service action where you might have disconnected the TOD battery?
   - Yes, use the **Exchange Parts** option from the Service Focal Point to perform the TOD battery replacement procedure but without replacing the battery with a new one. This procedure includes setting the time of day. **This ends the procedure.**
   - No, continue with the next step.
2. Replace the TOD battery. See symbolic FRU "TOD_BAT" on page 965.
3. After replacing the battery, perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.

This ends the procedure.

FSPSP08

A problem has been detected with a system processor, but it cannot be isolated to a specific processor.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Replace system processors one at a time until the problem is resolved. See symbolic FRU "ANYPROC" on page 358.
2. Perform a slow boot after replacing each processor. See "MAP4820 Performing a slow boot of a processor complex" on page 706.

This ends the procedure.

FSPSP09

A problem has been detected with a memory DIMM, but it cannot be isolated to a specific memory DIMM.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Replace all memory DIMMs one at a time until the problem is resolved. See symbolic FRU "MEMDIMM" on page 896 for instructions.
2. Perform a slow boot after replacing each memory DIMM. See "MAP4820 Performing a slow boot of a processor complex" on page 706.

This ends the procedure.

FSPSP10

The part indicated in the FRU callout that follows this procedure is invalid or missing for this system's configuration.

1. Does word 8 of the reference code end with `02` or `04`? Table 116 shows the reference code format.

Table 116. Reference code format

Word number							
1	2	3	4	5	6	7	8
TTTTUUUU	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*

Key:
TTTT = Reference code type
UUUU = Unit reference code

- Yes, continue with the next step.

- No, go to step 3.

2. The FRU that is called out after this procedure is either missing or invalid. Is that FRU installed and connected or plugged in properly?
   - Yes, remove that FRU. Then contact your next level of support to determine the correct FRU. **This ends the procedure.**
   - No, contact your next level of support to determine the correct FRU. **This ends the procedure.**
3. Does word 8 end with `01` or `05`?
   - Yes, the FRU that is called out after this procedure has the same serial number as another FRU in the system. Remove all but one of the FRUs that are called out after this procedure, and then perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706. **This ends the procedure.**
   - No, return to Chapter 1, "Start here," on page 1. **This ends the procedure.**

FSPSP11

The service processor has detected an error on the CEC enclosure RIO card port in the system unit.

1. Perform symbolic FRU "LICCODE" on page 429.
2. If the problem persists, replace the I/O hub using symbolic FRU "IO_HUB" on page 421.

This ends the procedure.

FSPSP12

The DIMM FRU that was called out failed to correct the memory error.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Replace the board that the DIMM is plugged into using symbolic FRU "MEMBRD" on page 895.
2. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.

This ends the procedure.

FSPSP16

Save any error log and dump data and contact your next level of support for assistance.

FSPSP17

A system uncorrectable error has occurred.

Look for other serviceable events and use the callouts listed with them to correct the problem.

FSPSP18

A problem has been detected in the platform LIC.

Perform symbolic FRU "LICCODE" on page 429.

FSPSP19

This does not apply to this machine type.

If this problem persists after repairing all other problems on the machine call your next level of support.

FSPSP20

A failing item has been detected by a hardware procedure.

1. Perform a slow boot to run full hardware diagnostics. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
2. If a new SRC occurs, go to Chapter 52, "System reference codes (SRCs) and firmware codes," on page 1849.

This ends the procedure.

FSPSP21

The system has detected that all I/O hubs are missing from the system configuration.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Replace the service processor using symbolic FRU "SVCPROC" on page 963.
2. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
3. Does the problem persist?
   - Yes, continue with the next step.
   - No, **this ends the procedure.**
4. Replace the system backplane using symbolic FRU "SYSBKPL" on page 964.
5. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.

This ends the procedure.

FSPSP22

The system has detected that a processor chip is missing from the system configuration because JTAG lines are not working.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC →**

Service Applications → Service Focal Point option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Replace the service processor using symbolic FRU "SVCPROC" on page 963.
2. Perform a slow boot. See "SVCPROC" on page 963.
3. Does the problem persist?
   - Yes, continue with the next step.
   - No, **this ends the procedure.**
4. Perform the following for each system processor until the problem is resolved:
   - Replace one of the system processors using symbolic FRU "ANYPROC" on page 358.
   - Perform a slow boot after replacing each processor. See "SVCPROC" on page 963.

This ends the procedure.

FSPSP23

The system needs to perform a service processor dump.

Contact your next level of support for assistance.

FSPSP24

The system is running degraded. Array bit steering may be able to correct this problem without replacing hardware.

1. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
2. If the problem persists, replace the FRU that is called out after this procedure.

This ends the procedure.

FSPSP25

The server has detected an over temperature thermal fault.

1. Before replacing any server hardware FRU call-outs, look for thermal problems related to fans, power supplies, etc. Perform all service actions for the thermal problem system reference codes (SRC) first before continuing with any other call-outs in the current SRC. Thermal problems are associated with 1100*xxxx* SRCs, where *xxxx* may be any of the following:
   - 1514
   - 1524
   - 7201
   - 7203
   - 7205
   - 7610
   - 7611
   - 7620
   - 7621
   - 7630

- 7631

2. If no thermal related SRCs or problems are found, replace the server hardware FRU called out in the current SRC.

This ends the procedure.

FSPSP26

The system has detected a problem with the system backplane.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Replace the system backplane using symbolic FRU "SYSBKPL" on page 964.
2. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.

This ends the procedure.

FSPSP27

An attention line has been detected as having a problem.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Perform the following:
   a. Check the flex cables and replace them if necessary.
   b. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
2. Does the problem persist?
   - Yes, continue with the next step.
   - No, **this ends the procedure.**
3. Perform the following:
   a. Replace the service processor using symbolic FRU "SVCPROC" on page 963.
   b. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
4. Does the problem persist?
   - Yes, continue with the next step.
   - No, **this ends the procedure.**
5. Perform the following:
   a. Replace the system backplane using symbolic FRU "SYSBKPL" on page 964.
   b. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
6. Does the problem persist?
   - Yes, continue with the next step.

- No, **this ends the procedure.**

7. Perform the following:
   a. Replace all system processors using symbolic FRU "ANYPROC" on page 358.
   b. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706. **This ends the procedure.**

FSPSP28

The resource ID (RID) of the FRU could not be found in the Vital Product Data (VPD) table.

1. Are there any other open serviceable events related to the failing CEC?
   - Yes, fix the related problem, and then go to step 2.
   - No, go to step 2.
2. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706. Does the problem persist?
   - Yes, go to step 3.
   - No, **this ends the procedure.**
3. Do you have a new serviceable event?
   - Yes, repair the problem using the new serviceable event. **This ends the procedure.**
   - No, call your next level of support for assistance. **This ends the procedure.**

FSPSP29

The system has detected that all I/O bridges are missing from the system configuration.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Replace the service processor using symbolic FRU "SVCPROC" on page 963.
2. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
3. Does the problem persist?
   - Yes, continue with the next step.
   - No, **this ends the procedure.**
4. Replace the system backplane using symbolic FRU "SYSBKPL" on page 964.
5. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.

This ends the procedure.

FSPSP30

A problem has been encountered accessing the VPD card or the data found on the VPD card has been corrupted. This error occurred before VPD collection was completed, so no location codes have been created.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Replace the VPD card using symbolic FRU "CAPACTY" on page 363.
2. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
3. Does the problem persist?
   - Yes, continue with the next step.
   - No, go to **Verifying the repair**. **This ends the procedure.**
4. Replace the service processor using symbolic FRU "SVCPROC" on page 963.
5. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
6. Does the problem persist?
   - Yes, continue with the next step.
   - No, go to **Verifying the repair**. **This ends the procedure.**
7. Replace the system backplane using symbolic FRU "SYSBKPL" on page 964.
8. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
9. Does the problem persist?
   - Yes, contact your next level of support. **This ends the procedure.**
   - No, **this ends the procedure.**

FSPSP31

The service processor has detected that one or more of the required fields in the system VPD is not initialized.

Go to "MAP4060 Restoring VPD after replacing the VPD card" on page 660.

This ends the procedure.

FSPSP32

The problem is resulting from one of the following: the enclosure VPD cannot be found, the enclosure serial number is not programmed, or the enclosure feature code is not programmed.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Record the reason code (the last four characters of word 11) from the system reference code. Table 117 shows the reference code format.

Table 117. Reference code format

Word number					
1	2	3	4	5	6
TTTTUUUU	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*

Table 117. Reference code format (continued)

Word number					
7	8	9	10	11	
xxxxxxxx	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	*xxxx*RRRR	

Key:
TTTT = Reference code type
UUUU = Unit reference code
RRRR = Reason code

2. Is the reason code `B06F`?
   - Yes, go to step 3.
   - No, go to step 5.
3. Replace the service processor using symbolic FRU "SVCPROC" on page 963 and perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706. Does the problem persist?
   - Yes, go to step 4.
   - No, **this ends the procedure.**
4. Replace the system backplane using symbolic FRU "SYSBKPL" on page 964 and perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706. Does the problem persist?
   - Yes, call your next level of support for assistance. This problem might be resolved by installing the latest version of Licensed Internal Code (LIC).
   - No, **this ends the procedure.**
5. Is the reason code `B071`?
   - Yes, go to step 6.
   - No, go to step 7.
6. Set the enclosure serial number. See "MAP4060 Restoring VPD after replacing the VPD card" on page 660 and perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706. Does the problem persist?
   - Yes, call your next level of support for assistance. **This ends the procedure.**
   - No, **this ends the procedure.**
7. Is the reason code `B07D`?
   - Yes, go to step 8.
   - No, call your next level of support for assistance. **This ends the procedure.**
8. Set the enclosure feature code. See "MAP4060 Restoring VPD after replacing the VPD card" on page 660 and perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706. Does the problem persist?
   - Yes, call your next level of support for assistance. **This ends the procedure**
   - No, **this ends the procedure**.

FSPSP33

A problem has been detected in the Ethernet connection between the management console and the FSP in one or more storage facilities.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC** →

Service Applications → Service Focal Point option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Note: This SRC and symbolic FRU is not expected on DS8000. Report this problem to the next level of support. They might0 have you use the procedure below to isolate the problem.

1. Return to the **HMC → Service Applications → Service Focal Point** option. Select **Manage Serviceable Events**, accept the defaults, and select **OK**.

   Are there any open problems listed with a BEB1*xxxx* reference code?

   - Yes, select one of the open problems and follow the repair actions.
   - No, continue with the next step.

2. Use the **Network Topology Tool** to determine which communications links are failing.

   Did the **Network Topology Tool** confirm that a network problem exists?

   - Yes, go to "MAP7000 Entry point for DS8000 private network problems" on page 855 and use the table to select the MAP which best describes the Network problem.
   - No, continue with the next step.

3. It appears that the problem is no longer present.

   Is this is the first time that this problem has occurred?

   - Yes, use the **Service Applications → Manage Serviceable Events** option to close the event which sent you here.
   - No, go to "MAP7000 Entry point for DS8000 private network problems" on page 855 and use the table to select the MAP which best describes the Network problem.

FSPSP34

The memory cards are plugged in an invalid configuration and cannot be used by the system.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Is the SRC B1*xx*F642?

   - Yes, a memory card is missing from the system. The additional parts in the FRU callout list will include all memory cards in the group with the missing card. To correct the error, visually check the system to determine which of these cards is missing, and then add the card. **This ends the procedure.**
   - No, continue with the next step.

2. Is the SRC B1*xx*F643?

   - Yes, a memory card is a different type than the other memory cards in the same group. The additional parts in the FRU callout list will include all memory cards in the group that contain the error. To correct the error, exchange the memory cards of the incorrect type with those of the desired type. **This ends the procedure.**
   - No, continue with the next step.

3. Is the SRC B1*xx*F688?

- Yes, there are one or more memory cards that are incompatible with the other memory cards plugged into the same board in the system. The additional parts in the FRU callout list will include all memory cards that are incompatible. To correct the error, remove these cards from the system. **This ends the procedure.**
- No, return to "MAP1210 Displaying and repairing a serviceable event" on page 477. **This ends the procedure.**

FSPSP35

The system has detected a problem with a memory controller.

Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.

This ends the procedure.

FSPSP36

One or both of the SMP cables connecting the system processors on this system are incorrectly plugged, broken, or not the correct type of cable for this system configuration.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Note the reason code in word 11 of the SRC. Table 118 shows the reference code format.

Table 118. Reference code format

Word number					
1	2	3	4	5	6
TTTTUUUU	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*
7	8	9	10	11	12
xxxxxxxx	*xxxxxxxx*	*xxxxxxxx*	*xxxxxxxx*	*xxxx*RRRR	*xxxxxxxx*

Key:
TTTT = Reference code type
UUUU = Unit reference code
RRRR = Reason code

- If the reason code is `B08E`, there was a mismatch or parity error in the SMP cables identity on the system processors in the system.
- If the reason code is `F23E`, there was a mismatch on the SMP cables plugged into the system and the number of nodes detected in the system.
- If the reason code is `FB53`, a system processor had an error that might have been caused by a bad SMP cable.

2. Perform the following steps, regardless of the reason code:
   a. Re-plug the SMP cables that connect to the system processors.
   b. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.

Does the problem persist?

- Yes, continue with the next step.
- No, **this ends the procedure.**

3. Replace the SMP cables that connect to the system processors.
4. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
5. Does the problem persist?
   - Yes, continue with the next step.
   - No, **this ends the procedure.**
6. Perform the following for each system processor:
   a. Remove one of the processors using symbolic FRU "ANYPROC" on page 358.
   b. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.

   Does the problem persist?
   - Yes, reinstall the processor you removed and then repeat this step, removing the next processor.
   - No, replace the processor you just removed; it is the failing item. **This ends the procedure.**

FSPSP37

A timeout occurred while waiting for the system processor to access main storage.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Perform the following for each system processor:
   a. Replace one of the system processors using symbolic FRU "ANYPROC" on page 358.
   b. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
   c. Does the problem persist?
      - Yes, continue with the next step.
      - No, **this ends the procedure.**
2. Have you replaced all of the system processors?
   - Yes, continue with the next step.
   - No, repeat step 1 and replace the next processor.
3. Perform the following:
   a. Replace the RIO/HSL adapter card using symbolic FRU "SI_CARD" on page 957.
   b. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
   c. Does the problem persist?
      - Yes, continue with the next step.
      - No, **this ends the procedure.**

4. Perform the following:
   a. Replace the I/O backplane using symbolic FRU “SYSBKPL” on page 964.
   b. Perform a slow boot. See “MAP4820 Performing a slow boot of a processor complex” on page 706.

This ends the procedure.

FSPSP38

The system detected an error within the JTAG path.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Replace the service processor using symbolic FRU “SVCPROC” on page 963.
2. Perform a slow boot. See “MAP4820 Performing a slow boot of a processor complex” on page 706.
3. Does the problem persist?
   - Yes, continue with the next step.
   - No, **this ends the procedure.**
4. Replace the SMP cables.
5. Perform a slow boot. See “MAP4820 Performing a slow boot of a processor complex” on page 706.
6. Does the problem persist?
   - Yes, continue with the next step.
   - No, **this ends the procedure.**
7. Replace the I/O backplane using symbolic FRU “SYSBKPL” on page 964.
8. Perform a slow boot. See “MAP4820 Performing a slow boot of a processor complex” on page 706.

This ends the procedure.

FSPSP39

This procedure will isolate a memory DIMM failure after the memory DIMM FRU failed to correct the problem.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Place the memory DIMM that was replaced by the FRU callout back in its original location.
2. Replace the remaining three memory DIMMs in the same quad as the memory DIMM that was called out.

   DIMM quads:
   - C1, C3, C6, C8 -or-
   - C2, C4, C5, C7

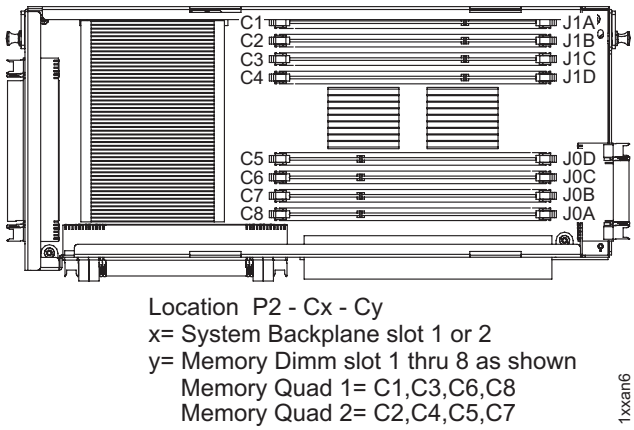


Figure 280. CEC memory DIMM card locations

3. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
4. Does it still fail?
   - Yes, continue with the next step.
   - No, **exit this MAP and close the serviceable event that sent you here**.
5. Replace the system processor card that the DIMM is plugged into.
6. Perform a slow boot. See "MAP4820 Performing a slow boot of a processor complex" on page 706.
7. Does it still fail?
   - Yes, call the next level of support.
   - No, **exit this MAP and close the serviceable event that sent you here**.

This ends the procedure.

FSPSP40

This procedure is a warning due to an invalid login attempt to the service processor.

No replacement action is required, and any other call-outs associated with this error may be disregarded.

FSPSPC1

If the system hangs after the code that sent you to this procedure displays in the control panel, perform these steps to reset the service processor.

1. Reset the service processor card. See "MAP4810 Resetting the service processor card (FSP)" on page 700.
2. Possible failing FRUs are the CEC enclosure service processor card and the VPD card. See "MAP1215 Replace a FRU" on page 488.
3. If the problem persists call your next level of support for assistance. This problem might be resolved by installing the latest version of Licensed Internal Code (LIC).

This ends the procedure.

FSPSPD1

Reset the service processor if the system hangs after the previous displays in the control panel.

1. Reset the service processor card. See "MAP4810 Resetting the service processor card (FSP)" on page 700.
2. If the problem persists call your next level of support for assistance. This problem might be resolved by installing the latest version of Licensed Internal Code (LIC).

This ends the procedure.

FWADIPL

The firmware is unable to complete an operation.

This problem might be resolved by installing the latest version of Licensed Internal Code (LIC). Call your next level of support for assistance.

This ends the procedure.

FWCD1

This section describes the symbolic FRU FWCD1.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

FWCD2

This section describes the symbolic FRU FWCD2.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

FWCONS

This section describes the symbolic FRU FWCONS.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

FWENET

An Ethernet interface is failing.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Replace the part listed in the table below.

Table 119. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	I/O Backplane	Refer to Chapter 34, "Exchanging parts," on page 991.

This ends the procedure.

FWFLASH

The firmware is unable to complete an operation.

This problem might be resolved by installing the latest version of Licensed Internal Code (LIC). Call your next level of support for assistance.

This ends the procedure.

FWFWPBL

The firmware is unable to complete an operation.

This problem might be resolved by installing the latest version of Licensed Internal Code (LIC). Call your next level of support for assistance.

This ends the procedure.

FWIDE1

The media is inaccessible.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Replace the media in the device that is specified by the location code.
2. If the problem is not resolved, replace the device.

This ends the procedure.

FWIDE2

An ATA command failed.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Verify that the signal and power cables are properly attached to the device specified by the location code. If necessary, verify and repair the cables, and then, retry the operation.
2. If the problem persists, the media in the device might not be readable. Remove the media and try another copy.
3. If the problem persists, replace the device specified by the location code.

This ends the procedure.

FWHANG

This section describes the symbolic FRU FWHANG.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

FWHOST

The firmware is unable to complete an operation.

This problem might be resolved by installing the latest version of Licensed Internal Code (LIC). Call your next level of support for assistance.

This ends the procedure.

FWIPIPL

The firmware is unable to complete an operation.

This problem might be resolved by installing the latest version of Licensed Internal Code (LIC). Call your next level of support for assistance.

This ends the procedure.

FWLPAR

Error in open firmware.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. If a location code was reported with the error:
   a. Probing failed for the PCI slot connector. Replace the PCI card in the connector that is specified by the location code. If this does not resolve the problem, replace the backplane on which the slot connector is located.
   b. If you have replaced the PCI card and the backplane and the problem is not resolved, call your next level of support for assistance.
2. If a location code was not reported with the error, the connector was not found. This problem might be resolved by installing the latest version of Licensed Internal Code (LIC). Call your next level of support for assistance.

This ends the procedure.

FWMBOOT

The firmware is unable to complete an operation.

This problem might be resolved by installing the latest version of Licensed Internal Code (LIC). Call your next level of support for assistance.

This ends the procedure.

FWNIM

The firmware is unable to complete an operation.

This problem might be resolved by installing the latest version of Licensed Internal Code (LIC). Call your next level of support for assistance.

This ends the procedure.

FWNVR1

The NVRAM data has been lost and needs to be reestablished. If you have just replaced the Service Processor card or the battery on the Service Processor card, the replacement procedure should have directed you to restore the NVRAM data.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Have you just replaced the Service Processor or the battery in the Service Processor?
   - Yes, go to step 2.
   - No, go to step 3.
2. Did you restore the NVRAM data as part of the remove/replace procedure?
   - Yes, this error can be ignored unless it persists. If it persists, go to step 3.
   - No, complete the remove/replace procedure by restoring the NVRAM data.
3. Replace the part listed in Table 120.

Table 120. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	Service processor	Refer to Chapter 34, "Exchanging parts," on page 991.

This ends the procedure.

FWNVR2

There is a failure detected on the NVRAM hardware.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Replace the part listed in the table below:

Table 121. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	Service processor	Refer to Chapter 34, "Exchanging parts," on page 991.

This ends the procedure.

FWNVR3

This section describes the symbolic FRU FWNVR3.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

FWPCI1

There is an Fcode error on a PCI device.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Call your next level of support for assistance. This problem might be resolved by installing the latest version of Licensed Internal Code (LIC).
2. If no later version of LIC exists:
   a. If the location code identifies a slot, replace the adapter in that slot.
   b. If the location code identifies a backplane, replace the backplane.

This ends the procedure.

FWPCI2

There is a probe error on a PCI device.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Call your next level of support for assistance. This problem might be resolved by installing the latest version of Licensed Internal Code (LIC).
2. If a later version of LIC does not exist:
   a. If the location code identifies a slot, replace the adapter in that slot.
   b. If the problem is not resolved, replace the backplane assembly that contains the slot in which the adapter was plugged.

This ends the procedure.

FWPCI3

There is a bridge error on the PCI device.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Call your next level of support for assistance. This problem might be resolved by installing the latest version of Licensed Internal Code (LIC).
2. If a later version of LIC does not exist:
   a. If the location code identifies a slot:
      1) Replace the adapter in that slot.
      2) If the problem is not resolved, replace the backplane assembly that contains the slot in which the adapter was plugged.
   b. If the location code identifies a backplane, replace the backplane.

This ends the procedure.

FWPCI4

There is a detected error on the partition firmware.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. If a location code is associated with this checkpoint, replace the adapter identified by the location code.
2. If a location code is not specified, contact your next level of support for assistance.

This ends the procedure.

FWPCI5

There is a partition firmware hang problem.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Is a location code associated with this checkpoint?

- Yes, replace the following parts one at a time until the problem is resolved:
  - The FRU identified by the location code.
  - The backplane that contains the slot in which the adapter was plugged.
- No, call your next level of support for assistance.

This ends the procedure.

FWPCI6

1. Determine the failing PCI slot. The last character of the progress code (checkpoint) in which the system is hanging indicates which PCI slot the system was probing at the time the hang occurred. For example, E251 indicates PCI slot 1, E252 indicates slot 2, and so on.
2. For the PCI slot identified by the progress code, perform the following procedure.
3. Power off the failing CEC enclosure to standby (the CEC enclosure control panel green LED slow blinking). Use the **HMC Exchange Part** menu option for the CEC enclosure PCI adapter card for the failing slot.
4. Reseat the adapter in the specified slot, then power up the CEC enclosure by continuing the part replace procedure.

   Does the problem occur again?

   - Yes, go to the next step.
   - No, **this ends the procedure**.

5. Power off the failing CEC enclosure to standby and remove the adapter from the specified slot, then power the CEC enclosure back on.

   Does the problem occur again?

   - Yes, replace the CEC enclosure I/O backplane assembly. Use the **HMC Exchange Part** menu to replace this FRU.
   - No, replace the adapter that you removed. Use the **HMC Exchange Part** menu to replace this FRU.

This ends the procedure.

FWPTR

Values normally found in non-volatile storage that point to the location of an operating system were not found. If you have just replaced the Service Processor card or the Battery on the Service Processor card, the replacement procedure should have directed you to restore the NVRAM data.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Have you just replaced the Service Processor or the Battery in the Service Processor?
   - Yes, go to step 2.
   - No, go to step 3.
2. Did you restore the NVRAM data as part of the remove/replace procedure?
   - Yes, this error can be ignored unless it persists. If it persists, go to step 3.
   - No, complete the remove/replace procedure by restoring the NVRAM data.
3. Replace the part listed in Table 122.

Table 122. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	Service processor	Refer to Chapter 34, "Exchanging parts," on page 991.

This ends the procedure.

FWPWD

This section describes the symbolic FRU FWPWD.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

FWRIPL

This section describes the symbolic FRU FWRIPL.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

FWSCSI1

There is an error in the SCSI hardware.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Is a location code associated with this checkpoint?
   - Yes, go to step 2.
   - No, call your next level of support for assistance.
2. Does the location code identify a disk drive?
   - Yes, replace the disk drive. If the problem is not resolved, replace the backplane for that disk drive.
   - No, go to step 3.
3. Replace the backplane that is specified by the location code.

This ends the procedure.

FWSCSI2

The SCSI disk unit is not ready.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Is a location code associated with this checkpoint?
   - Yes, go to step 2.
   - No, call your next level of support for assistance.
2. Does the location code identify a disk drive?
   - Yes, replace the disk drive. If the problem is not resolved, replace the backplane for that disk drive.
   - No, go to step 3 on page 405.

3. Replace the backplane that is specified by the location code.

This ends the procedure.

FWSCSI3

The SCSI diagnostic command failed.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Is a location code associated with this checkpoint?
   - Yes, go to step 2.
   - No, call your next level of support for assistance.
2. Does the location code identify a disk drive?
   - Yes, replace the disk drive. If the problem is not resolved, replace the backplane for that disk drive.
   - No, go to step 3.
3. Replace the backplane that is specified by the location code.

This ends the procedure.

FWSCSI4

The SCSI command failed.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Is a location code associated with this checkpoint?
   - Yes, go to step 2.
   - No, call your next level of support for assistance.
2. Does the location code identify a disk drive?
   - Yes, replace the disk drive. If the problem is not resolved, replace the backplane for that disk drive.
   - No, go to step 3.
3. Replace the backplane that is specified by the location code.

This ends the procedure.

FWSCSI5

A test unit ready failed on an undetermined SCSI device.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Is a location code associated with this checkpoint?
   - Yes, go to step 2.
   - No, call your next level of support for assistance.
2. Does the location code identify a disk drive?
   - Yes, replace the disk drive. If the problem is not resolved, replace the backplane for that disk drive.
   - No, go to step 3.
3. Replace the backplane that is specified by the location code.

This ends the procedure.

FWSCSIH

Scan SCSI bus for attached devices.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Is a location code associated with this checkpoint?
   - Yes, go to step 2.
   - No, call your next level of support for assistance.
2. Does the location code identify a disk drive?
   - Yes, replace that disk drive. If the problem persists, replace the backplane for that disk drive.
   - No, go to step 3.
3. Replace the backplane that is specified by the location code.

This ends the procedure.

FWVTHMC

The partition firmware is waiting for a virtual terminal to be opened on the management console.

1. Open a virtual terminal.
2. If a virtual terminal is open, the user might have entered a CTRL-S key sequence to stop the scrolling of data off the screen. If this is the case, enter a CTRL-Q key sequence to resume scrolling.
3. Check the Ethernet connection between the management console and the managed system.
4. Reboot the management console.
5. There might be a hardware problem with the management console. Go to "MAP6020 Management console problem determination" on page 768.
6. There might be a hardware problem with the service processor in the managed system. Check the **HMC → Service Focal Point → Manage Serviceable Events**

view for error codes that indicate a problem with the Ethernet ports on the service processor. Take the appropriate actions based on the error codes that you find.

This ends the procedure.

Chapter 20. H Procedures

HMCLIC

Firmware on the Management Console must be replaced.

1. Call your next level of support for assistance.
2. This problem might be resolved by installing the latest version of Licensed Internal Code (LIC).

This ends the procedure.

HMCMTWK

Multiple connections to peer management consoles have been lost.

Note: This SRC and symbolic FRU is not expected on DS8000. Please report this problem to the next level of support. They might have you use the following procedure to isolate the problem.

1. Go to "MAP7000 Entry point for DS8000 private network problems" on page 855; follow the instructions to isolate the failure.
2. Was a problem found?
   - Yes, follow the steps in "MAP7000 Entry point for DS8000 private network problems" on page 855 to repair the failure. **This ends the procedure.**
   - No, go to step 3.
3. Are the peer management consoles with the missing connection present in the topology?
   - Yes, the problem was temporary and has resolved itself. **This ends the procedure.**
   - No, go to step 4.
4. Is the management console that reported the connection errors also reporting a hardware error with a network adapter?
   - Yes, service the network adapter error. **This ends the procedure.**
   - No, go to step 5.
5. Verify that each peer management console with a missing connection is powered on and that its Ethernet connections are secure and functioning. Does the problem persist?
   - Yes, call your next level of support for assistance. **This ends the procedure.**
   - No, **this ends the procedure.**

HMCNTWK

A connection to a peer management console (indicated in the location code) has been lost.

Note: This SRC and symbolic FRU is not expected on DS8000. Please report this problem to the next level of support. They might have you use the following procedure to isolate the problem.

1. Go to "MAP7000 Entry point for DS8000 private network problems" on page 855; follow the instructions to isolate the failure.

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2. Was a problem found?
   - Yes, follow the steps in "MAP7000 Entry point for DS8000 private network problems" on page 855 to repair the failure. **This ends the procedure.**
   - No, go to step 3.
3. Is the peer management console with the missing connection present in the topology?
   - Yes, the problem was temporary and has resolved itself. **This ends the procedure.**
   - No, go to step 4.
4. Is the management console that reported the connection errors also reporting a hardware error with a network adapter?
   - Yes, service the network adapter error. **This ends the procedure.**
   - No, go to step 5.
5. Verify that the management console with a missing connection is powered on and that its Ethernet connections are secure and functioning. Does the problem persist?
   - Yes, call your next level of support for assistance. **This ends the procedure.**
   - No, **this ends the procedure.**

HSL1

This section describes the symbolic FRU HSL1.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

HSL1_UN

This section describes the symbolic FRU HSL1_UN.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

HSL2

This is a RIO-G copper cable at both ends. Diagnostic code cannot determine the length of the cable.

Go to “HSL_LNK” on page 414 and follow the appropriate instructions.

This ends the procedure.

HSL2_01

This section describes the symbolic FRU HSL2_01.

Note:

> This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.
>
> The original eServer system model 570 procedure has been removed.

HSL2_03

This is a CEC enclosure RIO card cable at both ends. The 03 value indicates the cable is 3 meters long.

Go to “HSL_LNK” on page 414 and follow the appropriate instructions.

This ends the procedure.

HSL2_08

This section describes the symbolic FRU HSL2_08.

Note:

> This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.
>
> The original eServer system model 570 procedure has been removed.

HSL2_10

This is a CEC enclosure RIO card copper cable at both ends. The 10 value indicates the cable is 10 meters long.

Go to “HSL_LNK” on page 414 and follow the appropriate instructions.

This ends the procedure.

HSL2_15

This section describes the symbolic FRU HSL2_15.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

HSL2_*xx*

This is a CEC enclosure RIO card cable at both ends. The *xx* value indicates the cable length in meters.

Go to "HSL_LNK" on page 414 and follow the appropriate instructions.

This ends the procedure.

HSLH

This section describes the symbolic FRU HSLH.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

HSLH_06

This section describes the symbolic FRU HSLH_06.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

HSLH_15

This section describes the symbolic FRU HSLH_15.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

HSLH_*xx*

This section describes the symbolic FRU HSLH_*xx*.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

HSL_I

This section describes the symbolic FRU HSL_I.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

HSL_I2

This section describes the symbolic FRU HSL_I2.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

HSL_I3

This section describes the symbolic FRU HSL_I3.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

HSL_I4

This section describes the symbolic FRU HSL_I4.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

HSL_I*x*

This section describes the symbolic FRU HSL_I*x*.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

HSL_LNK

The failing component is a CEC enclosure RIO card connection.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Attention: When a CEC enclosure RIO card cable is disconnected, it might result in a lost connection between the units even after the cable is reconnected. To ensure that this does not happen always replace CEC enclosure RIO card FRUs using the **HMC → Service Actions → Service Focal Point → Serviceable Event** view or use the **Exchange Parts** option.

Note: If question marks (???) appear at the end of the location code, the port could not be determined. Use the location code associated with the other end of

the cable. If question marks appear for both port locations, use the isolation procedures suggested in the Description/Action column of the reference code table for this SRC.

1. If you are working with this symbolic FRU in the FRU list, the failing component is a CEC enclosure RIO connection. The diagnostic code could not determine what kind of hardware was involved. The CEC enclosure RIO hardware can be any of the following:
   - Cable
   - Embedded RIO-G link in a planar
   - RIO-G Adapter card
2. Choose from the following options:
   - If you are working from the serviceable event view, the location code or FRU description in the view will help determine the actual RIO-G hardware to exchange. Continue with the next step.
   - If you are not working from the serviceable event view, or the view does not have a location code or better FRU description, determine the location code of other FRUs ("FRPORT" on page 378 and "TOPORT" on page 966) in the FRU list for the error. Then continue with the next step.
3. Exchange the FRUs at both ends of the link and the cable between the FRUs.
4. If the problem persists call your next level of support.

This ends the procedure.

HSL_OPT

This section describes the symbolic FRU HSL_OPT.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

Chapter 21. I Procedures

I2CBUS

A fault was detected on the I2C bus.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Is the reference code 3114?

- Yes: Replace the I/O backplane.
- No: Continue with the next FRU in the list.

Table 123. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	I/O backplane	Refer to Chapter 34, "Exchanging parts," on page 991

This ends the procedure.

IDPART

A system unit part is failing.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Is the reference code 1*xxx*8430, 8431, or 8432?
   - Yes, go to step 4.
   - No, go to step 2.
2. Is the reference code 1*xxx*840D or 840E?
   - Yes, go to step 3.
   - No, return to the serviceable event and perform the following:
     - If there are additional FRUs, continue with the next one.
     - If there are no additional FRUs, look for other open serviceable events to repair.
     - If there are no other serviceable events, contact your next level of support.

     This ends the procedure.
3. Perform "PWR1917" on page 925 to set the correct configuration ID. **This ends the procedure.**
4. Is the reference code 1*xxx*8430?

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- Yes, verify that the service processor card cable between the CEC enclosures is connected and seated correctly. If the reference code prevails, replace the following, one at a time:
  a. Service processor card cable (see Chapter 34, “Exchanging parts,” on page 991)
  b. System processor backplane assembly -P1 (see Chapter 34, “Exchanging parts,” on page 991)

  This ends the procedure.
- No, go to step 5.

5. Is the reference code 1*xxx*8431?
   - Yes, remove the cable that is not needed for system configuration. If a nonconfigured cable is not present, replace the system backplane (see Chapter 34, “Exchanging parts,” on page 991). **This ends the procedure.**
   - No, go to step 6.
6. Is the reference code 1*xxx*8432?
   - Yes, the number of secondary units is not correct. Go to “PWR1917” on page 925 to check the system configuration. **This ends the procedure.**
   - No, the reference code has changed, go to step 1 on page 417. **This ends the procedure.**

INTIP03

This section describes the symbolic FRU INTIP03.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

INTIP05

This section describes the symbolic FRU INTIP05.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

INTIP07

This section describes the symbolic FRU INTIP07.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

INTIP08

This section describes the symbolic FRU INTIP08.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

INTIP09

This section describes the symbolic FRU INTIP09.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

INTIP14

This section describes the symbolic FRU INTIP14.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

INTIP16

This section describes the symbolic FRU INTIP16.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

INTIP18

This section describes the symbolic FRU INTIP18.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

INTIP20

This section describes the symbolic FRU INTIP20.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

INTIP24

This section describes the symbolic FRU INTIP24.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IO_DEV

This section describes the symbolic FRU IO_DEV.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IO_HUB

The failing component is the RIO-G NIC on the IPL Path.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Replace the FRU listed below.

Table 124. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	I/O backplane	Refer to Chapter 34, "Exchanging parts," on page 991.

This ends the procedure.

IOA

This section describes the symbolic FRU IOA.

You need to determine the field replaceable unit (FRU) part number.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOACNFG

This section describes the symbolic FRU IOACNFG.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOADPTR

This section describes the symbolic FRU IOADPTR.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOBRDG

The failing component is the RIO-G I/O bridge on the IPL path.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Replace the FRU listed below.

Table 125. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	I/O Backplane	Refer to Chapter 34, “Exchanging parts,” on page 991.

This ends the procedure.

IOP

This section describes the symbolic FRU IOP.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP01

This section describes the symbolic FRU IOPIP01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP13

This section describes the symbolic FRU IOPIP13.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP16

This section describes the symbolic FRU IOPIP16.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP17

This section describes the symbolic FRU IOPIP17.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP18

This section describes the symbolic FRU IOPIP18.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP19

This section describes the symbolic FRU IOPIP19.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP20

This section describes the symbolic FRU IOPIP20.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP21

This section describes the symbolic FRU IOPIP21.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP22

This section describes the symbolic FRU IOPIP22.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP23

This section describes the symbolic FRU IOPIP23.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP25

This section describes the symbolic FRU IOPIP25.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP26

This section describes the symbolic FRU IOPIP26.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP27

This section describes the symbolic FRU IOPIP27.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP28

This section describes the symbolic FRU IOPIP28.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP29

This section describes the symbolic FRU IOPIP29.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP30

This section describes the symbolic FRU IOPIP30.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP31

This section describes the symbolic FRU IOPIP31.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP32

This section describes the symbolic FRU IOPIP32.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP33

This section describes the symbolic FRU IOPIP33.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

IOPIP34

This section describes the symbolic FRU IOPIP34.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

Chapter 22. L Procedures

LICCODE

There is a platform LIC failure.

1. Are any other FRUs or procedures listed before LICCODE for this serviceable event or reference code?
   - Yes, try to resolve the problem by replacing those FRUs or performing those procedures first.
   - No, go to step 2.
2. Read the following before taking any action:
   - The root cause of the error that sent you here is most likely due to a hardware error. It is less likely that the problem is due to a code or firmware error.
   - There might be multiple serviceable events for a single error, each for a different aspect of the error. Review all open serviceable events before proceeding.
   - Look for open serviceable events with FRUs that might be related to this problem. It is possible for related FRUs to be outside of the CEC enclosure. For example, the RPC card has a communication interface to the service processor card.
   - The timestamp of the related serviceable event can be before or after the timestamp of the serviceable event that sent you here. For example, an RPC card error might take several minutes to be reported by the managing LPAR, whereas a service processor error might report in less time.
   - The serviceable event with the earliest timestamp might not be the root cause of the error.
   - Check **Retain for any Tips for the SRC** in the serviceable event that sent you here.
   - Contact your next level of support for guidance as needed.

This ends the procedure.

LICIP01

This section describes the symbolic FRU LICIP01.

Note:

> This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.
>
> The original eServer system model 570 procedure has been removed.

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LICIP03

This section describes the symbolic FRU LICIP03.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

LICIP04

This section describes the symbolic FRU LICIP04.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

LICIP07

This section describes the symbolic FRU LICIP07.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

LICIP08

This section describes the symbolic FRU LICIP08.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

LICIP11

This section describes the symbolic FRU LICIP11.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

LICIP12

This section describes the symbolic FRU LICIP12.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

LICIP13

This section describes the symbolic FRU LICIP13.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

LICIP14

This section describes the symbolic FRU LICIP14.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

LICIP15

This section describes the symbolic FRU LICIP15.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

LITSTRP

This section describes the symbolic FRU LITSTRP.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

LOC_SYS

This section describes the symbolic FRU LOC_SYS.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

LPARCFG

There is a configuration problem with a logical partition.

1. Perform any actions listed in the Description/Action column in the unit reference code table for the reference code.
2. If the problem persists. Call your next level of support for assistance. This problem might be resolved by installing the latest version of Licensed Internal Code (LIC).

This ends the procedure.

LPARSUP

This section describes the symbolic FRU LPARSUP.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

LPRIP01

This section describes the symbolic FRU LPRIP01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

LSERROR

This section describes the symbolic FRU LSERROR.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

Chapter 23. M Procedures and MAPs

MA_BRDG

The problem is the multi-adapter bridge hardware on a system bus.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Replace the FRU listed below.

Table 126. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	I/O Backplane	Refer to Chapter 34, "Exchanging parts," on page 991.

This ends the procedure.

MABIP02

This section describes the symbolic FRU MABIP02.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

MABIP03

This section describes the symbolic FRU MABIP03.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

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MABIP04

This section describes the symbolic FRU MABIP04.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

MABIP05

This section describes the symbolic FRU MABIP05.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

MABIP06

This section describes the symbolic FRU MABIP06.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

MABIP07

This section describes the symbolic FRU MABIP07.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

MABIP50

This section describes the symbolic FRU MABIP50.

Complete the following steps:

1. Return to the serviceable event and replace the next FRU in the FRU list.
2. If the list does not include a next FRU, or if replacing the FRU does not repair the problem, look up the serviceable event SRC **Messages and codes** > **System reference codes (SRCs) and firmware codes** > **List of sytem reference codes and firmware codes** and continue with the next item in the Failing Item column.

MABIP51

This section describes the symbolic FRU MABIP51.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

MABIP52

This section describes the symbolic FRU MABIP52.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

MABIP53

This section describes the symbolic FRU MABIP53.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

MABIP54

This section describes the symbolic FRU MABIP54.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

MABIP55

This section describes the symbolic FRU MABIP55.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

MABRCFG

The multi-adapter bridge hardware detected a configuration problem.

This is an unexpected error for this machine type. You should first resolve any other serviceable events on this machine.If this problem persists, call your next level of support.

This ends the procedure.

Support Information

The following is the information from the eServer product on which this machine is based. This information might be of use to your support engineer.

Note: This is background information for support use only. It is not necessarily applicable to this machine.

The multi-adapter bridge hardware detected a configuration problem.

In some cases, the user interface view of the serviceable event will list more than one card position for the location of this FRU. The problem might be with any one of the FRUs in those locations. When there is a list of locations in the location code for this FRU, the card locations will be separated by commas. A range of card positions will show the starting card position, a colon, and the ending card position.

1. Are you working from the service event user interface from an operating system, service processor, or the management console and are there card positions listed with this failing item?
   - Yes, the listed card positions are where the error is located. Continue with the next step.
   - No, go to "MABIP53" on page 437 to determine the card location where the multi-adapter bridge configuration error exists. Return here after locating the card, and continue with the next step.
2. Use the following table to determine the corrective action.

Table 127. Multi-adapter bridge errors

Problem or message (these appear in uppercase in the console)	**Meaning or corrective action**
Multi-adapter bridge has no IOP for the I/O adapters.	1. The system code detected one or more I/O adapters under the multi-adapter bridge specified in the DSA. There are no I/O processors to control them. The I/O adapters are not available to the system. The problem view lists the card locations controlled by the multi-adapter bridge. If you do not have the card locations listed in the problem view, find them by continuing with the next step. Otherwise, go to step 3. 2. To locate the I/O adapters, search for the card locations controlled by the multi-adapter bridge. The multi-adapter bridge number is in the DSA (see "DSA translation"). See "Card positions" to determine all the card locations controlled by the multi-adapter bridge. 3. To make the I/O adapters available to the system, install an I/O processor in a card slot controlled by the multi-adapter bridge or move the I/O adapters to a multi-adapter bridge with an I/O processor. When adding an IOP, place it in a card position that is ahead of the IOAs according to the "IOA Assignment Rules" table located in "Finding part locations" for the frame type on which you are working.
Card type not supported in this slot.	The system code detected a card type that is not supported in the multi-adapter bridge card location in which it is installed. Move the card to a location that will support that card type (check the installation instructions for the card to determine which card locations can support it). For reference codes where word 1 is B6006964 and word 4 is *xxxx* 2015, if the SAL does not show a card position for this error, then the card position can be determined by creating a Direct Select Address (DSA) from information in the reference code. To create the DSA, use the first 5 digits of word 7 and the 6th digit of word 5 followed by two zeros. Using this DSA, perform "MABIP53" on page 437 to determine the position of the card that is not supported in that slot.
I/O processor removed from multi-adapter bridge card slot.	The system code detected that an I/O processor card was located in that card location on the previous IPL. The I/O processor is no longer installed in that location.

Table 127. Multi-adapter bridge errors (continued)

Problem or message (these appear in uppercase in the console)	Meaning or corrective action
I/O adapter unavailable due to moved I/O processor card.	The system code detected that the I/O processor which controlled the I/O adapter card specified in the DSA has been moved since the last IPL. The I/O adapter card is unavailable to the system.
IOA removed from multi-adapter bridge slot.	The system code detected that the card location specified in the DSA had an I/O adapter installed on the previous IPL. The I/O adapter is no longer installed in that card location.
I/O adapter replaced by I/O processor card.	The system code detected that the card location specified in the DSA had an I/O adapter installed on the previous IPL. The I/O adapter has been replaced by an I/O processor.
Multi-adapter bridge configuration change or error.	The system code detected a change in the multi-adapter bridge configuration or a configuration error since the last IPL.
PCI I/O processor rejected assignment or removal of an IOA.	The I/O processor's (IOP) Licensed Internal Code (LIC) rejected the assignment of an I/O adapter (IOA) to that IOP, or the IOP's LIC has rejected the removal of an IOA that the IOP owns. Word 5 of the reference code is the Direct Select Address (DSA) of the IOP. Word 7 of is the DSA of the IOA. To find the IOP and IOA, go to "MABIP53" on page 437 using the DSA. Use Hardware Service Manager (HSM) concurrent maintenance functions to assign or remove the IOA. See "Hardware Service Manager" for details. Assignment failures can result from either of the following conditions: • The IOP is already at its capacity to accept IOA assignments. • The IOA is not a type supported by the IOP. Corrective action: • Add another IOP for LIC to assign the IOA to if necessary. • Reassign the IOA to another IOP using concurrent maintenance. Removal failures: • This is a LIC problem and should be reported. • Call your next level of support.
Linux-owned slot - no IOP is allowed.	An IOP card was found in a PCI bridge set that is allocated to a Linux® partition. The IOP will not be supported in this card position.

This ends the procedure.

MAILBOX

Connection monitoring errors have been detected, indicating mailbox failures.

Are there any B1*xxxxxx* or B7*xxxxxx* SRCs from the system?

• Yes, follow the service action for the first SRC that is listed.

- No, call your next level of support for assistance. This problem might be resolved by installing the latest version of Licensed Internal Code (LIC).

This ends the procedure.

MAP0xxx range

MAP0020 Problem determination procedure

All storage facility repair activity should be started from Chapter 1, "Start here," on page 1. If you have not started from that procedure, go there now and start from the section "Analyze and repair problems" on page 2. If you did start from that section and the analysis procedures produced an SRN, then follow the steps below.

MAP0020 Section-1

1. Are there any open serviceable events related to the failing CEC?
   - Yes, fix the related problem; then return to the procedure that sent you to the SRN list.
   - No, go to step 2.
2. Was more than one SRN or error code produced by the procedure that sent you here?
   - Yes, go to step 3.
   - No, contact your next level of support.
3. Multiple SRNs and error codes should be handled in the following order:
   a. 8-Digit Error Codes.
   b. SRNs with a source code other than F or G.
   c. SRNs with a source code of F.
   d. SRNs with a source code of G.

   Note: The priority for multiple SRNs with a source of G is determined by the time stamp of the failure. Follow the action for the SRN with the earliest time stamp first.

   Perform the repair action for the highest priority SRN or error code in the order shown in the list above.
4. Have all other SRNs and error codes been repaired?
   - Yes, contact your next level of support.
   - No, perform the repair action for the next SRN or error code in the list.

MAP0050 SCSI bus problems

Use this MAP to analyze problems with a SCSI bus.

All storage facility repair activity should be started from Chapter 1, "Start here," on page 1. If you have not started from that procedure, go there now and start from the section "Analyze and repair problems" on page 2. If you did start from that section and the analysis procedures produced an SRN, follow the steps below.

Repair actions must always be managed from the management console. To replace any FRU(s) identified in this procedure, use the HMC **Service Applications** → **Service Focal Point** option. If the FRU(s) are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Before starting the following procedure, repair any serviceable events for CEC enclosure power problems.

MAP0050 Section-1

1. Is the disk drive backplane assembly securely plugged into the CEC enclosure I/O backplane assembly?
   - Yes, go to 2.
   - No, use the **Service Focal Point → Exchange Parts** option to remove and replace the disk drive enclosure. If the problem persists, go to 2.
2. Is more than one CEC disk drive failing?

   Note: Use any location code information that may be displayed or provided with the error code. If none is provided, there may be information in the hardware error logs that is accessible by the next level of support.
   - Yes, go to step 4.
   - No, go to step 3.
3. Replace the failing CEC disk drive. Is the problem resolved?
   - Yes, go to "MAP1500 Ending a service action" on page 546.
   - No, go to step 4.
4. Replace the disk drive backplane assembly that contains the failing disk drive. Is the problem resolved?
   - Yes, go to "MAP1500 Ending a service action" on page 546.
   - No, go to step 5.
5. Replace the CEC enclosure I/O backplane assembly that the disk drive enclosure is connected to. Is the problem resolved?
   - Yes, go to "MAP1500 Ending a service action" on page 546.
   - No, contact your next level of support.

MAP0054 PCI-X SCSI bus problems

Use this MAP to analyze problems with a SCSI bus.

MAP0054 Section-1

1. Go to "MAP0050 SCSI bus problems" on page 441.

MAP0210 General problem resolution

Use this procedure to exchange the FRUs in the order of their failure probability.

All storage facility repair activity should be started from Chapter 1, "Start here," on page 1. If you have not started from that procedure, go there now and start from the section "Analyze and repair problems" on page 2. If you did start from that section and the analysis procedures produced an SRN, then follow the steps below.

MAP0210 Section-1

1. Did the serviceable event provide a part number for the FRU you are about to replace?
   - Yes, go to step 3.
   - No, go to step 2.
2. Find the failing function codes in the "Failing function code list" on page 1843. Use this list to help you find the part number of each FRU.
3. Obtain the replacement part.

4. Replace the FRU. If the FRU is listed in the serviceable event that sent you here, use the serviceable event FRU replace to continue the repair. If the FRU is not listed in the serviceable event FRU list, use the HMC **Service Focal Point → Exchange Parts** option to select and replace the FRU.

MAP0260 System hangs during resource configuration

This MAP handles problems when the system unit hangs while configuring a resource.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Important: All storage facility repair activity should be started from Chapter 1, "Start here," on page 1. If you have not started from that procedure, go there now and start from the section "Analyze and repair problems" on page 2. If you did start from that section and the analysis procedures produced an SRN, follow the steps below.

MAP0260 Section-1

1. The last three or four digits of the SRN following the dash (-) match a failing function code number.
   a. Look at the Failing Function Code List and find the failing function code that matches the last three or four digits of your SRN, following the dash.
   b. Record the FRU part number and description (use the first FRU part listed when multiple FRUs are listed).
   c. Find the location code of that device.
   d. Go to step 2.
2. Are there any FRUs attached to the device described by the physical location code? (For example a location code like P1-T12 will have devices P1-T12-L3, P1-T12-L4 and P1-T12-L5 attached to it).
   - Yes, go to step 3.
   - No, go to step 6.
3. Remove the first attached device described in the location code. Go to step 4.
4. Does the system still hang after it is removed?
   - Yes, replace the device that you just removed and then go to step 5.
   - No, replace the removed device with a new FRU. Go to "MAP1500 Ending a service action" on page 546.
5. Have you replaced the last attached device?
   - Yes, go to step 6.
   - No, remove the next attached device described in the location code and go to step 4.
6. Replace the FRU indicated by the location code recorded in step 1 with a new FRU. Does the system still hang after it is replaced?
   - Yes, contact your next level of support.
   - No, go to "MAP1500 Ending a service action" on page 546

MAP0270 SCSI RAID problem resolution and verification

Use this MAP to resolve SCSI RAID adapter, cache, or drive problems.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Important: All storage facility repair activity should be started from Chapter 1, "Start here," on page 1. If you have not started from that procedure, go there now and start from the section "Analyze and repair problems" on page 2. If you did start from that section and the analysis procedures produced an SRN, follow the steps below.

MAP0270 Section-1

1. Replace the first part listed under Failing Function Code for the SRN. Then go to step 2.
2. Is the problem resolved?
   - Yes, go to "MAP1500 Ending a service action" on page 546.
   - No, go to step 3.
3. Are more parts listed under Failing Function Code for the SRN.
   - Yes, replace the next part in the list then go to step 2.
   - No, go to step 4.
4. Are other SRNs or error codes produced by the procedure that sent you here?
   - Yes, complete the repair operation by performing the repair actions for those codes.
   - No, contact your next level of support.

MAP0280 Console and Keyboard Problem Resolution

This is an unexpected SRN for the storage facility. The storage facility does not have a console or keyboard attached to the CEC enclosure. The CEC enclosure I/O backplane assembly might have an error that is reporting as a console or keyboard problem.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Important: All storage facility repair activity should be started from Chapter 1, "Start here," on page 1. If you have not started from that procedure, go there now and start from the section "Analyze and repair problems" on page 2. If you did start from that section and the analysis procedures produced an SRN, follow the steps below.

MAP0280 Section-1

1. Are there any open serviceable events related to the failing CEC?
   - Yes, fix the related problem; then return to the procedure that sent you to the SRN list.
   - No, go to the next step.
2. Replace the CEC enclosure I/O backplane assembly. See "Exchange the CEC enclosure I/O backplane assembly" on page 1093. Is the problem resolved?
   - Yes, go to "MAP1500 Ending a service action" on page 546.

- No, contact your next level of support.

MAP0290 Missing Resource Problem Resolution

Use this MAP to handle problems when a resource is not detected by the diagnostics.

All storage facility repair activity should be started from Chapter 1, "Start here," on page 1. If you have not started from that procedure, go there now and start from the section "Analyze and repair problems" on page 2. If you did start from that section and the analysis procedures produced an SRN, then follow the steps below.

1. Are there any open serviceable events related to the failing CEC?
   - Yes, fix the related problem; then return to the procedure that sent you to the SRN list.
   - No, go to the next step.
2. Was more than one SRN or error code produced by the procedure that sent you here?
   - Yes, go to the next step.
   - No, contact your next level of support.
3. Multiple SRNs and error codes should be handled in the following order:
   a. 8-Digit Error Codes.
   b. SRNs with a source code other than F or G.
   c. SRNs with a source code of F.
   d. SRNs with a source code of G.

   Note: The priority for multiple SRNs with a source of G is determined by the time stamp of the failure. Follow the action for the SRN with the earliest time stamp first.

   Perform the repair action for the highest priority SRN or error code in the order shown in the list above. Have all other SRNs and error codes been repaired?
   - Yes, contact your next level of support.
   - No, perform the repair action for the next SRN or error code in the list.

MAP0291 Missing device or bus problem resolution

Use this MAP when a bus or device (such as a disk drive) is reported as a missing resource by the diagnostics.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Important: All storage facility repair activity should be started from Chapter 1, "Start here," on page 1. If you have not started from that procedure, go there now and start from the section "Analyze and repair problems" on page 2. If you did start from that section and the analysis procedures produced an SRN, follow the steps below.

MAP0291 Section-1

1. Are there any open serviceable events related to the failing CEC?

- Yes, fix the related problem; then return to the procedure that sent you to the SRN list.
- No, go to the next step.

2. Replace the first part listed under Failing Function Code for the SRN. Then go to step 3.
3. Is the problem resolved?
   - Yes, go to "MAP1500 Ending a service action" on page 546.
   - No, go to step 4.
4. Are more parts listed under Failing Function Code for the SRN?
   - Yes, replace the next part in the list and then return to step 3.
   - No, go to the next step.
5. Are other SRNs or error codes produced by the procedure that sent you here?
   - Yes, complete the repair operation by performing the repair actions for those codes.
   - No, contact your next level of support.

MAP1xxx range

Use this section for general isolation procedures.

MAP1100 View storage facility state (end of call)

A new all-in-one service utility function is now available to display the storage facility state, similar to the 2105 End of Call.

MAP1100 Section-1

1. Display the storage facility state using one of the following methods:
   - View all status for the storage facility, go to step 2.
   - View the status for one resource type, go to step 4 on page 448.
2. View the storage facility state (end of call).
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Service Applications** → **Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   d. Select the storage facility.
   e. On the main menu (top toolbar), click **Selected** → **View Resources State**.
   f. After several minutes, a window displays the status (passed/failed) of 25 or more system checks. See Figure 281 on page 447.
   g. To display further details, select a row and click **Details**.
   h. To display more information, go to step 3 on page 447.

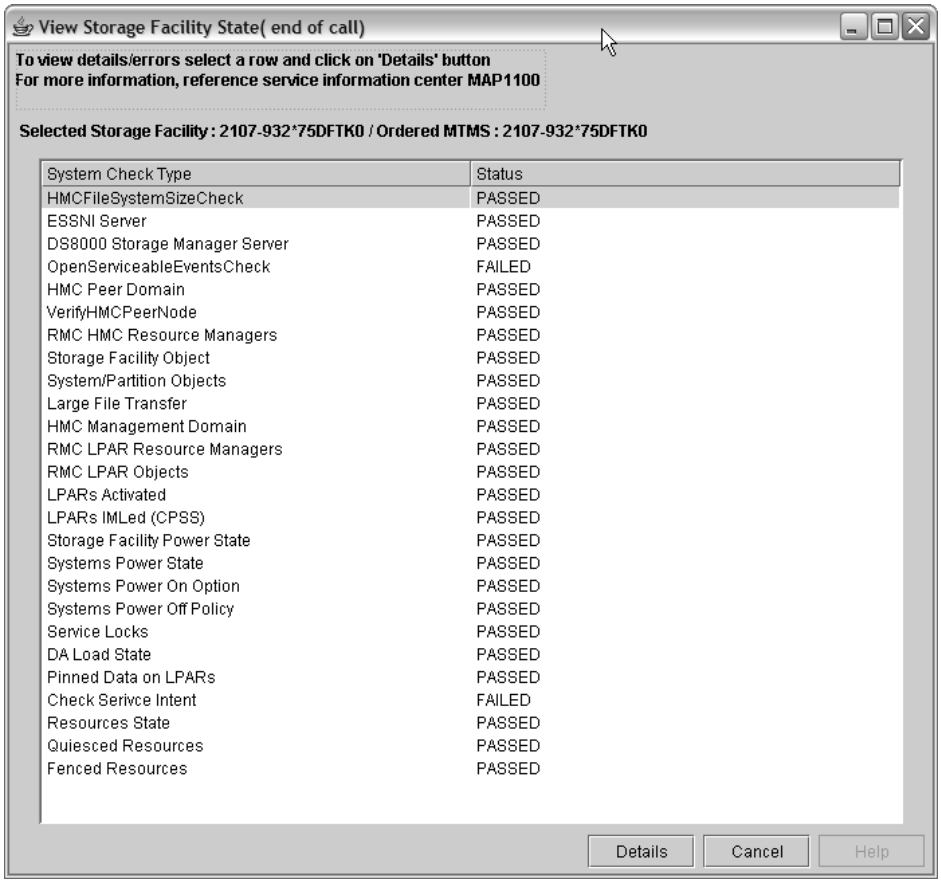


Figure 281. Window: View Storage Facility State

3. View the status for one resource. See Table 128.

Table 128. Storage facility state display MAP1100 section descriptions

System resource	Go to
HMCFileSystemSizeCheck	"MAP1100 Section-2, HMCFilesystemSizeCheck" on page 449
ESSNI Server	"MAP1100 Section-3, ESSNI Server" on page 449
DS8000 Storage Manager Server	"MAP1100 Section-4, DS8000 Storage Manager Server" on page 450
OpenServiceableEventsCheck	"MAP1100 Section-5, OpenServiceableEvents Check" on page 450
HMC Peer Domain	"MAP1100 Section-6, HMC Peer Domain" on page 451
VerifyHMC PeerNode	"MAP1100 Section-7, Verify HMC Peer Node" on page 451
RMC HMC Resource Managers	"MAP1100 Section-8, RMC HMC Resource Managers" on page 451
Storage facility Object	"MAP1100 Section-9, Storage Facility Object" on page 452
System/Partition Objects	"MAP1100 Section-10, System/Partition Object" on page 453

Table 128. Storage facility state display MAP1100 section descriptions (continued)

System resource	Go to
Large File Transfer	"MAP1100 Section-11, Large File Transfer" on page 454
HMC Management Domain	"MAP1100 Section-12, HMC Management Domain" on page 454
RMC LPAR Resource Managers	"MAP1100 Section-13, RMC LPAR Resource Managers" on page 455
RMC LPAR Objects	"MAP1100 Section-14, RMC LPAR Objects" on page 456
LPARs Activated	"MAP1100 Section-15, LPARs Activated" on page 457
LPARs IMLed (CPSS)	"MAP1100 Section-16, LPARs IMLed (CPSS)" on page 458
Storage Facility Power State	"MAP1100 Section-17, Storage Facility Power State" on page 458
Systems Power State	"MAP1100 Section-18, Systems Power State" on page 459
Systems Power On Option	"MAP1100 Section-19, Systems Power on Option" on page 460
Systems Power Off Policy	"MAP1100 Section-20, Systems Power Off Policy" on page 460
Service Locks	"MAP1100 Section-21, Service Locks" on page 461
DA Load State	"MAP1100 Section-22, DA Load State" on page 461
Pinned Data on LPARs	"MAP1100 Section-23, Pinned Data on LPARs" on page 462
Service Intent	"MAP1100 Section-24, Service Intent" on page 463
Resource State	"MAP1100 Section-25, Resources State" on page 464
Quiesced Resources	"MAP1100 Section-26, Quiesced Resources" on page 464
Fenced Resources	"MAP1100 Section-27, Fenced Resources" on page 465

4. View the status for one resource type. See Table 129.

Table 129. MAP1100 section descriptions

Resource	Go to
Storage Facility power state	"MAP1100 Section-29, Storage Facility Power State" on page 466
CEC enclosure - two in each Storage Facility	"MAP1100 Section-30, CEC enclosure" on page 467
Storage Facility Partitions - one per SF System on 921/922 or 931/932, two per SF System on 9A2/9B2	"MAP1100 Section-31, Storage Facility Partitions" on page 467
Storage Facility Image LPAR (referred to as Server) - two per SFI	"MAP1100 Section-32, Storage Facility Image LPARs" on page 467

Table 129. MAP1100 section descriptions (continued)

Resource	Go to
Storage Facility Image (one in Model 921/922 or 931/932, two in Model 9A2/9B2)	"MAP1100 Section-33, Storage Facility Images" on page 468
Host Adapter card / HA card	"MAP1100 Section-35, Host Adapters and Ports" on page 469
Host Adapter port / HA port	"MAP1100 Section-35, Host Adapters and Ports" on page 469
Device Adapter	"MAP1100 Section-36, Device Adapter" on page 470
Rack Power system (RPC cards, PPS, rack batteries)	"MAP1100 Section-37, Display Rack Power System Resources" on page 470
DDM	"MAP1100 Section-38, DDMs State" on page 470
FCIC card	"MAP1100 Section-39, FCIC Card State" on page 471

MAP1100 Section-2, HMCFilesystemSizeCheck

1. Figure 282 is an example of the detail window for the HMCFileSystemSizeCheck (in this example, an error condition is not shown).

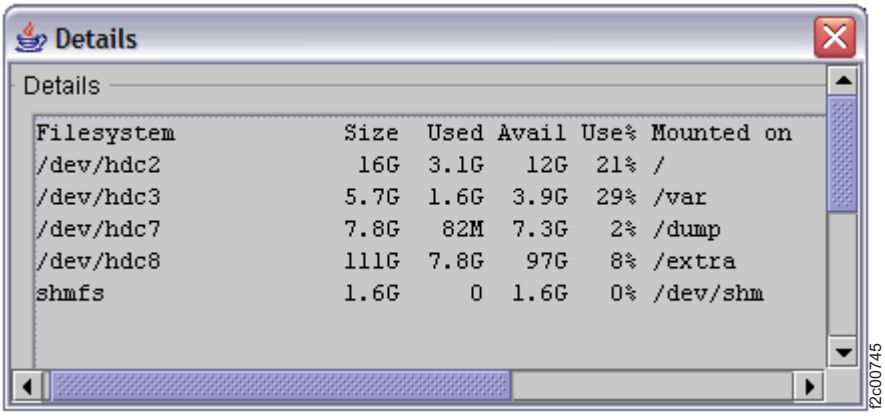


Figure 282. Window: HMCfilesystemSizeCheck details

2. **Description**: Most likely one of the file systems on the HMC boot drive is more than 95% full. Normally the file system size is automatically managed and kept to a proper size. The detail window might show which file system is almost full.
3. **Action**: Contact your next level of support. The next level of support must dial in to remove the files that have filled the file system.

MAP1100 Section-3, ESSNI Server

1. Figure 283 on page 450 is an example of the detail window for the ESSNI Server (in this example, an error condition is not shown).

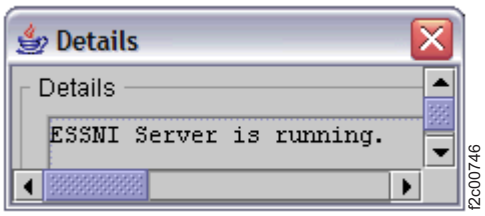


Figure 283. Window: ESSNI server details

2. **Description**: The ESSNI Server is not running.
3. **Action**: Start the ESSNI Server. See "MAP1120 ESSNI server, displaying the state, start, and stop" on page 474.

MAP1100 Section-4, DS8000 Storage Manager Server

1. Figure 284 is an example of the detail window for the DS8000 Storage Manager server (in this example, an error condition is not shown).

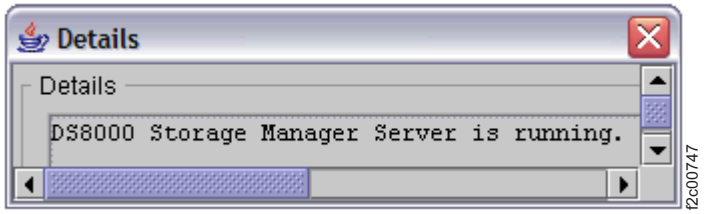


Figure 284. Window: DS8000 Storage Manager server details

2. **Description**: The DS8000 Storage Manager server is not running.
3. **Action**: Start the DS8000 Storage Manager server. See "MAP1140 DS Storage Manager server, displaying the state, start, and stop" on page 476.

MAP1100 Section-5, OpenServiceableEvents Check

1. Figure 285 is an example of the detail window for the open serviceable event details.

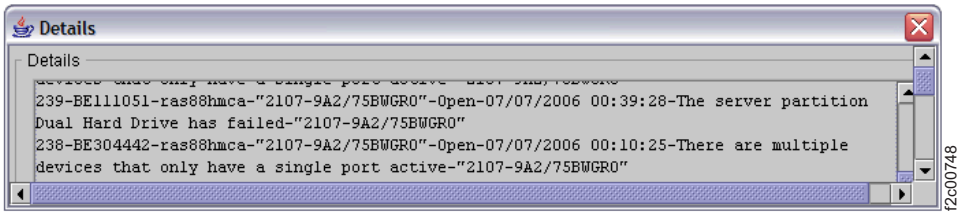


Figure 285. Window: Open serviceable events details

2. **Description**: One or more open serviceable events have been found.
3. **Action**: Display and repair the open serviceable events. See "MAP1220 Management console GUI menu structure" on page 490.

MAP1100 Section-6, HMC Peer Domain

1. Figure 286 is an example of the detail window for the HMC peer domain (in this example, an error condition might not be shown).



Figure 286. Window: HMC peer domain details

2. **Description**: Check if there is an HMC peer domain present and online.
3. **Action**: Contact your next level of support. (The condition might have already called home if the code level that is installed has Health Check.
4. **For the next level of support only:** The command `:/usr/sbin/rsct/bin/lsrpdomain` is run and is looking for the HMC peer domain named `hmcpeer` to be online. If hmcpeer does not exist, this usually indicates that the DS8000 management console (HMC) extensions code is not properly installed.

MAP1100 Section-7, Verify HMC Peer Node

1. Figure 287 is an example of the detail window for the HMC peer node (in this example, an error condition is not shown).

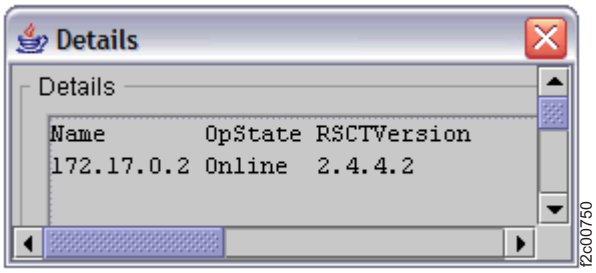


Figure 287. Window: HMC peer node details

2. **Description**: An HMC node IP address that is expected to be online was found offline.
3. **Action**: Display and repair any open serviceable events that are related to the private networks. If there are none, contact your next level of support. The next level of support must dial in to repair this condition.
4. **For next level of support only**: The command `:/usr/sbin/rsct/bin/lsrpdomain` is run and is looking for the IP address to be "Online" for each active HMC in this storage plex.

MAP1100 Section-8, RMC HMC Resource Managers

1. Figure 288 on page 452 is an example of the detail window for the RMC HMC resource managers (in this example, an error condition is not shown).

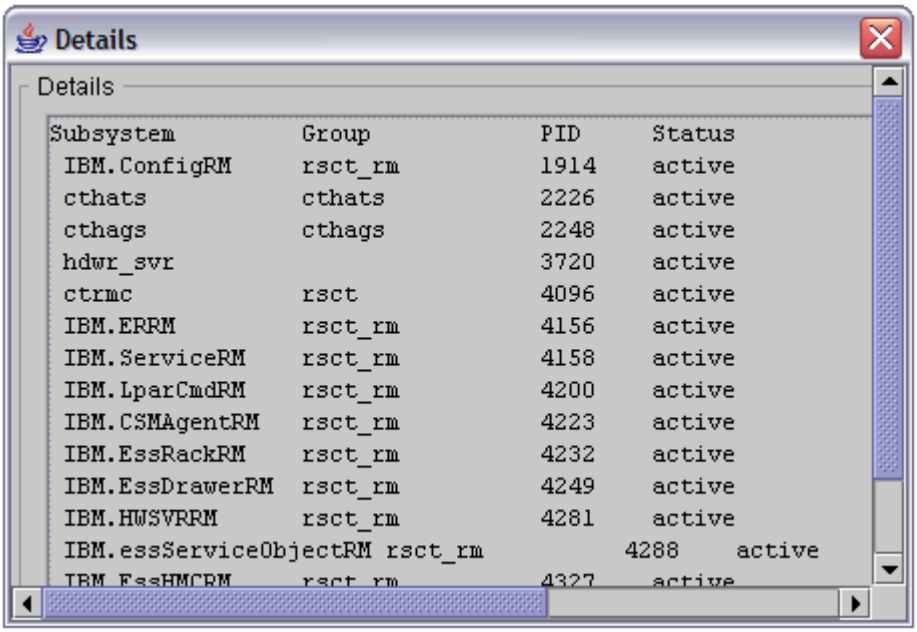


Figure 288. Window: RMC HMC resource managers details

2. **Description**: One or more resource managers were found inactive.
3. **Action**: Contact your next level of support. The next level of support must dial in to repair this condition.
4. **For next level of support only**: The command `:/var/esshmc/log/lssrc -a` is run and looks for active status for the following:
   - IBM.ConfigRM
   - ctrmc
   - IBM.ServiceRM
   - IBM.DMSRM
   - IBM.EssDrawerRM
   - IBM.EssHMCRM
   - IBM.EssStoragePlexRM
   - IBM.EssSystemRM
   - IBM.EssRackRM
   - IBM.essServiceObjectRM
   - IBM.LparCmdRM

MAP1100 Section-9, Storage Facility Object

1. Figure 289 on page 453 is an example of the detail window for the storage facility object (in this example, an error condition is not shown).

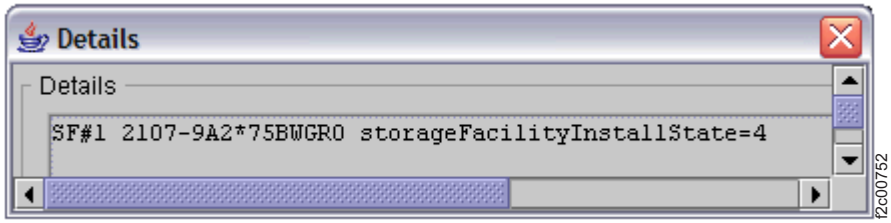


Figure 289. Window: Storage facility object details

2. **Description**: The status of the storage facility install state is not ″installed″
3. **Action**: Ensure that the storage facility is complete, if this fails, contact your next level of support. The next level of support must dial in to repair this condition.
4. **For next level of support only**: The IBM.EssStorageFacility object for the storageFacilityInstallState must be 4 (installed). If this value is not 4, the check fails. See Table 130 for the storage facility states that are possible:

Table 130. Storage facility states

State	Meaning
0	New hardware
1	Hardware Ready
2	Ready for SFI Genesis
3	Ready for field install
4	Field install complete
5	Error

MAP1100 Section-10, System/Partition Object

1. Figure 290 is an example of the detail window for the System/partition object (in this example, an error condition is not shown).

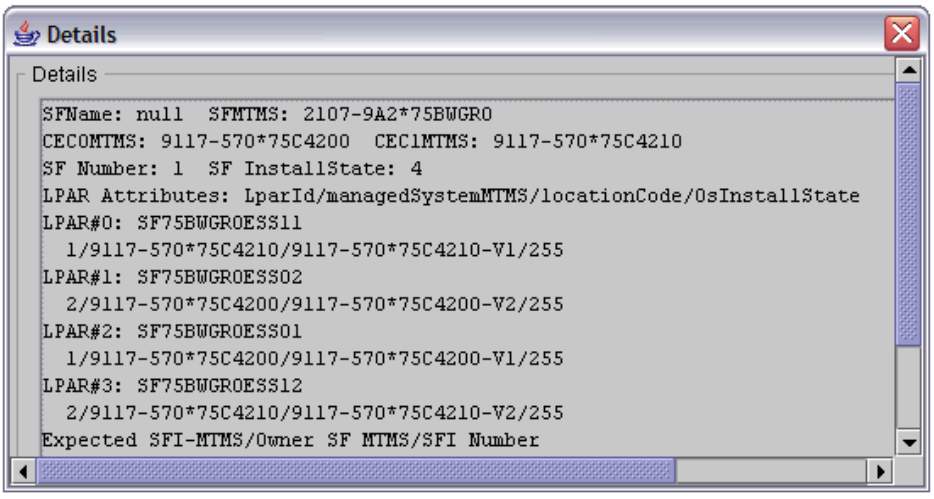


Figure 290. Window: System/partition object details

2. **Description**: The storage facility install state status is not showing as installed.

3. **Action**: Contact your next level of support. The next level of support must dial in to repair this condition.
4. **Next level of support only**:
   a. Check the IBM.EssStorageFacilitySystem objects on HMC. This verifies the number of CECs and checks for consistency of CEC MTMS between IBM.EssStorageFacility and IBM.EssStorageFacility System.
   b. Check IBM.EssStorageFacilityPartition objects on HMC to validate number of partitions.

MAP1100 Section-11, Large File Transfer

1. Figure 291 is an example of the detail window for large file transfers (in this example, an error condition is not shown).

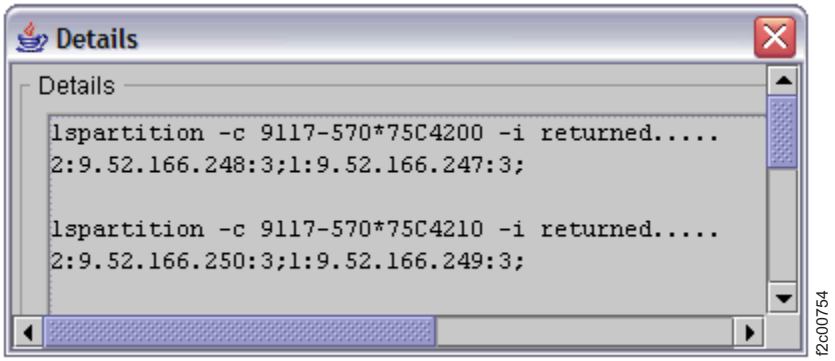


Figure 291. Window: Large file transfer details

2. **Description**: A partition state was found to not be Active.
3. **Action**: Contact your next level of support. The next level of support must dial in to repair this condition.
4. **Next level of support only**: The command `-/opt/hsc/bin> lspartion -all` is run and the following output is checked for the Active state to be 3: `<#0> Partition:<1,ras22c1lpar.storage.usca.ibm.com, 9.52.166.121> Active:<3>, OS:<AIX>, 5.3>`

MAP1100 Section-12, HMC Management Domain

1. Figure 292 on page 455 is an example of the detail window for the HMC management domain (in this example, an error condition is not shown).

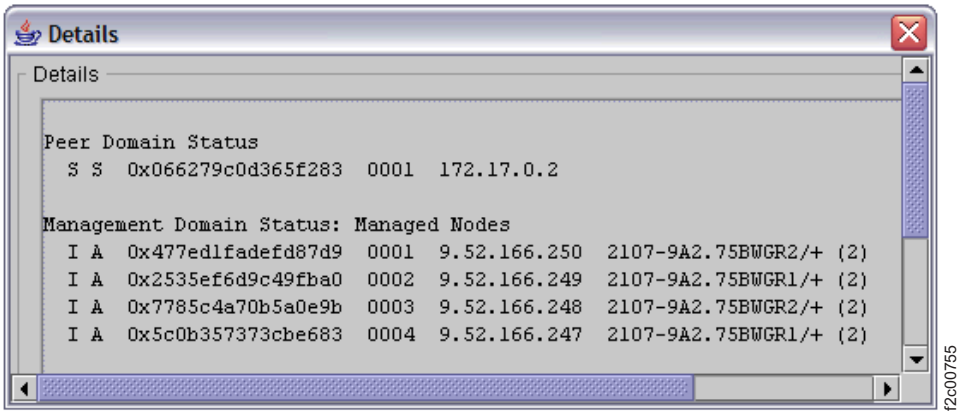


Figure 292. Window: HMC management domain details

2. **Description**: A problem with the status of the HMC private networks has been detected.
3. **Action**: Display and repair any open serviceable events that are related to the private networks. If there are none, run the HMC network topology tool and look for any node problems that must be repaired. See "MAP7001 Using the network topology tool" on page 862. If there are no problems with the topology, contact your next level of support. The next level of support must dial in to repair this condition.
4. **Next level of support only**: The command `-/usr/sbin/rsct/bin # /usr/sbin/rsct/bin/rmcdomainstatus -s ctrmc` was run. The following is an example of the output that is displayed:

```
Management Domain Status: Managed Nodes
 I A  0xffdbc04234edc7c6  0002  9.43.250.171  2107-921.7516361/+ (2)
 I A  0xb040e7641b08303d  0001  9.43.250.169  2107-921.7516361/+ (2)
```

   The nodes that are managed the HMC are displayed. These nodes are the LPARs of the SFIs.

   Note: When the management domain is completely operational and there are no communication issues, the SFI MTMS is displayed in the last column under Management domain.

MAP1100 Section-13, RMC LPAR Resource Managers

1. Figure 293 on page 456 is an example of the detail window for the RMC LPAR resource managers (in this example, an error condition is not shown).

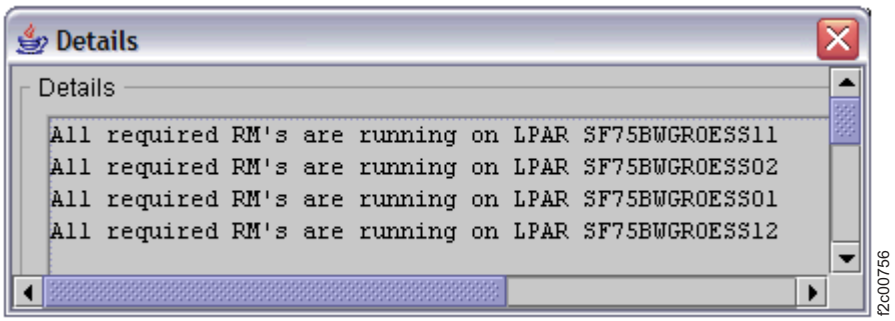


Figure 293. Window: RMC LPAR resource managers details

2. **Description**: One or more resource managers are not active.
3. **Action**: Contact your next level of support. The next level of support must dial in to repair this condition.
4. **Next level of support only**: The command `:/var/esshmc/log/lssrc -a` is run and looks for active status for the following resource managers:
   - IBM.ConfigRM
   - ctrmc
   - IBM.ServiceRM
   - IBM.CSMAgentRM
   - IBM.essServerRM
   - IBM.essLPARServicesRM
   - IBM.essSADevicesRM
   - IBM.EssSAHARM
   - IBM.essHostAgentRM
   - IBM.essStorageAgentRM
   - IBM.HostRM
   - IBM.DRM

MAP1100 Section-14, RMC LPAR Objects

1. Figure 294 on page 457 is an example of the detail window for the RMC LPAR objects (in this example, an error condition is not shown).

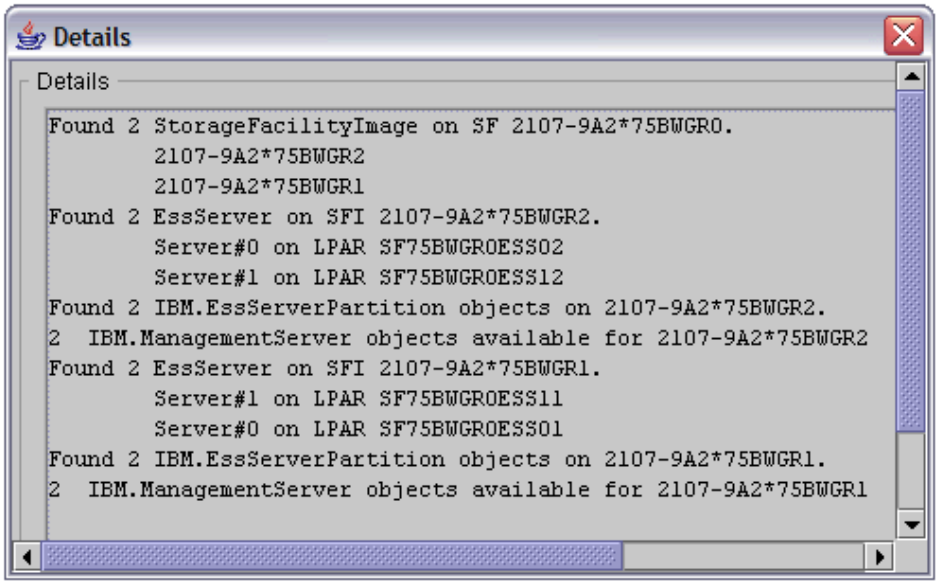


Figure 294. Window: RMC LPAR object details

2. **Description**: A code internal communication problem has occurred.
3. **Action**: Contact your next level of support. The next level of support must dial in to repair this condition.
4. **Next level of support only**: The code checks for any communication problems when trying to access the following objects:
   - IBM.EssStorageFacilityImage
   - IBM.Essserver
   - IBM.EssserverPartition
   - IBM.EssManagementServer

   The details view indicates the location of the problem.

MAP1100 Section-15, LPARs Activated

1. Figure 295 is an example of the detail window for the LPARs that are activated (in this example, an error condition is not shown).

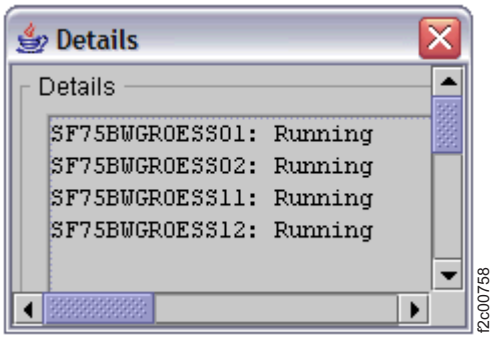


Figure 295. Window: LPARs activated details

2. **Description**: An LPAR does not have a status of running.

3. **Action**: Display and repair any open serviceable events that are related to the CEC enclosures. If there are none, contact your next level of support. The next level of support must dial in to repair this condition.
4. **Next level of support only**: The command `/opt/hsc/bin/lssyscfg -r lpar -m <MTMS like 9117-570*100096A> -F state,name` is run and checks for each LPAR to have "Running" status.

MAP1100 Section-16, LPARs IMLed (CPSS)

1. Figure 296 is an example of the detail window for the LPARs IMLed (CPSS) (in this example, an error condition is not shown).

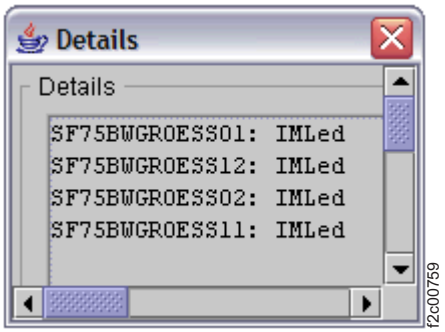


Figure 296. Window: LPARS IMLed (CPSS) details

2. **Description**: An LPAR has status other than "IMLed".
3. **Action**: Display and repair any open serviceable events that are related to the CEC enclosures. If there are none, contact your next level of support. The next level of support must dial in to repair this condition.
4. **Next level of support only**: Check the `/usr/lpp/searas/bin/queryIMLCompleteState` on each IBM.EssServer (each LPAR) object. If anything other than 0 is returned, the LPAR status is other than IMLed.

MAP1100 Section-17, Storage Facility Power State

1. Figure 297 is an example of the detail window for the storage facility power state (in this example, an error condition is not shown).

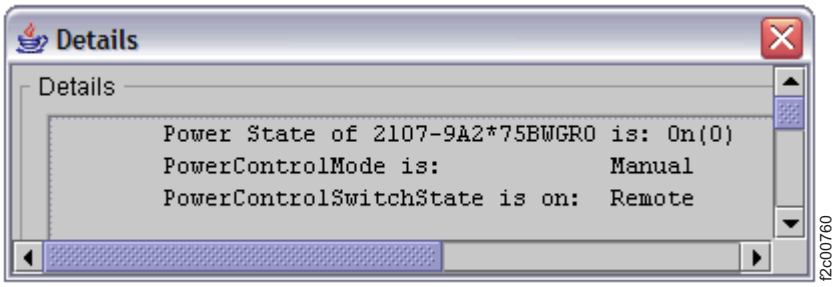


Figure 297. Window: Storage facility power state details

2. **Description**: The storage facility power state is not as expected.
3. **Action**: Ensure that any power setting changes have had time to complete and that no repair actions are in progress. Contact your next level of support. The next level of support must dial in to repair this condition.

4. **Next level of support only**:

```
lsrsrc IBM.EssStorageFacility powerStateResource
Persistent Attributes for IBM.EssStorageFacility
resource 1:
  powerState = 0

POSSIBLE VALUES:
*****************
state_ON = 0;
state_OFF = 1;
state_POWERING_ON = 2;
state_POWERING_OFF = 3;
state_ERROR = 4;

ERROR EVALUATION
*****************
States 0 to 3 are acceptable, other values are flagged as errors
```

MAP1100 Section-18, Systems Power State

1. Figure 298 is an example of the detail window for the systems power state (in this example, an error condition is not shown).

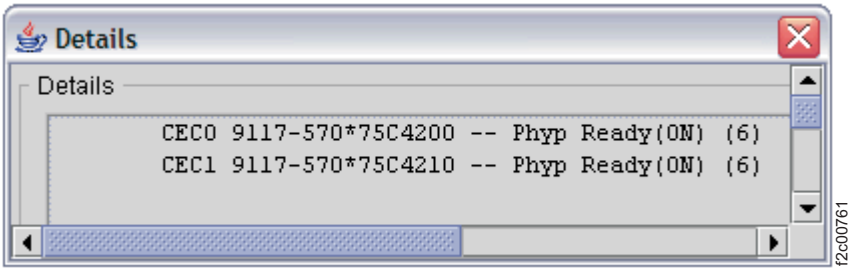


Figure 298. Window: Systems power state details

2. **Description**: The systems power state is not as expected.
3. **Action**: Ensure that any power settings changes have had time to complete and that no repair actions are in progress. Contact your next level of support. The next level of support must dial in to repair this condition.
4. **Next level of support only**:

```
- lsrsrc -Ad IBM.EssStorageFacilitySystem powerRunState
Resource Dynamic Attributes for IBM.EssStorageFacilitySystem
resource 1:
        powerRunState = 6
resource 2:
        powerRunState = 6

NORMAL STATES:
StorageFacilitysystem_STANDBY = 1;
StorageFacilitysystem_POWERING_ON = 3;
StorageFacilitysystem_POWERING_OFF = 5;
StorageFacilitysystem_PHYP_READY = 6;
StorageFacilitysystem_PHYP_STANDBY = 7;

ERROR STATES:
StorageFacilitysystem_NO_POWER = 0;
StorageFacilitysystem_INIT_FAIL = 2;
StorageFacilitysystem_ERROR_DUMP = 4;
StorageFacilitysystem_STATE_UNDETERMINED = -1;
```

MAP1100 Section-19, Systems Power on Option

1. Figure 299 is an example of the detail window for the systems power on option (in this example, an error condition is not shown).

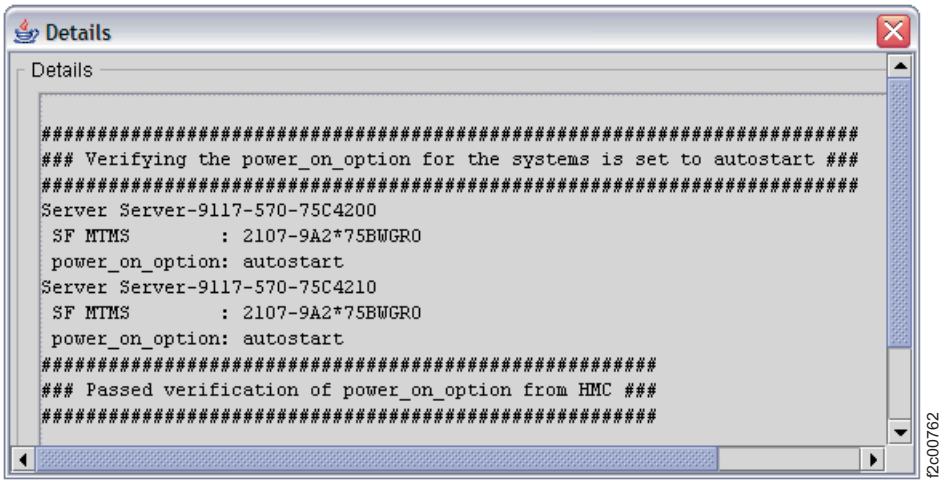


Figure 299. Window: Systems power on options details

2. **Description**: A managed system power on option is not set to auto start.
3. **Action**: Contact your next level of support. The next level of support must dial in to repair this condition.
4. **Next level of support only**:

```
/opt/hsc/bin/lssyscfg -r sys -F mm_type_model,mm_serial_num,name,
power_on_option,serial_num,pend_power_on_option
2107-922,1300150,Server-9117-570-SN13AABF0,autostart,13AABF0,autostart
2107-922,1300150,Server-9117-570-SN100096A,autostart,100096A,autostart

ERROR EVALUATION:
This check verifies that the power on option for all managed systems
in selected SF managed by this HMC are set to autostart.
Power on option set to autostart causes the LPARs to automatically
boot when PHYP is brought up.
- If power_on_option is set to auto start - check passes.
- If power on option is not set to autostart...check pend_power_on_option.
- If pend_power_on_option is set to auto start- check passes.
- If pend_power_on_option is not set to auto start , code tries to change the
power_on_option to autostart. If its successful then check passes...otherwise
error.
```

MAP1100 Section-20, Systems Power Off Policy

1. Figure 300 on page 461 is an example of the detail window for the system power off policy (in this example, an error condition is not shown).

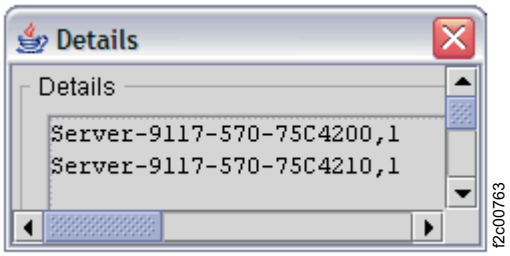


Figure 300. Window: Systems power off policy details

2. **Description**: Power off policy should be set to 1.
3. **Action**: Click **Service Focal Point** → **Service Utility** → **Storage Facility** → **Selected** → **Manage Power Control** and display the Power Status menu options. If nothing appears incorrect, display and repair any open serviceable events that are related to the rack power system. If there are none, contact your next level of support. The next level of support must dial in to repair this condition.
4. **Next level of support only**:

```
- /opt/hsc/bin/lssyscfg -r sys -F name,power_off_policy
  Server-9117-570-SN13AABF0,1
  Server-9117-570-SN100096A,1

Error evaluation:
power_Off_Policy should be set to 1. Anything else is an error.
```

MAP1100 Section-21, Service Locks

1. Figure 301 is an example of the detail window for the systems power on option (in this example, an error condition is not shown).

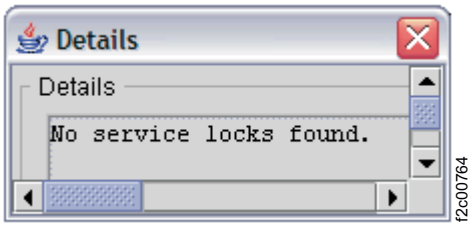


Figure 301. Window: Systems power on option details

2. **Description**: Service Locks are HMC marks-on-the-wall that are used to prevent simultaneous service actions on the same FRU. Service locks are set when a repair action begins, and they are reset when a repair action ends. If a simultaneous repair action is attempted, the user is informed that the action is not allowed because the FRU is already locked by another service action.
3. **Action**: After all service actions that are in progress are complete, the service locks should reset and clear this condition. If the condition is still present, the service locks can be reset by restarting the HMC or by using the **Service Focal Point** → **Service Utility** → **Storage Facility** → **Selected** → **Reset All Service Locks** menu option.

MAP1100 Section-22, DA Load State

1. Figure 302 on page 462 is an example of the detail window for the DA (device adapter card) load state (in this example, an error condition is not shown).

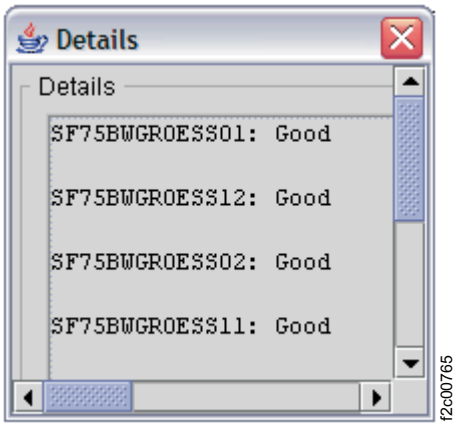


Figure 302. Window: Device adapter load state details

2. **Description**: A resource that is associated with the DA is not in the expected state.
3. **Action**: Display and repair any open related serviceable events. If there are none, contact your next level of support. The next level of support must dial in to repair this condition.
4. **Next level of support only**: Check the return code for the command `/usr/lpp/diagnostics/bin/dacheckloadstate -s` on each LPAR.

```
Normal return code values:
0: All adapters, arrays, pdisks, enclosures, loops, and spares are in a good
state. DA code update is allowed.

Error return code values:
1: An owned adapter is not in the working state.
2: An array is not in good state.
3: There is not any pdisks from issdload -s
4: Not all pdisks on the adapter are available.
5: A pdisk is not in a good state.
6: An enclosure is not in a good state.
7: There are no adapters available.
8: There is a loop problem.
9: Invalid input parameters to dacheckloadstate; contact next level of support
10: There are insufficient spares.
28: Failed to run dacheckloadstate command on lpar.
```

MAP1100 Section-23, Pinned Data on LPARs

1. Figure 303 on page 463 is an example of the detail window for the pinned data on LPARs (in this example, an error condition is not shown).

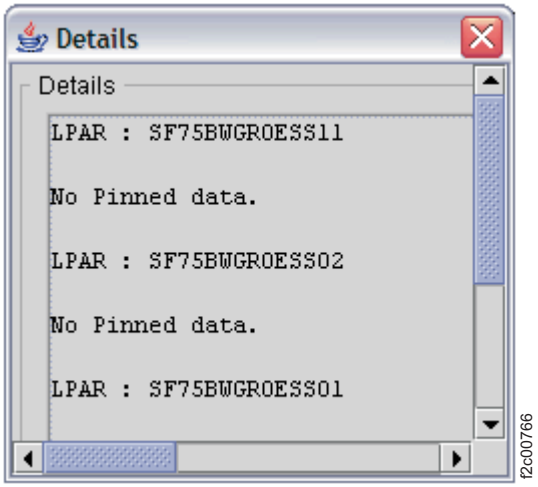


Figure 303. Window: LPARs pinned data details

2. **Description**: One or more conditions exist that prevent customer data from being successfully destaged from cache to the DDMs in the storage enclosure.
3. **Action**: Display and repair any open related serviceable events. If there are none, contact your next level of support.

MAP1100 Section-24, Service Intent

1. Figure 304 is an example of the detail window for the "service intent" when a DA card FRU is being replaced. This figure shows the displayed status for a model 9A2, dual SFI. Notice that status for both SFIs is displayed.

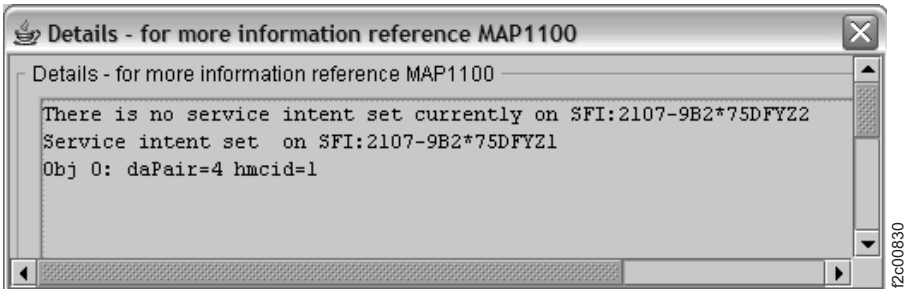


Figure 304. Window: Check service intent details

2. **Description:** Service intent is the HMC marks-on-the-wall that is used to prevent the customer from doing logical configuration when a DA card is being replaced. Service intent is set at the same time that "service lock" is set and is reset when "service lock" is reset.
3. **Action:** After the DA card service actions that are in progress are completed, the service intent should be automatically reset and this condition cleared. Then the customer should be able to do logical configuration. If the condition is still present, a reboot of the HMC will not clear the flag. To reset the service intent:
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Service Applications** → **Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.

d. Select the storage facility.
e. On the main menu (top toolbar), click **Selected → Get Storage Facility Images**.
f. Select a Storage Facility Image, click **Selected** and then click **Reset Service Intent**.

MAP1100 Section-25, Resources State

1. Figure 305 is an example of the detail window for the resources state (in this example, an error condition is not shown).

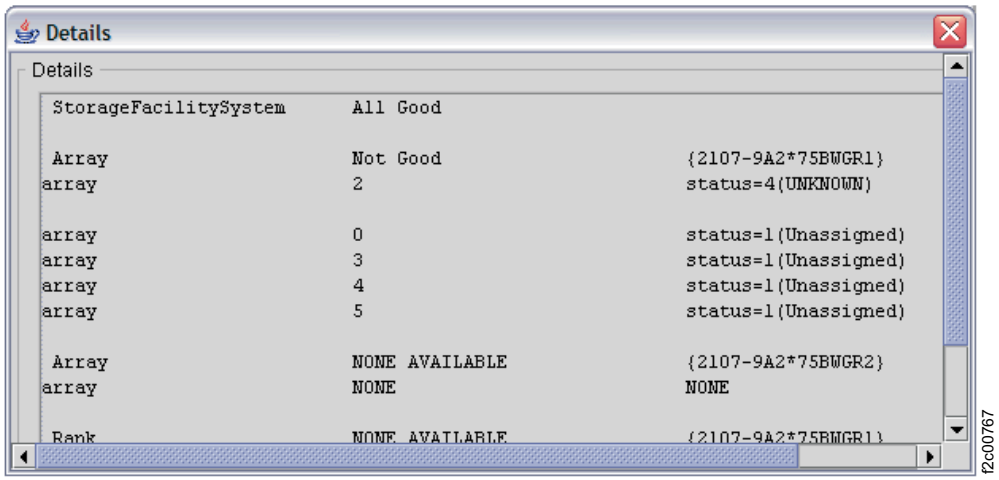


Figure 305. Window: Details on the resources state

2. **Description**: A resource has unexpected status.
3. **Action**: Display and repair any open related serviceable events. If there are none,contact your next level of support. The next level of support must dial in to repair this condition.

MAP1100 Section-26, Quiesced Resources

1. Figure 306 is an example of the detail window for the quiesce resource (in this example, an error condition is not shown).

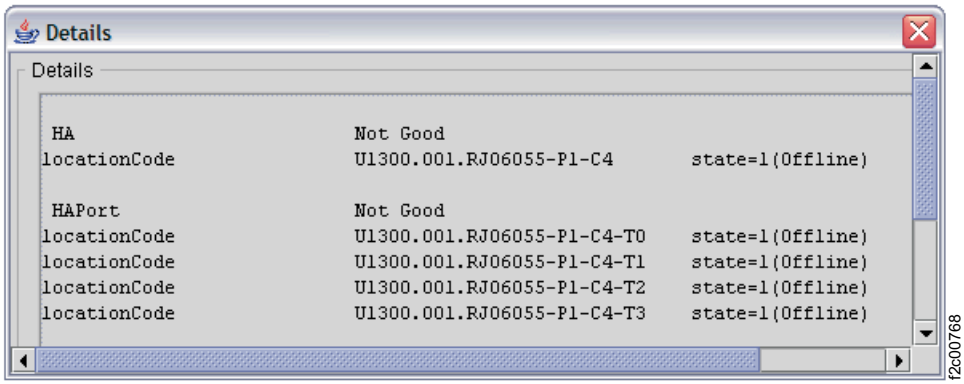


Figure 306. Window: Quiesce resource details

2. **Description**: Resources are automatically quiesced (removed from customer use) during normal service activities such as replacing a FRU. The resources are automatically resumed (returned to customer use) at the end of a successful service action.
3. **Action**: Ensure that all service actions have been completed. If the condition still exists, identify the part (FRU) associated with the resource that is quiesced. Use the HMC exchange part menu option to do a pseudo replacement of that part. Do not actually replace the part.

MAP1100 Section-27, Fenced Resources

1. Figure 307 is an example of the detail window for the fenced resources (in this example, an error condition is not shown).

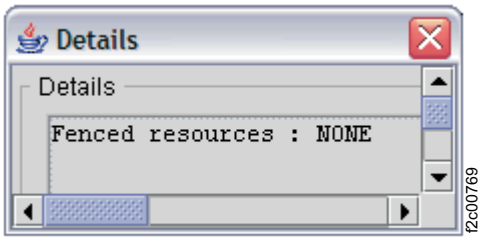


Figure 307. Window: Fenced resources details

2. **Description**: Resources are fenced (removed from customer use) by LPAR error recovery analysis if the error cannot be recovered successfully or if the error rate threshold has been exceeded. When a resource is fenced, a serviceable event should be created to guide the repair of the condition.
3. **Action**: Display and repair the related open serviceable events. If there are none, contact your next level of support. Attempting to reset a fenced resource without doing a repair can cause further problems or an unexpected customer outage.

MAP1100 Section-28, Displaying Resource State Details

Perform the following steps to determine the resource state:

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
2. Click **Service Applications** → **Service Focal Point**.
3. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
4. Select the storage facility.
5. On the main menu (top toolbar), click **Selected** → **View Resources State**. The View Storage Facility State (end of call) window is displayed.
6. Select **Resources State** and click **Details**. The Details window is displayed.

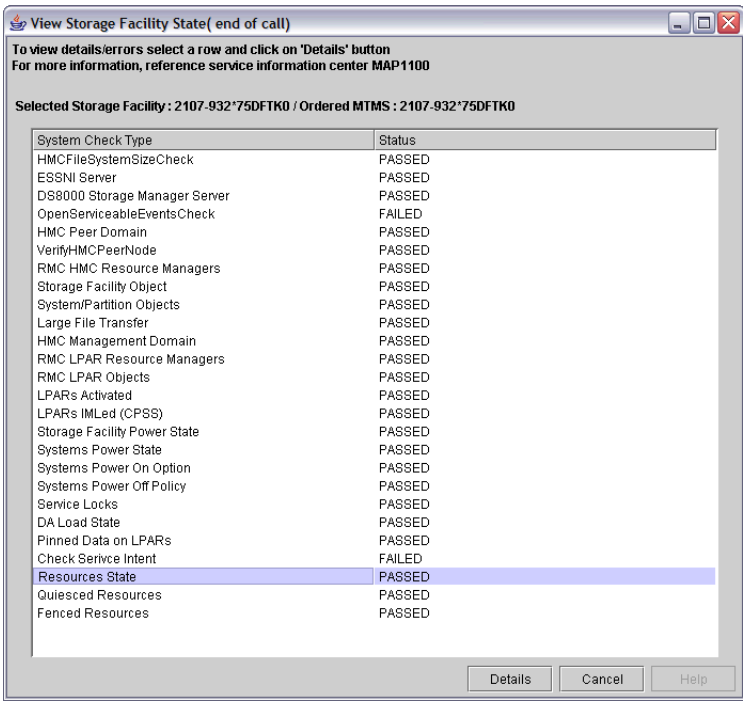


Figure 308. Window: Fenced resources details

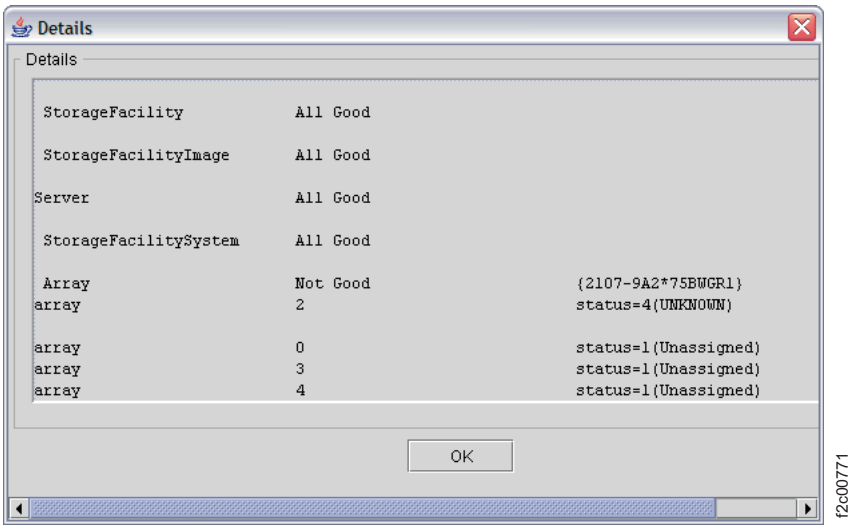


Figure 309. Window: Fenced resources details

MAP1100 Section-29, Storage Facility Power State

1. Display the resource state details. See "MAP1100 Section-28, Displaying Resource State Details" on page 465.
2. Check the state of the IBM.EssServer resource. The normal state=0. See Table 131 for the storage facility power states that are possible.

Table 131. Storage facility power states

State	Meaning
-1	Undetermined

Table 131. Storage facility power states (continued)

State	Meaning
0	ON
1	OFF
2	Powering On
3	Powering Off
4	Power Exception

MAP1100 Section-30, CEC enclosure

There are two CEC enclosures in each storage facility. The CEC enclosures are shown as **SF systems** on the management console.

Perform the following steps to determine the state of the storage facility systems:

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
2. Click **Service and Partition** → **Server Management**.
3. In the right content area, find the storage facility state. For example, Server-9117-570-SN13AABF0 Operating.

MAP1100 Section-31, Storage Facility Partitions

Perform the following steps to determine the state of thestorage facility partitions:

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
2. Click **Service and Partition** → **Server Management**.
3. In the right content area, find the storage facility state. For example, Server-9117-570-SN13AABF0 Operating.
4. Open the **Partitions** list and find the storage facility partition state. For example, SF1300150ESS11 Running.

MAP1100 Section-32, Storage Facility Image LPARs

1. Perform the following steps to determine the state of the storage facility image LPARs (referred to as Servers):

   Note: The normal state is state=0. See Table 132 on page 468 for an explanation of other states.

   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Service Applications** → **Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   d. Select the storage facility.
   e. On the main menu (top toolbar), click **Selected** → **View Resources State**. The View Storage Facility State (end of call) window is displayed.
   f. Check the state of the IBM.EssServer resource. The normal state is state=0. See Table 132 on page 468 for the storage facility image server states that are possible:

Table 132. Storage facility image server states

State	Meaning	Description
0	Online	The server is operational.
1	Offline	The server is in service mode.
2	Resuming	The server is in the process of going online.
3	Quiescing	The server is in the process of going offline.
4	Fenced	The server has been fenced by the storage facility image.

2. Perform the following steps to view additional information for LPAR status:

   Note: The normal state is Partition activation state = Running and Operational State = Operational.

   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Service Applications** → **Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   d. Select the storage facility.
   e. On the main menu (top toolbar), click **Selected** → **Get ESS LPARs**.
   f. Select the LPAR.
   g. On the main menu, click **Selected** → **Start/Stop SFI LPAR**

MAP1100 Section-33, Storage Facility Images

1. Display the resource details. See "MAP1100 Section-28, Displaying Resource State Details" on page 465.
2. Check the state of the IBM.EssStorageFacilityImage resource. See Table 133 for the storage facility image states that are possible.

Table 133. Storage facility image states

State	Meaning	Description
0	Online	The storage facility image is running and capable of processing all storage facility image functions.
1	Offline	Both of the associated LPARs are offline.
2	Resuming	The storage facility image is in the process of coming online.
3	Quiescing	The storage facility image is in the process of going offline.
4	Quiescing Exception	The storage facility image is attempting to quiesce, but there are conditions that prevent a normal quiesce from completing.
5	Forced Quiescing	The storage facility image is in the process of performing a forced quiesce operation.
6	Fenced	The storage facility image has failed and is offline.

MAP1100 Section-34, Storage Facility Image LPARs

1. Display the resource details. See "MAP1100 Section-28, Displaying Resource State Details" on page 465.
2. Check the state of the IBM.EssServer resource in the View Resources state window. See Table 134 on page 469 for the storage facility image server states that are possible.

Table 134. Storage facility image server states

State	Meaning	Description
0	Online	The server is operational.
1	Offline	The server is in service mode.
2	Resuming	The server is in the process of coming online.
3	Quiescing	The server is in the process of going offline.
6	Fenced	The server has been fenced by the storage facility image.

3. Perform the following steps to view additional information for LPAR status:

   Note: The normal state is Partition activation state = Running and Operational State = Operational.

   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Service Applications → Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   d. Select the storage facility.
   e. On the main menu (top toolbar), click **Selected → Get ESS LPARs**.
   f. Select the LPAR.
   g. On the main menu, click **Selected → Start/Stop SFI LPAR**.

MAP1100 Section-35, Host Adapters and Ports

1. Display the resource details. See "MAP1100 Section-28, Displaying Resource State Details" on page 465.
2. Check the state of the IBM.EssHA resource and the IBM.EssHAPort resource. See Table 135 and Table 136 for the host adapter and host adapter port states that are possible:

Table 135. Host adapter states

State	Meaning	Description
0	Online	The host adapter is operational.
1	Offline	The host adapter is in service mode.
2	Resuming	The host adapter is in the process of coming online.
3	Quiescing	The host adapter is in the process of going offline.
6	Fenced	The host adapter has been fenced by the storage facility image.

Table 136. Host adapter port states

State	Meaning	Description
0	Online	The I/O port is enabled to operate in the enabled ULPs.
1	Offline	The I/O port is not operational on the attached I/O interface.
2	Resuming	The I/O port is in the process of going online.
3	Quiescing	The I/O port is in the process of going offline.
6	Fenced	The I/O adapter for this I/O port is not configured to this storage facility image.

MAP1100 Section-36, Device Adapter

At this time, you cannot use the HMC GUI to determine the state of the device adapter. You must contact your next level of support to determine the state of the device adapter.

MAP1100 Section-37, Display Rack Power System Resources

Perform the following steps to determine the state of the RPC cards:

Note: The normal state is Available.

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
2. Click **Service Applications** → **Service Focal Point**.
3. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
4. Select the storage facility.
5. On the main menu (top toolbar), click **Selected** → **Activate/Deactivate Resources**.
6. Select the A01 rack and click **Show FRUs**.
7. The RPC cards, PPS and rack batteries status is shown in the list.

MAP1100 Section-38, DDMs State

1. Display the resource details. See "MAP1100 Section-28, Displaying Resource State Details" on page 465.
2. Check the state of the IBM.EssDDM resource. See Table 137 for the DDM states that are possible.

Table 137. DDM states

State	Meaning	Description
0	Normal	The storage device is operational and functional in its current disk usage.
1	Installing	A new storage device has been discovered.
2	Verifying	The storage device is made accessible to the device adapter, its characteristics are determined, cabling is checked, and diagnostics are run.
3	Formatting	A verified storage device requires low-level formatting and the formatting operation is in progress.
4	Initializing	The storage device is being initialized with all zero sectors.
5	Certifying	The storage device is being read accessed to determine that all sectors can be read.
6	Rebuilding	Sparing has occurred and this formerly spare storage device is being rebuilt with data of the array for which it is now an array member.
7	Migration Target	DDM migration is migrating another array member storage device to this spare storage device.
8	Migrating Source	DDM migration is migrating another array member storage device to this spare storage device.
9	Failed	The storage device has failed and an immediate repair action is required.
10	Failed - Deferred Service	The storage device has failed and a repair action is not immediately required.

MAP1100 Section-39, FCIC Card State

1. Display the resource state details. See "MAP1100 Section-28, Displaying Resource State Details" on page 465.
2. Check the state of the IBM.EssFCIC resources. See Table 138 for the FCIC card states that are possible:

Table 138. FCIC card states

State	Meaning
0	Online
1	Offline

MAP1110 SIM generation and interpretation for Z-OS

SIM generation for the storage facility is no longer intended as a mechanism to provide notification of the need for service, as it was for earlier generations of IBM DASD. SIMs are only provided to support notification for automated-operations monitoring functions that some customers have put in place.

The strategy for SIM presentation is as follows:

- For non-media events, the SIM will be offloaded as a Unit Check on the next IO operation to any device in each Logical SubSystem (LSS).
- For media events, the SIM is to be offloaded on the next IO operation to the reporting device within the LSS.
- Unlike previous products, SIM offload will not be repeated.
- Unlike 2105, the SIM ID is not the same as the Problem Number in the Problem (Serviceable Event).
- SIM reporting level can be altered from the WebSM GUI. See "MAP1110 Section-1 Changing the SIM reporting levels."

Use Table 139 for access to additional tasks and information in this MAP.

Table 139. MAP1110 Section reference

Task or information	Section
Changing the SIM Reporting levels	"MAP1110 Section-1 Changing the SIM reporting levels"
Repair Using a SIM Console Message	"MAP1110 Section-2 Repair using a SIM console message" on page 472
SIM Sense Reference Information	"MAP1110 Section-3 SIM sense reference information" on page 472
SIM Media Maintenance Procedures	"MAP1110 Section-4 SIM media maintenance procedures" on page 473

MAP1110 Section-1 Changing the SIM reporting levels

The SIM reporting is set to the following default levels:

Table 140. SIM reporting levels

Type	Sense switch description	Level
Hardware non-DDM	CU Threshold	2

Table 140. SIM reporting levels (continued)

Type	Sense switch description	Level
Hardware DDM	Device Threshold	2
Media	Media Threshold	0

Table 141. Definition of reporting thresholds:

Threshold level	Report to Operator
0	All SIMs
1	Acute, Serious and Moderate severity SIMS
2	Acute and Serious severity SIMs
3	Acute severity SIMs only
4	None

If the customer requests that SIM reporting thresholds are modified from the default values, then perform the following steps:

1. Logon to the Master Console using the CE userid (the default password is serv1cece).
2. From the WebSM GUI, select **Service Applications** → **Service Focal Point** → **Service Utilities**.
3. Select the Storage Facility, click on **Selected** and choose **Get Storage Facility Images**
4. Click on the Storage Facility Images, click on **Selected**, and choose **Enable/Disable Control Switches**.
5. Use the tables above to set the SIM threshold reporting levels to the values requested by the customer.
6. Click on **Set**
7. Click on **OK** in the message box, then **Cancel** to exit.

MAP1110 Section-2 Repair using a SIM console message:

The storage facility maintenance strategy does not rely on the analysis of data in environmental recording, editing and printing (EREP) reports, or sense bytes on the console. Sense data records for some storage facility temporary and all permanent errors are sent from the storage facility to the system to give information necessary to perform needed system error recovery procedures. The storage facility sense data is logged in the error-recording data set (ERDS) in the system, but is not used for storage facility problem determination.

Unlike ESS, the SIM ID is not the same as the Problem Number in the Problem (Serviceable Event). Correlation of SIMs to Serviceable Events can only be done by comparison of Reference Codes and timestamps.

MAP1110 Section-3 SIM sense reference information:

The refcode Format is SSSS-SSSS-0009 for HW SIMs, SSSS-SSSS-0082 for Media SIMs, where SSSS-SSSS is the SRC. The refcode is created from SIM sense byte data as shown in Table 142 on page 473 below. For details about the refcode, see the *Decode a refcode chart* directly below Table 142 on page 473.

Table 142. Storage facility SIM Sense bytes for hardware SIMs

Sense Byte	Meaning	Value
11-13	Ref Code Bytes 2-4	Third through fifth byte of refcode.
14	Ref Code Bytes 5- Procedure Number	x'09' = other types
15-19	Product Serial Number	nnnnnnnn
20-21	Subsystem Identifier (SSID)	Subsystem ID for the LSS
22-23	RefCode Bytes 0-1	First and second byte of refcode
28	SIM type	FE

Decode a refcode chart

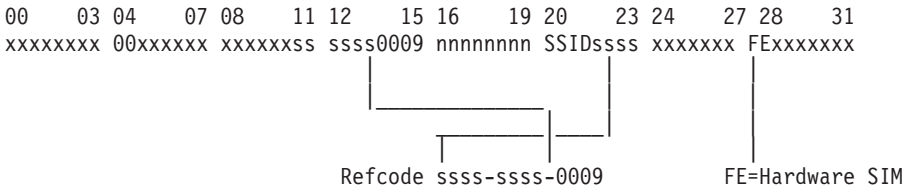
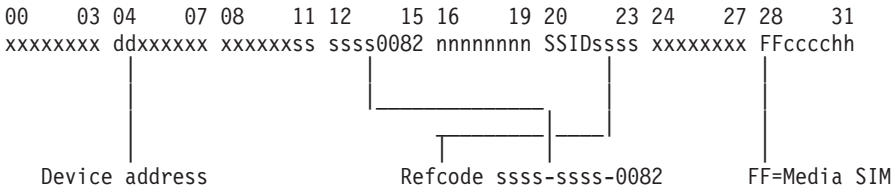


Table 143. Storage facility SIM Sense bytes for Media SIMs

Sense Byte	Meaning	Value
4	Device Physical Address	Second byte value of Device Address or otherwise x'00'
11-13	Ref Code Bytes 2-4	Third through fifth byte of refcode.
14	Ref Code Bytes 5- Procedure Number	x'09' = other types
15-19	Product Serial Number	nnnnnnnn
20-21	Subsystem Identifier (SSID)	Subsystem ID for the LSS
22-23	RefCode Bytes 0-1	First and second byte of refcode
28	SIM type	FE
29-31	Logical cylinder and head	x'cccchh'

Decode a refcode chart



MAP1110 Section-4 SIM media maintenance procedures:

The customer must perform media maintenance to recover from Media Errors. Instruct the customer to perform the media maintenance procedure indicated in below.

Table 144. Media Maintenance Procedure

Procedure Number	Description	ICKDSF Commands
2	The first part of this procedure finds all tracks with unrecoverable data and supplies information on the allocation of the user data (for example, dataset names).	Use ICKDSF Release 16 or higher. Enter the following commands: IODELAY SET MSEC(100)See note 1 below. ANALYZE <UNIT() ³DDNAME()> NODRIVE SCANSee note 2 below.
	The second part of this procedure returns the indicated track to a usable condition. Data on this track has been lost. All subsystem attempts at media maintenance have been unsuccessful. All attempts to recover the data have been unsuccessful.	See Table 140 on page 471 for the location of the SRC and addresses of the failing track and head (cccchh) in the sense information. For each track that reports an SRC of: BE504910, BE504920, BE504910, BE504920 Issue the following command (all on the same line): INSPECT <UNIT()³DDNAME()> <VFY()³NOVFY>ASSIGN NOCHECK NOPRESERVE TRACK(cccc,hh) See note 3 below. **Note:** The above ICKDSF inspect command will result in the loss of all customer data on that track.

Notes:

1. IODELAY adjusts ICKDSF to run concurrently with customer operations.
2. ANALYZE scans the volume for data that is not readable or not usable.
3. The NOPRESERVE parameter must be specified for the DS8000. The PRESERVE parameter is not valid for the DS8000. All previous attempts by the subsystem to recover the data have not been successful. Although the track will be returned to a usable state, all customer data on the specified track will be lost when the INSPECT command is run.

For additional information see “MAP5240 Customer data check” on page 744.

MAP1120 ESSNI server, displaying the state, start, and stop

The ESSNI server runs on the management console (HMC) and is the low level interface that allows the customer to manage the storage. There are two methods for the customer to communicate with ESSNI:

- DS Storage Manager (also known as ICAT), the IBM graphical user interface.
- DS CLI, which is the command-line interface that the customer can use to create their own scripts.

MAP1120 Section-1

Display the state, start and stop status of the ESSNI server that runs on the management console (HMC).

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).

2. Click **Service Applications → Service Focal Point**.
3. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
4. Select a storage facility.
5. On the main menu (top tool bar), click **Selected → Start/Stop ESSNI**. The current state and the start/stop options are displayed.

MAP1130 PPS Fan Normal and Failure Modes

The PPS fans have multiple operation modes for normal as well as failure conditions.

MAP1130 Section-1

The operation of the PPS fans is monitored and controlled by the microcode running in the PPS sequence module. The fan speeds are controlled individually and vary for normal operation. If an error condition occurs, a serviceable event is created and reported.

The PPS fans are controlled in 2 ways:

- The speed of the fans is controlled in steps depending on the internal temperature sensors in the PPS modules and other conditions.
- There are certain defined fan speed combinations for normal as well as error conditions. These combinations are shown in the tables below.

There are four fan speeds used:

- Stopped (0 rpm)
- Low (1860 rpm)
- Medium (2820 rpm)
- High (3800 rpm)

Table 145. Normal System Operation or System Standby Mode

Operating/Failure Condition	Top PPS Fan	Center PPS Fan	Bottom PPS Fan
Normal Mode	Low	Low	Low
Top PPS Fan failed	Failed	High	High
Center PPS Fan failed	High	Failed	High
Bottom PPS Fan failed	High	High	Failed
PPS to PPS Communication Failure	Medium	Medium	Medium
Battery charging in phase 1	Medium	Medium	Medium
On Battery Mode (Booster not installed)	Stopped	Stopped	Stopped
On Battery Mode (Booster installed)	Stopped	Stopped	Stopped

During PPS standby or fenced mode (208VDC and 5V/12V outputs are off), only the bottom and the center fans will operate.

Table 146. PPS Fenced Mode / PPS Standby Mode

Operating/Failure Condition	Top PPS Fan	Center PPS Fan	Bottom PPS Fan
Normal Mode	Stopped	Low	Low

Table 146. PPS Fenced Mode / PPS Standby Mode (continued)

Operating/Failure Condition	Top PPS Fan	Center PPS Fan	Bottom PPS Fan
Center PPS Fan failed	Stopped	Failed	High
Bottom PPS Fan failed	Stopped	High	Failed
PPS to PPS Communication Failure	Stopped	Medium	Medium

MAP1140 DS Storage Manager server, displaying the state, start, and stop

The DS storage manager server runs on the management console (HMC) and is the GUI interface to the ESSNI server that also runs on the HMC. The ESSNI is the low level interface that allows the customer to manage the storage. There are two methods for the customer to communicate with ESSNI:

- DS Storage Manager (also known as ICAT), the IBM graphical user interface.
- DS CLI, which is the command-line interface that the customer can use to create their own scripts.

MAP1140 Section-1

Display the state, start and stop status of the DS storage manager server that runs on the management console (HMC).

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
2. Click **Service Applications → Service Focal Point**.
3. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
4. Select a storage facility.
5. On the main menu (top tool bar), click **Selected → Start/Stop DS storage manager server**. The current state and the start/stop options are displayed.

MAP1200 Prioritizing serviceable events and visual symptoms for repair

Use this procedure if there is more than one serviceable event and/or visual symptom needing repair.

MAP1200 Section-1

Display the details of each problem and then use the table below to prioritize their repair.

Table 147. Prioritizing Repairs

Priority	Condition	Description
1	Problems found during an LIC code update process	The LIC code update process checks for code update errors as well as other serviceable events that occur during the process. If any are found, a new serviceable event is created that will guide the repair process by calling a MAP4Axx isolation procedure.

Table 147. Prioritizing Repairs (continued)

Priority	Condition	Description
2	CEC enclosure serviceable events	Both CEC enclosures need to be error free before repairing I/O enclosure or storage enclosure problems. This allows FRU verification FC-AL loop verify tests to complete properly.
3	The CEC enclosure control panel is not updating and is displaying a 2-character (*xx*) or 8-character (*xxxxxxxx*) code.	Go to "MAP4360 Codes displayed by the CEC enclosure control panel" on page 680.
4	The CEC enclosure control panel is not updating and is displaying something other than a 2-character (*xx*) or 8-character (*xxxxxxxx*) code.	Go to "MAP4370 CEC enclosure control panel does not show a normal display" on page 683.
5	I/O enclosure serviceable events	Both CEC enclosures need to be error free to do this repair. I/O enclosures need to be error free before repairing storage enclosure problems. This allows FRU verification FC-AL loop verify tests to complete properly.
6	FC-AL or storage enclosure serviceable events	All CEC and I/O enclosures need to be error free. This allows FRU verification FC-AL loop verify tests to complete properly.
7	Power system serviceable events	Power problems are normally be repaired after logic problems because of the fault tolerant design of the power system.
8	Multiple serviceable events for one fault	A single fault may create more than one related problem. The successful repair of one problem should close all related serviceable events.
9	Visual symptoms	Visual symptoms should create a related serviceable event. Repair related serviceable events before using visual symptoms. If there are no related serviceable events, go to "MAP1320 Isolating problems using visual symptoms" on page 526.

MAP1210 Displaying and repairing a serviceable event

The primary method to repair the storage facility is by using a serviceable event that will guide you through the repair. Serviceable events contain the information and history needed to manage the repair.

MAP1210 Section-1

1. Use the table to select your action:

   Note: For sample screen shots, see step 6 on page 479.

Table 148. Serviceable event views

You are here to:	Go to:
View open serviceable events and details.	Step 2 on page 478
View and repair an open serviceable event.	Step 3 on page 478

Table 148. Serviceable event views (continued)

You are here to:	Go to:
View comments or service history of an open serviceable event.	Step 4
View serviceable events based on a search filter you define. This can be other than the default filter of Status = Open.	Step 5

2. View open serviceable events and details:
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Manage Serviceable Events**, a window appears displaying a list of selection criteria.
   d. You can use the default selection criteria or modify the criteria for your needs. Click the **OK** button.
   e. The Serviceable Event Overview window will appear.
   f. Select a serviceable event, click **Selected** (on top tool bar), and then select **View Details**. A window will appear displaying the details.

   Note: To see example screen shots of this procedure, go to step 6 on page 479. Icons displayed to the right of the Navigation Area need to be double clicked.
3. View and repair an open serviceable event.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Manage Serviceable Events**, a window appears displaying a list of selection criteria.
   d. You can use the default selection criteria or modify the criteria for your needs. Click the **OK** button.
   e. The Serviceable Event Overview window will appear.
   f. Select a serviceable event, click **Selected** (on top tool bar), and then select **Repair**. The guided process window will appear.
4. View comments or service history of an open serviceable event.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Manage Serviceable Events**, a window appears displaying a list of selection criteria.
   d. You can use the default selection criteria or modify the criteria for your needs. Click the **OK** button.
   e. The Serviceable Event Overview window will appear.
   f. Select a serviceable event, click **Selected** (on top tool bar), and then select **View Details**.
   g. Click **Action** (on tool bar), then select **View Comments** or **View Service History**.
5. View serviceable events based on a search filter you define.

a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
b. Open **Service Applications** → **Service Focal Point**.
c. In the right content area, select **Manage Serviceable Events**, a window appears displaying a list of selection criteria.
d. Modify the search criteria for your needs. Click the **OK** button.
e. The Serviceable Event Overview window will appear listing serviceable events that meet the search criteria.

6. Screen shots for viewing open serviceable events and details.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Select **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Manage Serviceable Events**, a window appears displaying a list of selection criteria.

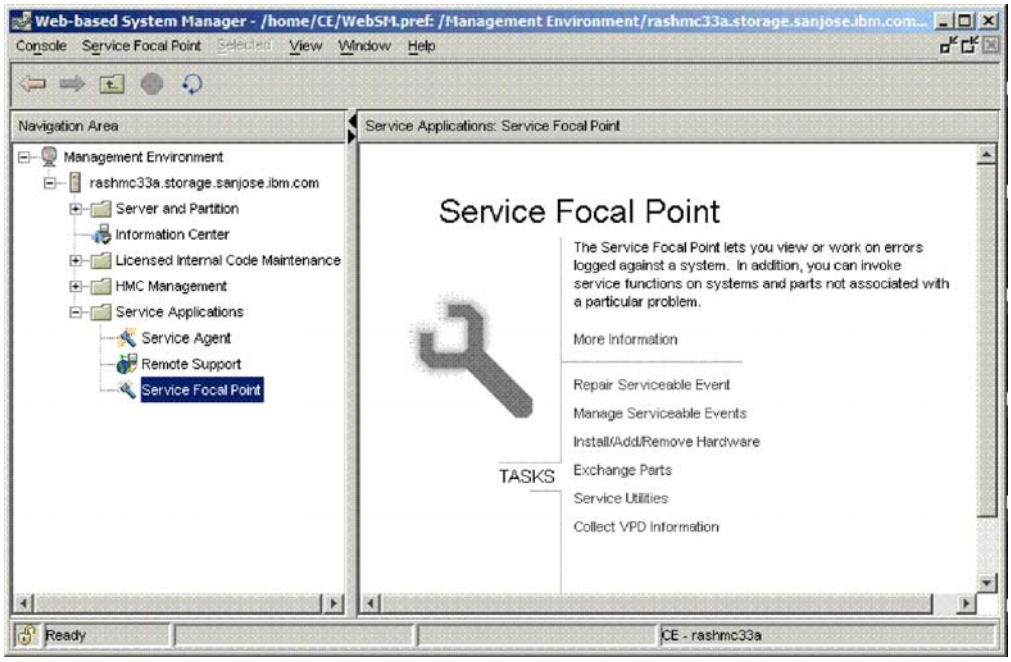


Figure 310. Web-based System Manager - Service Focal Point

d. You can use the default selection criteria or modify the criteria for your needs. Click the **OK** button.
e. The Serviceable Event Overview window will appear.

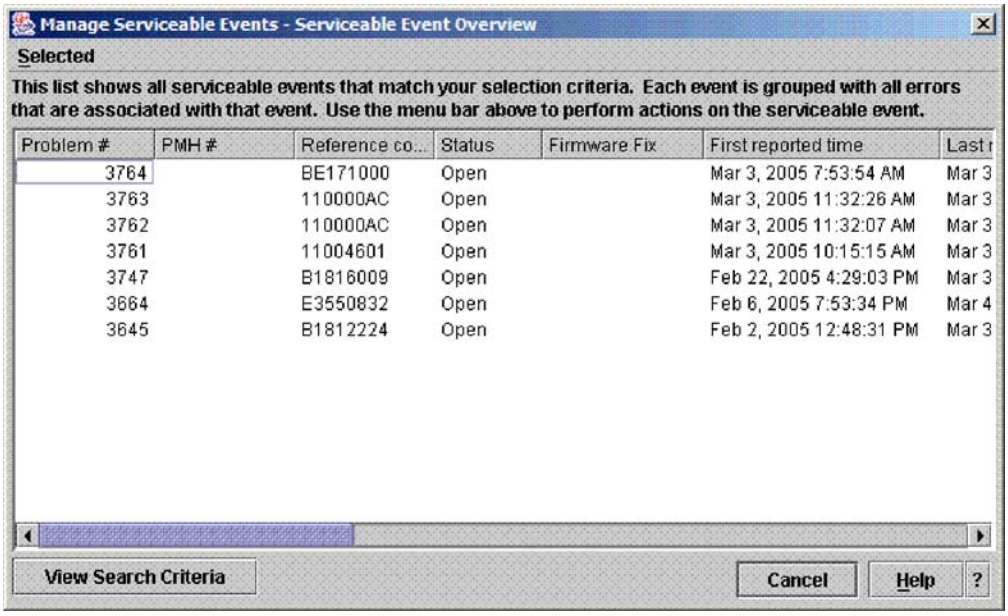


Figure 311. Repair Serviceable Event - Select Failing System

f. Select a serviceable event, click **Selected** (on top tool bar), then select **View Details**. A window will appear displaying the details.

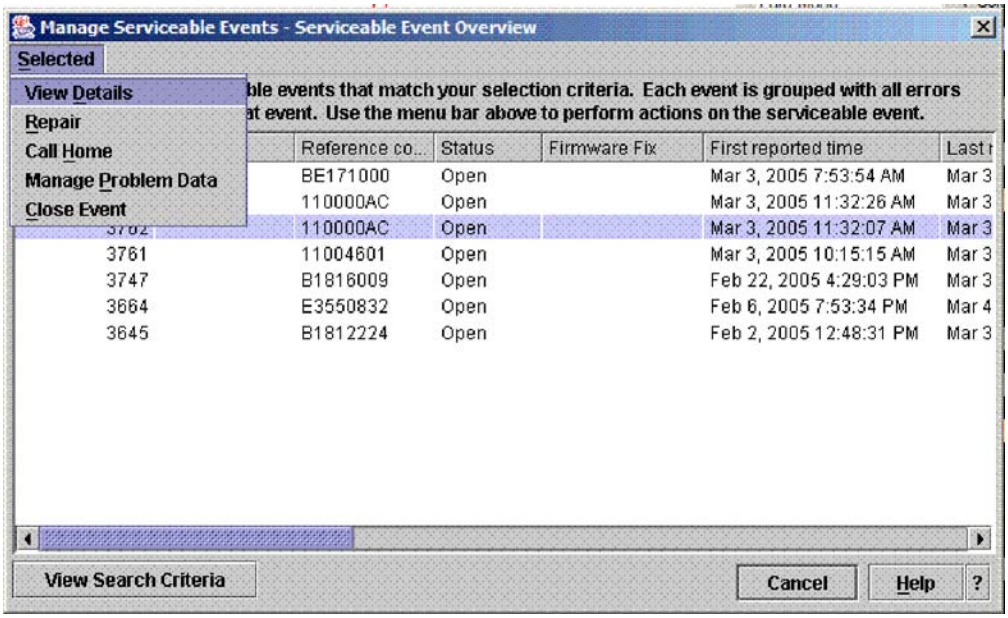


Figure 312. Repair Serviceable Event - Serviceable Event Overview

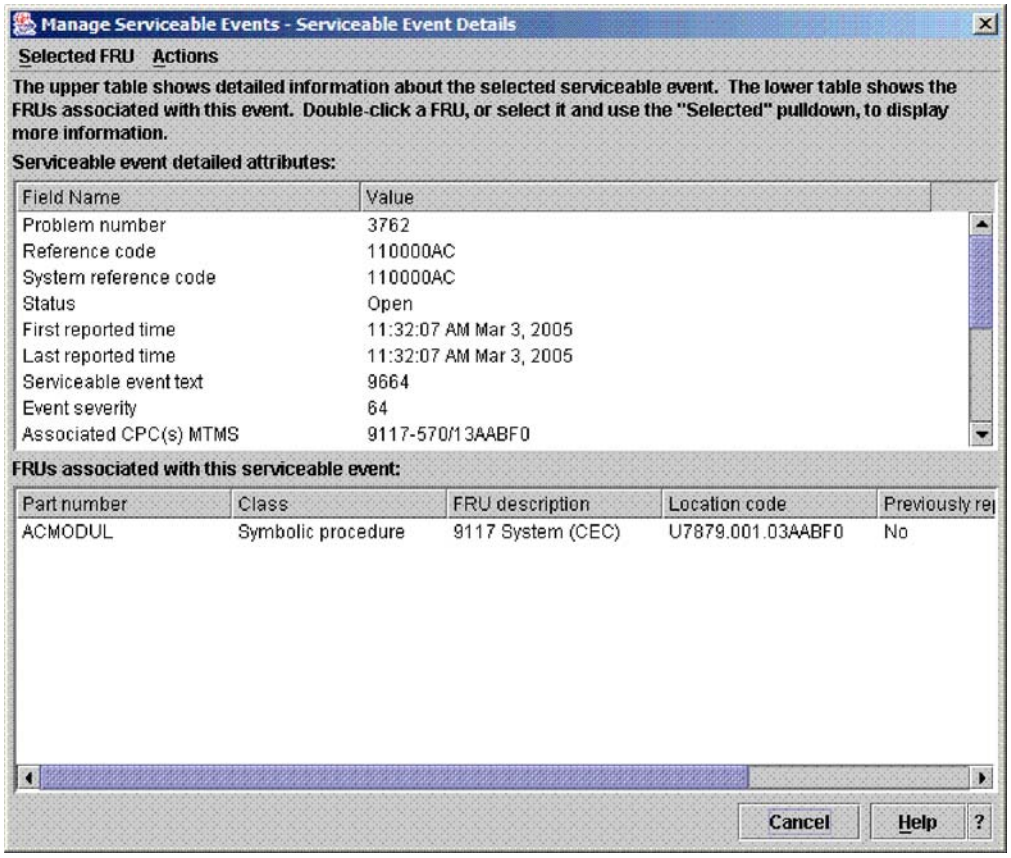


Figure 313. Repair Serviceable Event - Serviceable Event Details

MAP1211 Controlling DS8000 power from the management console

The management console (HMC) is the primary method to perform all power control for the customer and service provider.

MAP1211 Section-1

Note: At the local remote (or zSeries local remote) switch card, ensure that the white switch is in the REMOTE (up) position.

1. Use Table 149 to select your action.

Table 149. Power control actions

You are here to:	Action
Power off the DS8000 (if an internal HMC is present, it stays powered up)	Go to step 2.
Power on the DS8000	Go to step 3 on page 484.
Set the HMC to manual power control mode	Go to step 4 on page 484.

2. Power off the DS8000 (the internal HMC if present, stays powered up).
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Service Applications** → **Service Focal Point**.

c. In the right content area, click **Service Utilities**. A window lists the storage facilities that are managed by this HMC.

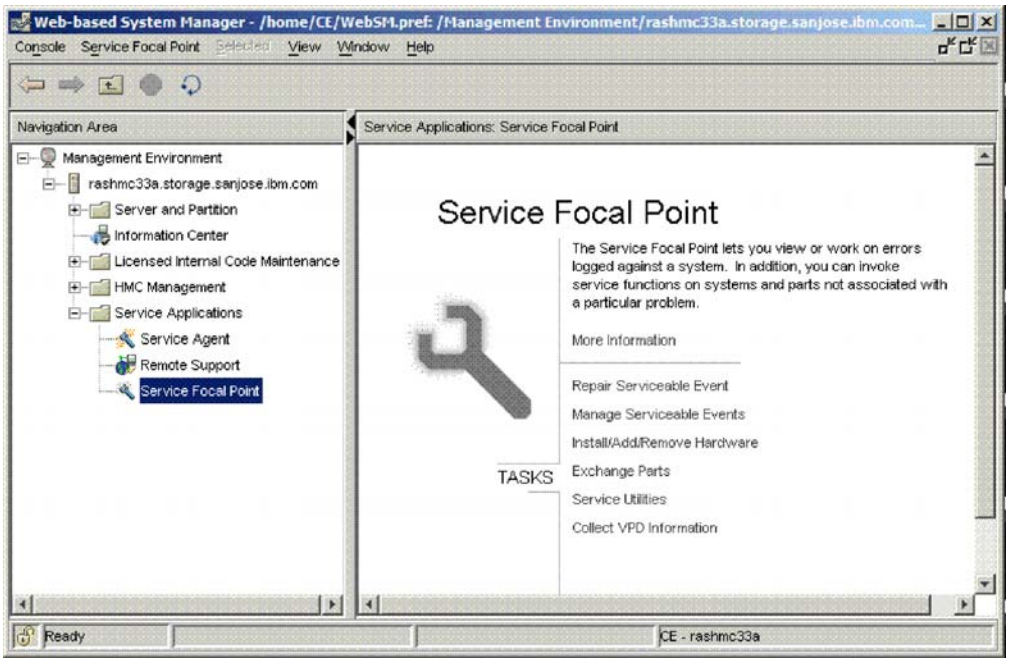


Figure 314. Web-based System Manager - Service Focal Point

d. In the list, select the Storage Facility (Machine Type/Machine Serial) that you are servicing.

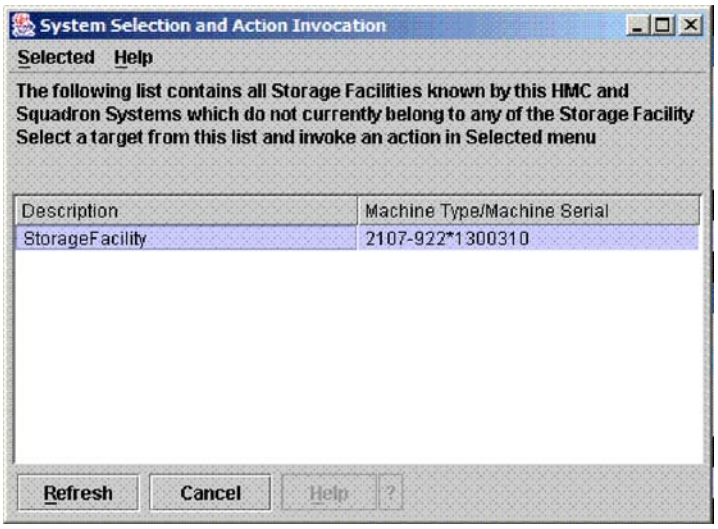


Figure 315. System Selection and Action Invocation

e. Click **Selected** → **Manage Power Control**. The Power Control window is displayed.

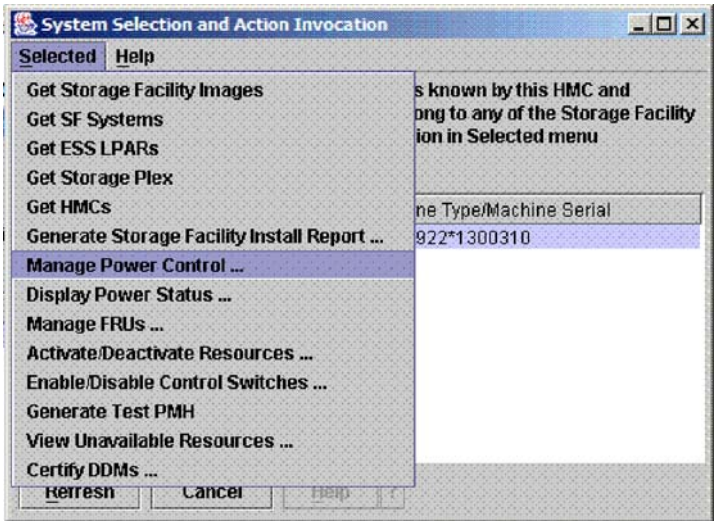


Figure 316. System Selection and Action Invocation - Manage Power Control

f. In the option group that is labeled **Power Control Modes**, select the **Manual Power Mode** radio button.

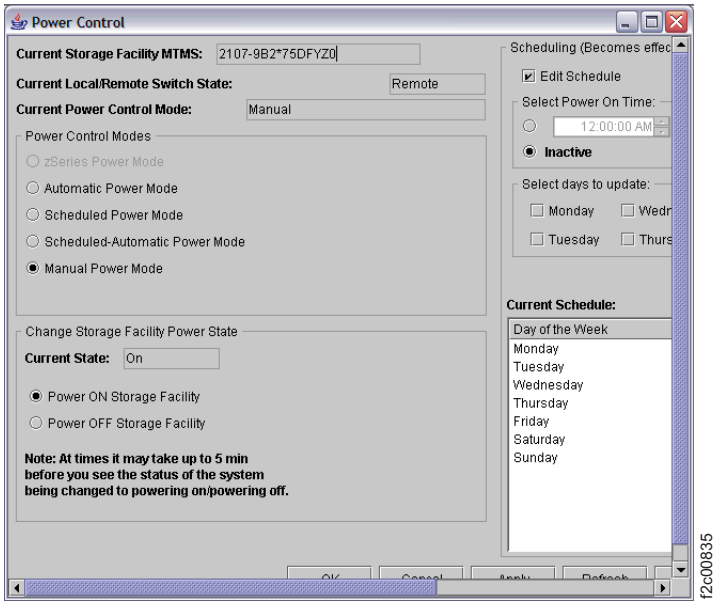


Figure 317. Power Control

g. In the option group that is labeled **Change Storage Facility Power State**, select the **Power OFF Storage Facility** radio button.

h. Click the **Apply** button. To verify that the current power state changed, click the **Refresh** button. The value in the field labeled **Current State** changes to Off.

i. Click **OK**. A confirmation screen is displayed. Click **Yes** to power off the storage facility.



Figure 318. Confirm Action

3. Power on the DS8000.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Service Applications** → **Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A window lists the storage facilities that are managed by this HMC.
   d. In the list, select the Storage Facility (Machine Type/Machine Serial) that you are servicing.
   e. Click **Selected** → **Manage Power Control**. The Power Control window is displayed.
   f. In the option group that is labeled **Power Control Modes**, select the **Manual Power Mode** radio button.
   g. In the option group that is labeled **Change Storage Facility Power State**, select the **Power ON Storage Facility** radio button.
   h. Click the **Apply** button. To verify that the current power state changed, click the **Refresh** button. The value in the field labeled **Current State** changes to On.
   i. Click **OK**. A confirmation screen is displayed. Click **Yes** to power on the storage facility.
4. Set the HMC to manual power control mode.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Service Applications** → **Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A window lists the storage facilities that are managed by this HMC.
   d. In the list, select the Storage Facility (Machine Type/Machine Serial) that you are servicing.
   e. Click **Selected** → **Manage Power Control**. The Power Control window is displayed.
   f. In the option group that is labeled **Power Control Modes**, select the **Manual Power Mode** radio button.
   g. Click the **Apply** button. To verify that the power control mode changed, click the **Refresh** button. The value in the field labeled **Current Power Control Mode** changes to Manual.
   h. Click **OK**. A confirmation screen is displayed. Click **Yes** to change the HMC to manual power control mode.

MAP1212 Displaying Installed Code Levels (LIC, HMC, Storage Manager, Firmware, OS, PTF, SFI, Bundle VRMF, CDA History)

The management console (HMC) is used to display the various code levels that are present on the HMC and the storage facility.

MAP1212 Section-1

Use these steps to display installed code levels:

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
2. Open **Licensed Internal Code Maintenance → Licensed Internal Code Updates**.
3. In the right content area, select **Change Internal Code**. A list of Machine Type/Machine Serials is displayed.
4. Select the StorageFacility Machine Type/Machine Serial in the list.
5. On the window menu, click **Selected → Display Installed Code Levels**. A list of code levels is displayed in the Action Panel window.

   The following is an example of the information that is displayed in the Action Panel window:

   - HMC Code Levels:
     - **HMC OS/Managed System Base**:
       - Version: 4
       - Release: 4.0
       - HMC Build level 20051216.1
       - DS8000 HMC LMC v25.9 build level 20060131.1
     - **DS Storage Manager**:
       - ibmdsstoragemanagerserver.ewase-5.1.1-0
       - ibmdsstoragemanagerserver.wshelp-2.1.3-0
       - ibmdsstoragemanager8000.lap-1.1.0-0
       - ibmdsstoragemanager8000.base-5.1.600-1167
   - Managed System Code Levels:
     - **managedSystemMTMS: 9117-570*75C4090**
       - activated_level=105 -> *Current level*
       - installed_level=105 -> *Target level for next activation*
       - accepted_level=100 -> *Previous level*
       - ecnumber=01SF222
     - **managedSystemMTMS: 9117-570*75C41A0**
       - activated_level=105 -> *Current level*
       - installed_level=105 -> *Target level for next activation*
       - accepted_level=100 -> *Previous level*
       - ecnumber=01SF222
   - PTF Code Levels:
     - VRMF: 5.2.0.608 locationCode: 9117-570*75C4090-V1
     - VRMF: 5.2.0.608 locationCode: 9117-570*75C41A0-V1
   - SFI Code Levels:
     - VRMF: 5.1.600.191 locationCode: 9117-570*75C4090-V1
     - VRMF: 5.1.600.191 locationCode: 9117-570*75C41A0-V1
   - HA Code Levels:
     - **Host Adapter**:
       - firmwareLevel: BR750-E100C-K100C-P100E-02152006122537 locationCode: U1300.001.RJ07320-P1-C1
       - firmwareLevel: BR750-E100C-K100C-P100E-02152006122537 locationCode: U1300.001.RJ06308-P1-C1

  - **Host Adapter Port**:
    - portFirmwareLevel: FF8A1316-078B193E locationCode: U1300.001.RJ07320-P1-C1-T0
    - portFirmwareLevel: FF8A1316-078B193E locationCode: U1300.001.RJ07320-P1-C1-T1
- DA Code Level:
  - **Device Adapter**:
    - firmwareLevel: 20100160001B locationCode: U1300.001.RJ07320-P1-C3
    - firmwareLevel: 20100160001B locationCode: U1300.001.RJ06308-P1-C3
- Power Code Levels:
  - **PPS Card FLASH firmware**:
    - flashFirmwareLevel: 092637 locationCode: U2*nnn*.A01.75BWKB0-E1
    - flashFirmwareLevel: 092637 locationCode: U2*nnn*.A01.75BWKB0-E2
  - **RPC Card FLASH firmware**:
    - flashFirmwareLevel: 8 locationCode: U2*nnn*.A01.75BWKB0-C1
    - flashFirmwareLevel: 8 locationCode: U2*nnn*.A01.75BWKB0-C2
  - **RPC Card CPLD firmware**:
    - cpldFirmwareLevel: 2 locationCode: U2*nnn*.A01.75BWKB0-C1
    - cpldFirmwareLevel: 2 locationCode: U2*nnn*.A01.75BWKB0-C2
- DDM Code Levels:
  - **Disk Drive Module**:

    (for pdisk levels go to DDM Utilities)
  - **CEC DDM**:
    - ecLevel: 0000027Bscdisk locationCode: U7879.001.DQDHTVD-P1-T14-L3-L0
    - ecLevel: 0000027Bscdisk locationCode: U7879.001.DQDHTVD-P1-T12-L3-L0
  - **Fibre Channel Interface Card**:
    - firmwareLevel: 1303 locationCode: U2*nnn*.D01.RJ09604-P1-C1
    - firmwareLevel: 1303 locationCode: U2*nnn*.D01.RJ09604-P1-C2
- CDA Install History: (Most recent successful update)

  Note: Some levels below will not correlate to levels listed above.
  - Package: AIX_PTF , MTMS: 9117-570*75C41A0-V1
  - Date: 2006/04/05-16:55, Bundle VRMF: 6.1.600.41, Package Level: 5.2.0.608, Mode: CCL
  - Package: HMC , MTMS: 8837PLM*KKWNT5C
  - Date: 2006/04/04-16:28, Bundle VRMF: 6.1.600.41, Package Level: N/A, Mode: NCCL
  - Package: Squadrons , MTMS: 9117-570*75C4090
  - Date: 2006/04/05-15:45, Bundle VRMF: 6.1.600.41, Package Level: 01SF222_105_105, Mode: DISRUPTIVE

MAP1213 Displaying Server and Partition Properties

It is only necessary to display server or partition properties when directed by a guided service procedure or next level of support.

MAP1213 Section-1

1. Display properties for a server (CEC enclosure).
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Server and Partition**, select **Server Management**.
   c. In the right content area, right click the **Server-9117-570-SNxxxxxxx**, and then click **Properties**.
   d. A window appears displaying information tabs.
2. Display properties for a partition (LPAR) for a storage facility image (SFI).
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Server and Partition**, select **Server Management**.
   c. In the right content area, open the **Server-9117-570-SNxxxxxxx**, open **Partitions**.
   d. Right click the partition (SFxxxxxxxESS0x) and then click **Properties**.
   e. A window appears displaying information tabs.

MAP1214 Run CdaPreVerify

CdaPreVerify is a utility that is used to check the state of the storage facility prior to beginning a CDA LIC update.

MAP1214 Section-1

Perform the procedure in this section to run the CdaPreVerify utility.

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
2. Click **Licensed Internal Code Maintenance → Licensed Internal Code Updates**.
3. In the right content area, click **Change Licensed Internal Code for the current release**. The Action Invocation window is displayed.
4. Click the appropriate StorageFacility (identified by serial number).
5. On the window menu, click **Selected → Update and Recovery Utilities → Recovery Utilities**. The Action Panel window is displayed.
6. Select **Run CdaPreVerify**. Click the **Okay** button.
7. Does the storage facility contain more than one SFI?
   - Yes, an Action Panel window displays a list of SFIs. Go to the next step.
   - No, go to step 9.
8. Select one or more of the SFIs that you want to verify. Click the **Okay** button.
9. When a message is displayed, click the **OK** button.
10. The Action Panel (CdaPreVerify results) window is displayed. It contains a log of information. Maximize the window to make it easier to read the log.
11. Scroll to the bottom of the log.

    Which message is at the bottom of the log?
    - **### Passed full system scan by SFI ###**, the CdaPreVerify scan showed no errors. Return to the MAP that sent you here.
    - **### Failed full system scan by SFI ###**, find the error message(s) in the log. Repair the condition(s) that caused the verify process to fail. Normally, before you can install the LIC code update you must resolve all error conditions.

MAP1215 Replace a FRU

When an isolation procedure references this MAP there are two methods to replace the failing FRU. One method uses a serviceable event that contains the FRU and the other method does not.

MAP1215 Section-1

1. Is the FRU to be replaced listed in a serviceable event related to this problem?
   - Yes, repair the serviceable event to replace the FRU. (See "MAP1210 Displaying and repairing a serviceable event" on page 477.)
   - No, go to the next step.
2. Use the exchange FRU process.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Exchange Parts**, a window appears displaying a list of storage facilities.
   d. Select the storage facility, click **Selected** (on top tool bar), and then select the Exchange option listed that contains the FRU to be exchanged. A window appears displaying the Enclosures.
   e. Select the Enclosure Location Code, then click the **Show FRUs** button.
   f. Select the FRU Location Code, then click the **Exchange FRU** button.

MAP1216 Displaying primary system reference code (SRC) extension words

Use this procedure if you have been directed to display SRC words of which there can be a total of 10.

MAP1216 Section-1

1. The complete SRC information can contain up to ten words (words 0 to 9). The 8-character SRCs that are most commonly listed in a serviceable event are only words 0 and 1. Later levels of the DS8000 LIC code might display the additional SRC words within the Serviceable Event Details window. See Figure 319 on page 489. If the SRC extension words are not displayed in the Serviceable Event Details window, go to the next step.

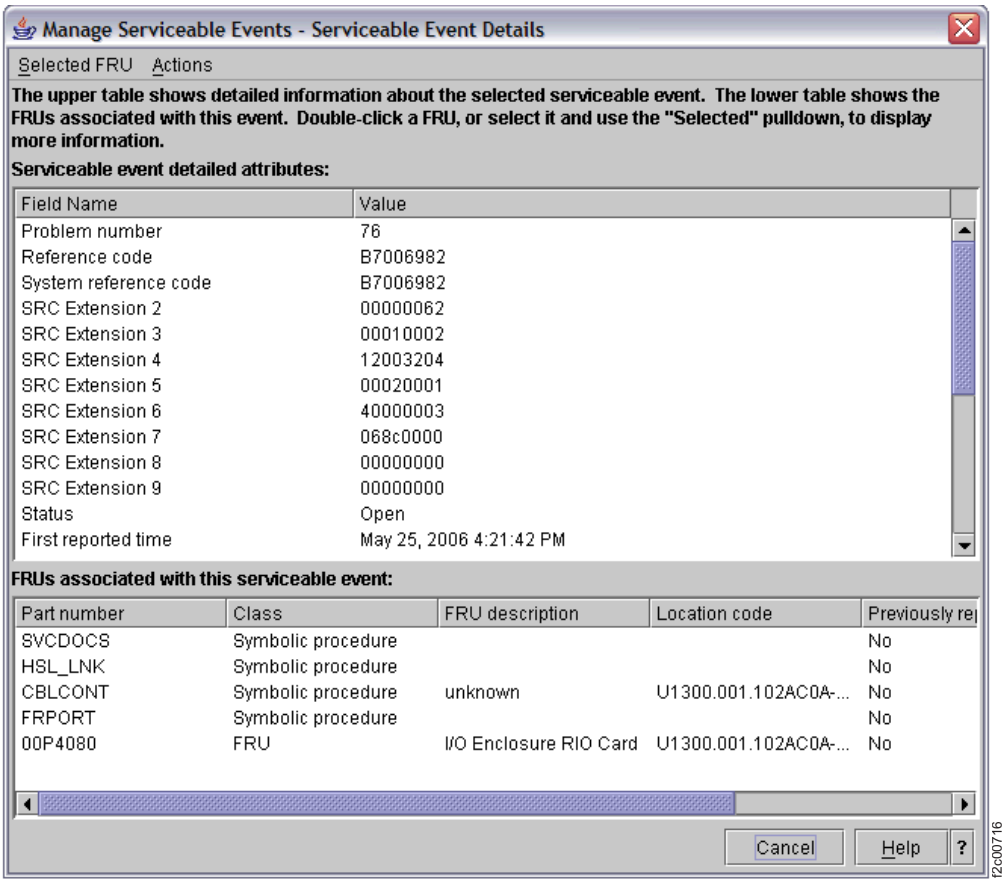


Figure 319. The Serviceable Event Details window

2. The HMC ASMI menu options can be used to display SRCs that have been recorded in the ASMI error logs that are stored in the service processor card. SRCs that are created by functional code unique to the DS8000 (example: LPARs, storage enclosures, rack power and cooling) do not store the SRC information in the service processor, and therefore cannot be displayed.
3. Use the ASMI menus to display the SRC extension words.
   a. Log in to the ASMI menus. See "MAP6F10 Accessing the ASMI using the management console" on page 852.
   b. Expand **System Service Aids → Error/Events Logs**. The SRCs that are stored in the service processor card are displayed in a table.
   c. To see details about an SRC, click the check box next to it and then click the **Show Details** button. The SRC details are displayed.
   d. To determine the SRC extension word values, look in the Primary System Reference Code details section.

MAP1217 HMC changing locale screen during boot (change language)

The locale screen is displayed during the HMC boot if the locale was not set during the installation of the DS8000.

MAP1217 Section-1

1. Find the condition that you have:
   - If you want to change the locale of the HMC, go to step 2 on page 490.

- If the change locale screen displays during the management console (HMC) boot, go to step 3.

2. Display and update the HMC locale:
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
   b. Click **HMC Management** → **HMC Configuration**.
   c. In the right content area, select **Change Current Language and Locale**.
   d. This completes this procedure. Exit this MAP.
3. Display and update the HMC locale:
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
   b. Click **HMC Management** → **HMC Configuration**.
   c. In the right content area, select **Change Current Language and Locale**.
4. Click **Console** → **Exit** → **Exit Now** → **Reboot** to restart the HMC.
5. Within 20 seconds of the following screen appearing during the restart, click the middle radio button and then click **OK**.

```
You can change the locale now in order to run HMC in a different locale.
If you do not make a selection in 20 seconds the dialog exits.
Enter your selection:
 * Change Locale
 * Exit now and do not prompt again for locale change
 * Exit now and prompt again for locale change
```

MAP1220 Management console GUI menu structure

The management console has a navigation pane options hierarchy that is large and goes several layers deep.

This MAP is only for general reference and is not to be used as guidance to begin a service action. To begin service actions, go to Chapter 1, “Start here,” on page 1.

MAP1220 Section-1

This is an overview of the management console navigation panel options hierarchy.

- **Management Environment**
  - Management console (HMC) Hostname
    - **Server and Partition**
      - Frame Management (not for CE login)
      - Server Management
        - Server-9117-570-SN13AAAF0 Operating
          - Partitions
            - SF1302880ESS11 Running
              - ″General, Memory, Processors, Physical I/O, Virtual I/O, Power Controlling, Settings″
          - System Profiles
      - Utilization Data Management
    - **Information Center**
      - Launch the DS8000 Server Information Center
    - **Licensed Internal Code Maintenance**
      - HMC Code Update

- Tasks
  - Backup Critical Console Data
  - Save Upgrade Data
  - Install Corrective Service
  - Format Removable Media
  - Remote Restore of Critical Console Data
- Status
  - HMC Version, HMC Release, Build

- Licensed Internal Code Updates
  - Change Internal Code
    - (on the main menu, click **Selected**)
      - Display Installed Code Levels
      - Acquire Code Images
      - Update HMC Code
      - Update Storage Facility Code
      - DDM Utilities
        - Display DDM Code Levels
        - Update DDM Code Levels
        - Display DDM Update Status
        - Terminate DDM Update
      - Update and Recovery Utilities
        - Display Update Request Status
        - HMC Library Utilities
          - Display Library Contents
          - Clear Library Contents
          - Clear All Locks
          - Delete a Release Bundle
          - Delete a Package
        - Request Management Utilities
          - Suspend an Active Operation
          - Terminate an Operation
          - Resume a Suspended Operation
        - Recovery Utilities
          - Backlevel Firmware Operation
          - Advanced Configuration
          - Emergency Utilities
            - NCCL SFI forced code activation - NO IML
            - NCCL SFI forced code activation - IML
            - NCCL SFI forced code activation Single LPAR - IML
            - NCCL Squadron Firmware Update
            - NCCL Power Firmware Update
            - NCCL Storage Enclosure Update

            Quiesce SFI
          - Display CDA SFI Attributes
          - Run CdaPreVerify

- Reset call home blocking

- **HMC Management**
  - HMC Users
    - Manage HMC Users and Access (hscroot, invscout, CE, PE, customer, root)
    - Manage Access Task Roles and Managed Resource Roles
    - Change User Password
  - HMC Configuration
    - Customize Console Date and Time
    - View Console Events
    - Customize Network Settings
    - Test Network Connectivity
    - Schedule Operations
    - Enable or Disable Remote Command Execution
    - Enable or Disable Remote Virtual Terminal
    - Change Current Language and Locale
- **Service Applications**
  - Service Agent
    - eService Registration
    - Customer Notification
      - Email
      - SNMP Trap Configuration
    - Transmit Service Information
      - Transmit
      - FTP
  - Remote Support
    - Customize Customer Information
      - Administrator
      - System
      - Account
    - Customize Outbound Connectivity
      - Local Modem
      - Internet VPN
      - Pass-Through Systems
    - Customize Inbound Connectivity
      - Remote Service
        - Attended Session
        - Unattended Session
    - Manage Remote Support Requests
      - (on the main menu, click **Options**)
        - View All Call Home Servers
        - Cancel Selected Requests
        - Cancel All Active Requests
        - Cancel All Waiting Requests
    - Manage Remote Connections

- (on the main menu, click **Options**)
  - Prioritize Selected Requests
  - Cancel Selected Requests
  - Cancel All Active Requests
  - Cancel All Waiting Requests
  - Hold the Queue
  - Release the Queue

– Customize Service Settings (HMC and Servers)
- Enable
- Disable

• Service Focal Point
– Repair Serviceable Event (A list of systems with open serviceable events is displayed. Select the system to display its serviceable events.)
– Manage Serviceable Events
- The following can be used to narrow your search, the results are displayed in the Serviceable Event Overview below.
  • Event Criteria by:
    – Serviceable event status
    – Problem number
  • Error Criteria by:
    – Reporting MTMS
    – Failing MTMS
    – Reference code
    – Number of days to view
  • Field-Replaceable Unit (FRU) criteria:
    – Part number
    – Location code
- Serviceable Event Overview
  • (on the main menu, click **Selected**)
    – View Details
- (on the main menu, click **Selected**)
  • FRU Details (P/N, Class, Replacement group, Logic controlling MTMS, Power controlling MTMS)
  • Search Serviceable Events
  • FRU Description
- (on the main menu, click **Actions**)
  • View Comments
  • Search Reference Code
  • View Service History

    – Repair
    – Call Home (only for manage serviceable events)
    – Manage Problem Data (only for manage serviceable events)

(OS EED, Service Processor Dump, SMA Dump, Power Assembly Dump, Platform System Dump, High Performance Switch EED, owner Assembly EED, Partition MAP, HMC EED)

- Call Home
- Close Event
  - Enter Serviceable Events Comments (only for manage serviceable events)

- Install/Add/Remove Hardware
  - (on the main menu, click **Selected**)
    - Install New Storage Facility
    - Model Conversion
    - Install Storage Facility OS
    - Storage Facility Field Install
    - Install I/O Enclosure or Components
    - Remove I/O Enclosure or Components
    - Install Storage Enclosure or DDMs
    - Remove Storage Enclosure or DDMs
    - Install Expansion Rack
    - Remove Expansion Rack
    - Install CEC Enclosure or Components
    - Remove CEC Enclosure or Components
    - Install Rack Power Components
- Exchange Parts
  - (on the main menu, click **Selected**)
    - Exchange Storage Enclosures and Components
      - Show FRUs
        - Exchange FRU
    - Exchange IO Enclosures and Components
      - Show FRUs
        - Exchange FRU
    - Exchange CEC Components
      - Show FRUs
        - Exchange FRU
    - Exchange Rack Components
      - Show FRUs
        - Exchange FRU
- Service Utilities
  - (on the main menu, click **Selected**)
    - Get Storage Facility Images
      - Get ESS LPARs
      - (on the main menu, click **Selected**)
        - AIX Command Processing Menu
          - View AIX Error Logs
          - View Contents of a Directory
          - View Contents of File

        - View Current Status Of Processes
        - Display File System Allocations
        - Retrieve objects from specified Object Class
      - Rebuild Hard Drive
      - Change/Show SFI LPAR State
        - Quiesce LPAR
        - Resume LPAR
        - Shutdown LPAR
        - Activate LPAR
      - Set No-rsStart
      - Reset No-rsStart
    - Manage SFI Resources
      - View LSS Group 0
      - View LSS Group 1
      - View RankGrp 0 Segment Pools
      - View RankGrp 1 Segment Pools
      - View Address Groups
      - View SCSI Host Ports
      - View Volume Groups
      - View Array Sites
    - Manage LSS
      - Clear Options
        - All LSSs
        - Even LSSs
        - Odd LSSs
        - Selected LSSs
        - PPRC Sessions
        - XRC/CC Sessions
      - Reset Options
        - All LSSs
        - Even LSSs
        - Odd LSSs
        - Selected LSSs
        - PPRC Paths
    - Manage Volumes
      - View Volumes
        - Unfence
        - Reset
        - Clear
        - Query Pinned Tracks
        - View Properties
      - View Properties
    - Reset Global MetaData
    - Enable/Disable Control Switches
      - Allow Lower RPM

        - AS400 LUN Serial Suffix Number
        - CUIR Support
        - Fast Check 1 Recovery
        - Fibre LUN Access Control
        - Report Cluster Over Temp
        - Report DDM Over Temp
        - High BW Seq Fast Write
        - CU Threshold
        - Device Threshold
        - Media Threshold
      – Process LPAR State Saves
      – Process ISS DA State Saves
      – Process DDM State Saves
      – Process Storage Enclosure State Saves
      – Process Phyp State Saves
      – Perform Data Collection on Demand
      – Rank Repair
      – Change/Show SFI State
      – Individual File Offload
  • Get SF Systems
    – (on the main menu, click **Selected**)
      - Storage System Power Control
        • Power On System to Standby
        • Power On System to Ready
        • Power Off System
      - Launch ASM Menu
      - Manage Dumps
        • (on the main menu, click **Selected**)
          – Copy Dump to Media
          – Copy Dump to Remote System
          – Call Home Dump
          – Delete Dump
        • (on the main menu, click **Actions**)
          – Initiate System Dump
          – Initiate Service Processor Dump
          – Initiate Power Subsystem Dump
      - Edit MTMS
      - Identify LED Processing
        • Activate LED
        • Deactivate LED
      - Lamp Test
      - Operator Panel Service Functions
      - View RIO Topology
    – (on the main menu, click **Actions**)
      - Connection Monitoring

        - Connection Monitoring Timer Settings
        - Enable
        - Disable
      - Load Problems From XML
- Get ESS LPARs
  - (on the main menu, click **Selected**)
    - AIX Command Processing Menu
      - View AIX Error Logs
      - View Contents of Directory
      - View Contents of File
      - View Current Status of Processes
      - Display File System Allocations
      - Retrieve objects from specified Object Class
    - Rebuild Hard Drive
    - Change/Show SFI LPAR State
      - Quiesce LPAR
      - Resume LPAR
      - Shutdown LPAR
      - Activate LPAR
    - Set No-rsStart
    - Reset No-rsStart
- Get Storage Plex
  - (on the main menu, click **Selected**)
    - Get All SF and HMC
      - SF Menu Options (as above)
      - HMC Menu Options (as below)
    - View Network Topology
    - Restart Network
- Get HMCs
  - (on the main menu, click **Selected**)
    - Get Storage Facilities
      - SF Menu Options (as above)
    - Get Storage Plex
      - Storage Plex Options (as above)
    - Change HMC User Password
    - Start/Stop ESSNI
    - Start/Stop DS Storage Manager Server
    - Generate HMC Public Key
    - Set FSP Passwords
- Generate Storage Facility Install Report
- Manage Power Control
  - One screen that can:
    - Manually power on/off the storage facility
    - Set the power mode (zSeries / Automatic / Scheduled / Scheduled Automatic / Manual)

- Set the power on/off scheduling
- Display Power Status
  - Select target storage facility, displays:
    - Status of system (On / Powering On / Powering Off / Off)
    - Battery module life remaining (in months)
- Manage FRUs
  - Show CEC Enclosures
    - Show FRUs
      - Show attributes
  - Show Rack Enclosures
    - Show FRUs
      - Show Attributes
  - Show IO Enclosures
    - Show Attributes
    - Show Host Adapters
      - Perform Wrap Test
      - Perform Bit Error Rate Test
      - Change Topology
      - Show Attributes
    - Show Device Adapters
      - Show Attributes
      - Verify Loop
  - Show Storage Enclosures
    - Show Attributes
    - Show FRUs
      - Show Attributes
- Activate/Deactivate Resources
  - Show CEC Enclosures
  - Show Rack Enclosures
  - Show IO Enclosures
  - Show Storage Enclosures
  - Show SCSI Enclosures
- Test Problem Notification (PMH, SNMP, Email)
- View Resources States
- View/Certify DDMs
- Reset All Service Locks
- View/Reset Attention Indicators
- View Storage Facility State
- Collect VPD Information

MAP1221 ASMI menu structure

This is an overview of the menu structure (hierarchy) of the advanced system management interface (ASMI).

This MAP is only for general reference and is not to be used as guidance to begin a service action. To begin service actions, go to Chapter 1, “Start here,” on page 1.

MAP1221 Section-1

For instructions on how to access the ASMI, see "MAP6F00 Accessing the ASMI" on page 851.

The ASMI for the service processor card has a navigation pane options hierarchy that is only one layer deep.

Notes:

1. If you are logged in and not active for 15 minutes, your session expires.
2. If you make five invalid login attempts, your user account is locked out for five minutes and none of the other accounts are affected.

Power/Restart Control

- Power On/Off System
  - System boot speed
  - Firmware boot side for the next boot
  - System operating mode
  - Boot to system service firmware
- Auto Power Restart
- Immediate Power Off (Only when system is powered on)
- System Reboot (Only when system is powered on)
- Wake On LAN

System Service Aids

- Error/Event Logs
- Serial Port Snoop (Not available when managed by HMC)
- System Dump
  - Dump policy
  - Hardware content
  - Server firmware content
- Service Processor Dump
- Serial Port Setup (Not available when managed by HMC)
- Modem Configuration (Not available when managed by HMC)
- Call-Home/Call-In Setup (Not available when managed by HMC)
- Call-Home Test (Not available when managed by HMC)
- Reset Service Processor
- Factory Configuration (Not available when managed by HMC)

System Information

- Vital Product Data
- Power Control Network Trace
- Previous Boot Progress Indicator
- Progress Indicator History

System Configuration

- System Name
- Processing Unit Identifier (Only available when system is powered off)

- Configure I/O Enclosures
- Time Of Day (Only available when system is powered off)
- Firmware Update Policy
- PCI Error Injection Policy
- Interposer Plug Count (Not applicable to this system)
- Hardware Deconfiguration
  - Deconfiguration Policies
    - Deconfigure on predictive failure
    - Deconfigure on functional failure
    - Deconfigure on system bus failure
    - Deconfigure on floating point unit failure
  - Processor Deconfiguration
  - Memory Deconfiguration (The current eServer firmware used in the CEC enclosure does not allow the ″banks″ to converted to specific DIMM slots.)
- Program Vital Product Data
  - System Brand (Only available when system is powered off)
  - System Keywords (Only available when system is powered off)
    - Storage facility system type-model
    - Storage facility system serial number
    - Storage facility machine type-model
    - Storage facility serial number
    - System ID
    - Storage facility system unique ID
    - Storage facility manufacturing ID
    - Node ID
  - System Enclosures (Only available when system is powered off)
    - Enclosure location
    - Feature Code/Sequence Number
    - Enclosure serial number
- Service Indicators
  - System Attention Indicator
  - Enclosure Indicators
  - Indicators by Location code
  - Lamp test

Network Services

- Network Configuration
  - eth0
  - eth1
- Network Access
  - Allowed IP addresses
  - Denied IP addresses

Performance Setup

- Logical Memory Block Size

On Demand Utilities

- CoD Order Information (Not available prior to system firmware standby mode)
- CoD Activation (Not available prior to system firmware standby mode)
- CoD Recovery (Not available prior to system firmware standby mode)
- CoD Command (Not available prior to system firmware standby mode)

Concurrent Maintenance

- Control Panel
- IDE Device Control

Login Profile

- Change Password
- Retrieve Login Audits
- Change Default Language

MAP1225 Closing a serviceable event

Using the management console to close a serviceable event that has been repaired.

MAP1225 Section-1

Close the serviceable event that has been repaired: At the management console, select **Service Applications** → **Service Focal Point** → **Manage Serviceable Events**. Select the serviceable event. From the tool bar, click **Selected** and then **Close Event**.

MAP1230 Replace a FRU without using a serviceable event

This procedure describes how to replace a FRU when it is not listed as a serviceable event by first selecting a specific FRU by location and then repairing the FRU.

MAP1230 Section-1

1. At the management console, select **Service Applications** → **Service Focal Point** → **Exchange Parts**. Then select **Machine Type/Machine Serial** and from the tool bar, click **Selected**. From the drop-down menu, select **Enclosure or Component** and then **Enclosure Location Code**. Click the **Show FRUs** button and select **FRU Location Code**. Click the **Exchange FRU** button.
2. Use the Exchange FRU option to replace the FRU.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Exchange Parts**, a window appears displaying a list of storage facilities.
   d. Select the storage facility, click **Selected** (on top tool bar), and then select the Enclosure or Component containing the FRU.
   e. Select the enclosure location code, click Enclosure or Component. Then select the **Show FRUs** button, select **FRU Location Code** and click the **Exchange FRU** button.

MAP1240 Locating FRUs using identify indicators

The primary method to locate a FRU to be exchanged is using the hierarchy of identify indicators for that FRU. When the FRU to be exchanged has been selected

in a serviceable event, or using the FRU replace options, the management console will cause the hierarchy of identify indicators to be lit.

For example if you have selected to exchange a storage enclosure DDM FRU from a serviceable event, the following identify indicators will be lit:

- Rack identify indicator (on the rack operator panel) for the rack that contains the FRU
- Storage enclosure identify indicator for the enclosure that contains the FRU
- DDM identify indicator for the specific DDM that is to be replaced

For those FRUs that do not have an identify indicator (see Table 150 on page 503), the rack and enclosure identify indicators will still be lit. To determine the actual FRU within the enclosure, the last part of the location code for that FRU will need to be used. See "MAP1245 Finding FRUs using location codes" on page 514.

For more information about LEDs, see Chapter 46, "Light indicators (LEDs)," on page 1441.

MAP1240 Section-1

1. Locate the storage facility to be serviced. Its rack 1 operator panel identify LED **(1)** will be blinking.

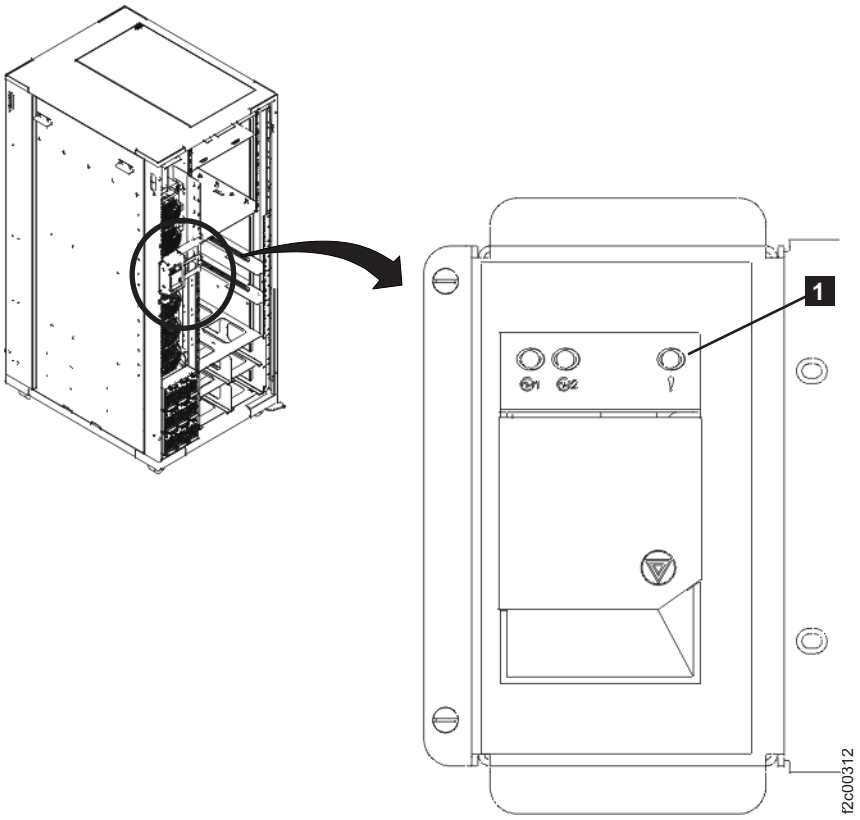


Figure 320. The "Identify" indicator (LED) on a rack operator panel

2. Does the storage facility have more than one rack?
   - Yes, go to step 3.
   - No, the FRU will be in rack 1. Go to step 4.

3. Observe the operator panel identify LED **(1)** on each rack in the storage facility. Is rack 1 the only rack with its operator panel identify LED blinking?
   - Yes, the FRU will be in rack 1. Go to step 4.
   - No, the FRU will be not be in rack 1, but will be in the other rack with it operator panel identify LED blinking. Go to step 4.
4. Open the front and rear covers of the rack containing the FRU determined in the above steps. You will now locate the area of the rack containing the FRU.
   a. Use the FRU description and FRU location code from a serviceable event FRU list or the exchange FRU option in Table 150 to find the area of the rack containing the FRU. The MTMS (machine type model serial number) is the first part of the FRU location code.

      Example: Location code = U2*nnn*.921.17035-C2 where **U2*nnn*.921.17035** = MTMS and **C2** = FRU location within the MTMS.

      Note: If a FRU is contained in an enclosure, only the enclosure is listed below. If the FRU is not contained in an enclosure, then it is listed in the table.

Table 150. FRU identify LED locations

MTMS	FRU Description	Identify LED location
Rack and power		
2*nnn*.mmm.sssssss		Figure 320 on page 502
U2*nnn*.mmm.sssssss-Exx (xx=10, 11,12)	Battery module enclosure	"MAP1240 Section-2 (battery enclosure)" on page 504
U2*nnn*.mmm.sssssss-Ax (x=1,2,3)	DASD fan tray	"MAP1240 Section-3 (DASD fan tray)" on page 504
U2*nnn*.mmm.sssssss-Cx (x=3,4)	Fan sense card	"MAP1240 Section-4 (fan sense card)" on page 505
U2*nnn*.mmm.sssssss-C6	Local remote switch card / zSeries local remote switch card	"MAP1240 Section-5 (local remote or zSeries local remote switch card)" on page 506
U2*nnn*.mmm.sssssss-Ex (x=1,2)	Primary power supply (PPS)	"MAP1240 Section-6 (primary power supply, PPS)" on page 507
U2*nnn*.mmm.sssssss-C5	Rack identity card	"MAP1240 Section-7 (rack identity card)" on page 508
U2*nnn*.mmm.sssssss-Cx (x=1,2)	RPC card	"MAP1240 Section-8 (RPC card)" on page 508
Storage Facility Image (SFI)		
U2*nnn*.mmm.ssssssy		This is not a FRU.
Storage enclosure		
U2*nnn*.D01.sssssss	Multiple FRUs in enclosure	"MAP1240 Section-9 (storage enclosure)" on page 509
CEC enclosure (A CEC complex may have more than one CEC enclosure, each with a unique ssssss.)		
U7879.001.sssssss	Multiple FRUs in enclosure	"MAP1240 Section-10 (CEC Enclosure)" on page 510
I/O enclosure		

Table 150. FRU identify LED locations (continued)

MTMS	FRU Description	Identify LED location
U1300.001.sssssss	Multiple FRUs in enclosure	"MAP1240 Section-11" on page 512
HMC server		
8676.mmm.sssssss	Multiple FRUs in enclosure	There is no Identify LED for the HMC.

MAP1240 Section-2 (battery enclosure)

1. At the rear of the rack, find the battery enclosure with the blinking identify LED **(1)**.

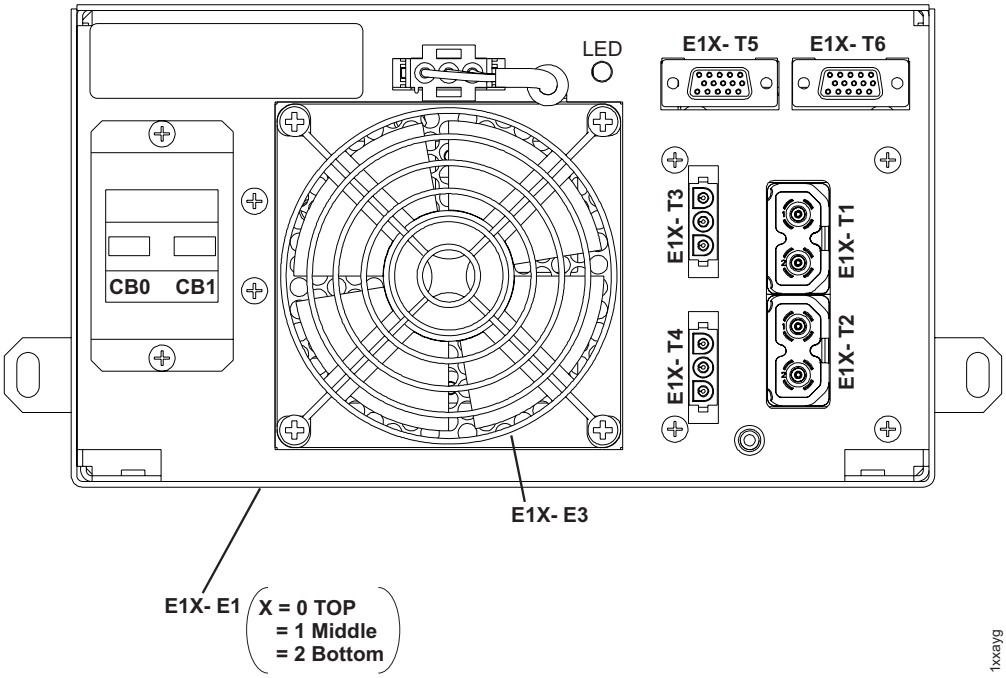


Figure 321. Battery module set locations (rear)

MAP1240 Section-3 (DASD fan tray)

1. At the front of the rack, find the DASD fan tray with the blinking identify LED **(1)**.

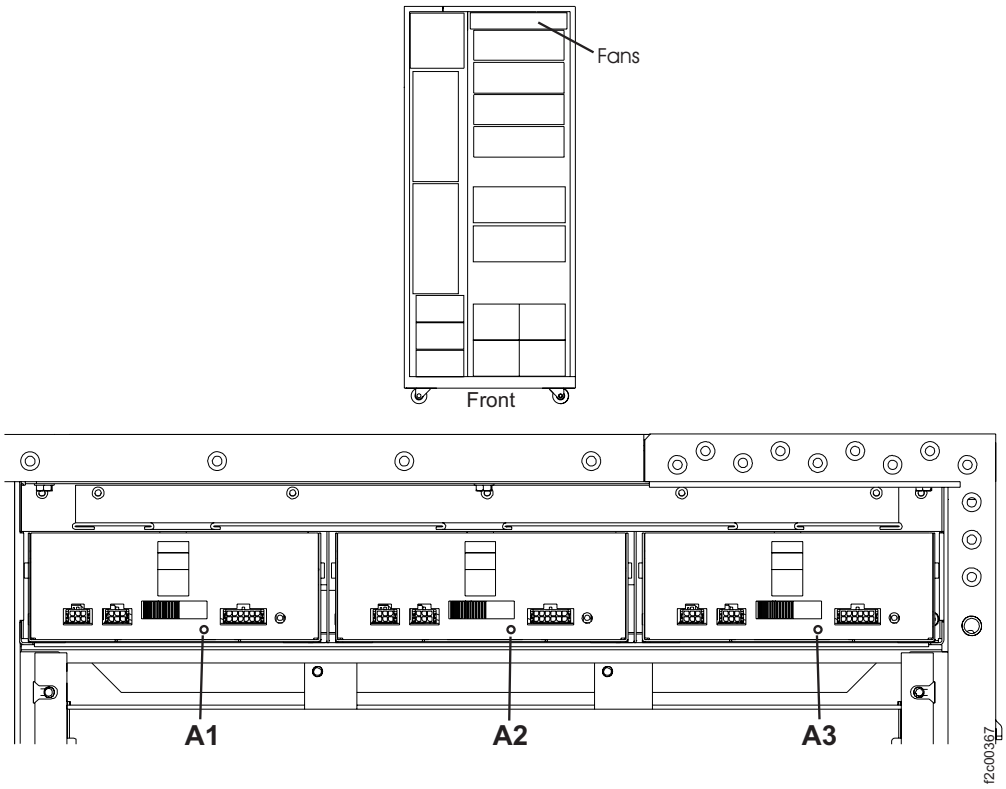


Figure 322. The "Identify" indicator (LED) for a DASD fan tray

MAP1240 Section-4 (fan sense card)

1. At the front and rear of the rack, find the fan sense card with the blinking identify LED **(1)**.

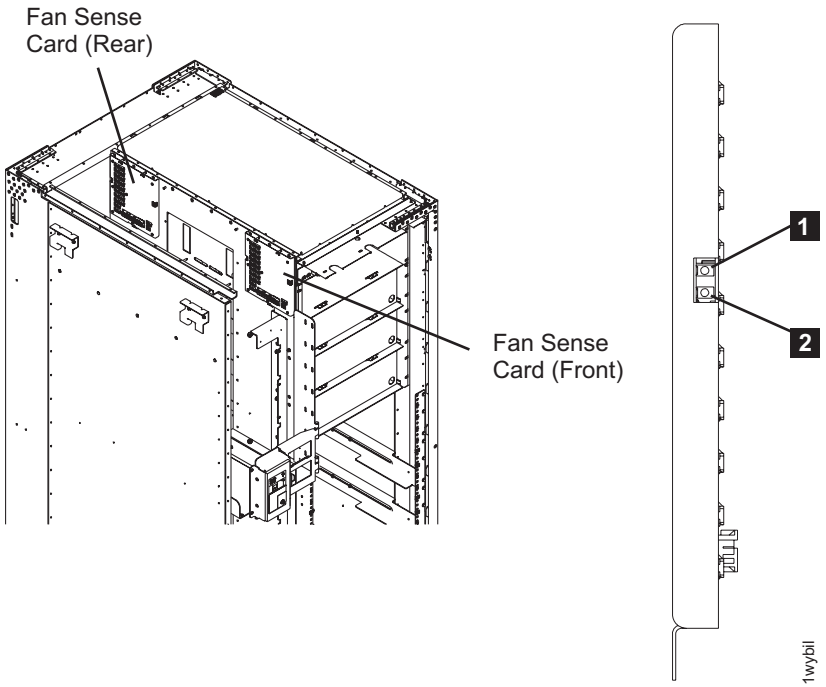


Figure 323. LEDs on the fan sense cards

MAP1240 Section-5 (local remote or zSeries local remote switch card)

1. At the rear of the rack, find the local remote switch card or zSeries local remote switch with the blinking identify LED **(1)**.

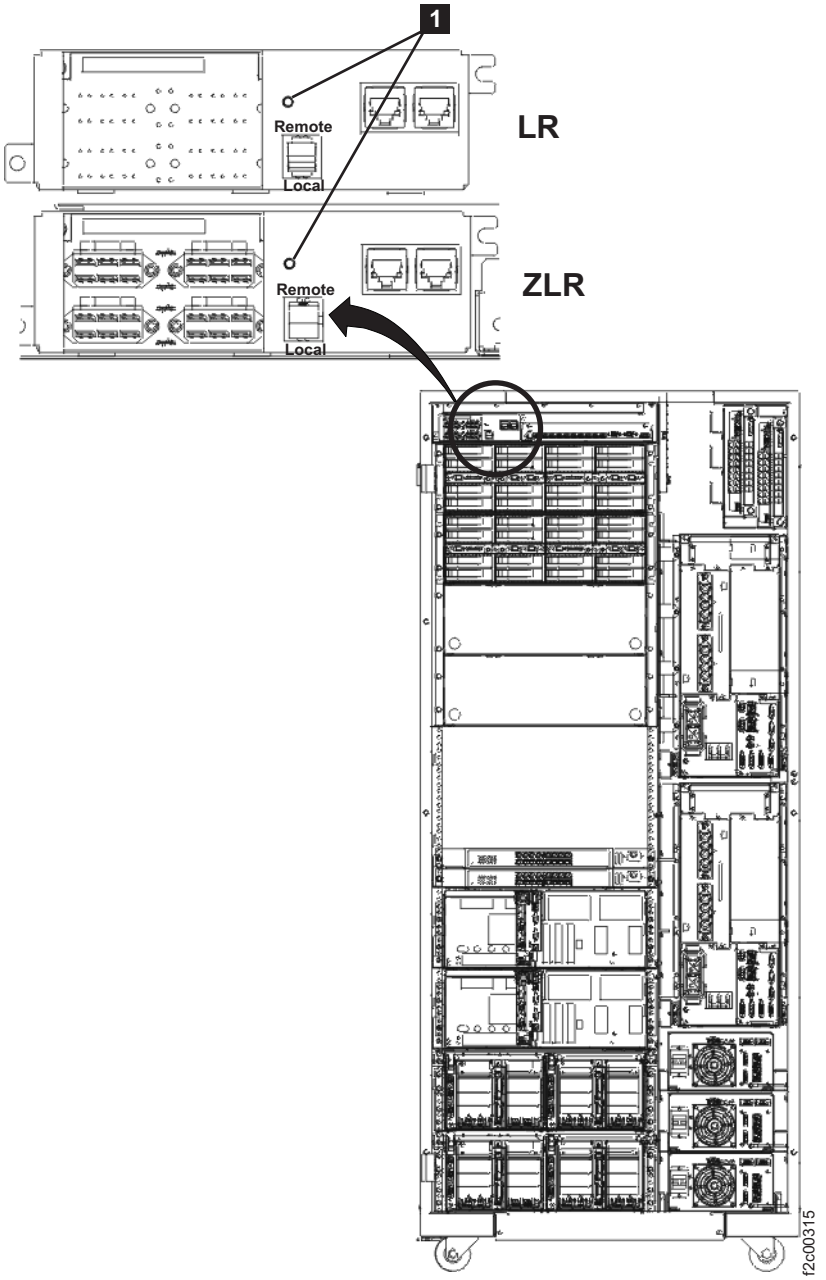


Figure 324. The "Identify" indicators (LEDs) for local remote and zSeries local remote switch cards

MAP1240 Section-6 (primary power supply, PPS)

1. At the front of the rack, find the primary power supply with the blinking identify LED **(1)**.

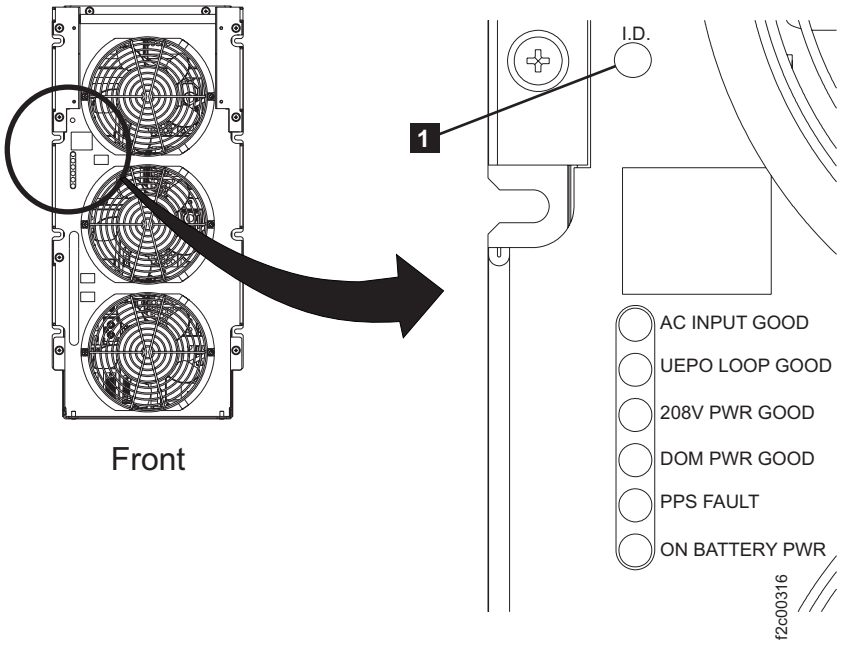


Figure 325. The "Identify" indicator (LED) for a PPS

MAP1240 Section-7 (rack identity card)

1. At the rear of the rack, observe the identify LED **(1)**.

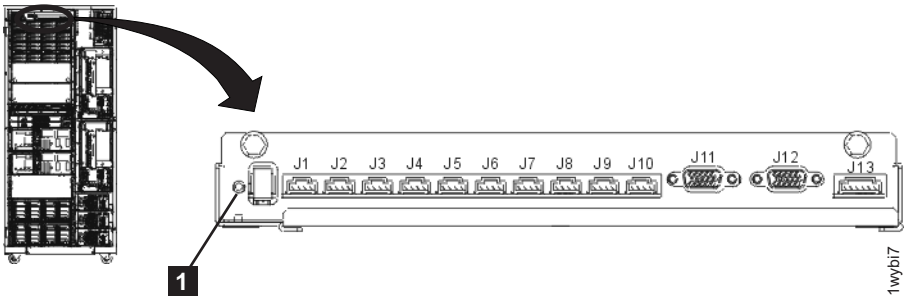


Figure 326. LEDs on the rack identity card

MAP1240 Section-8 (RPC card)

1. At the rear of the rack, find the RPC card with the blinking identify LED **(1)** or **(2)**.

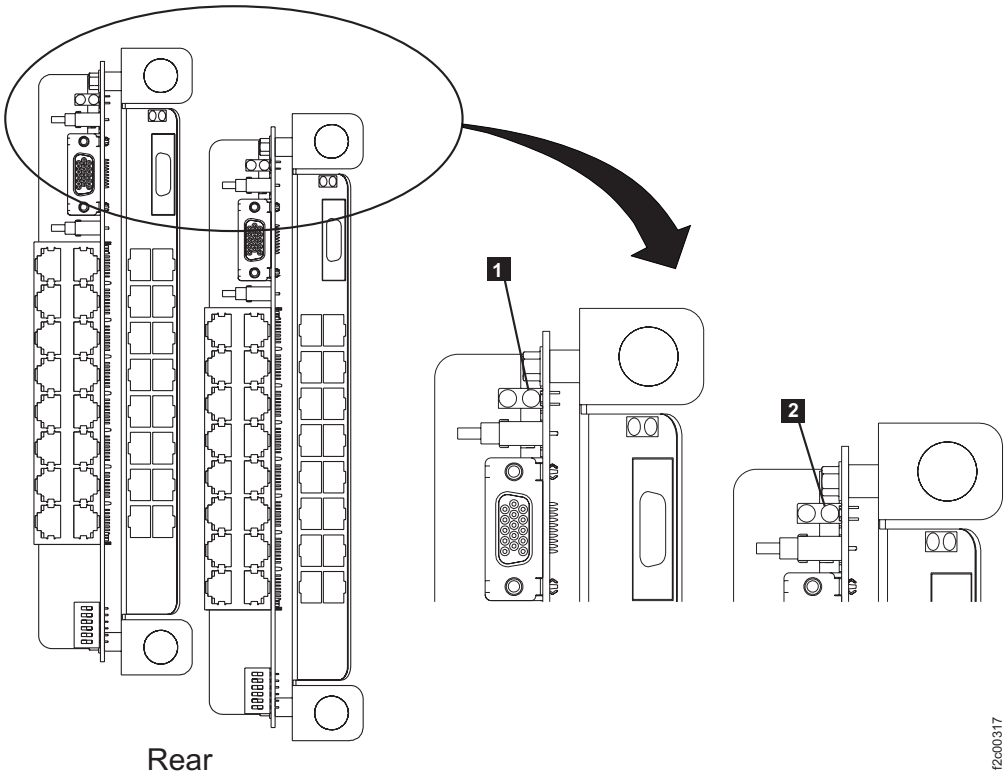


Figure 327. The "Identify" indicator (LED) for an RPC card

MAP1240 Section-9 (storage enclosure)

1. At the front and rear of the rack, find the storage enclosure with the enclosure identify LED **(7)** blinking on one or both FCIC cards.

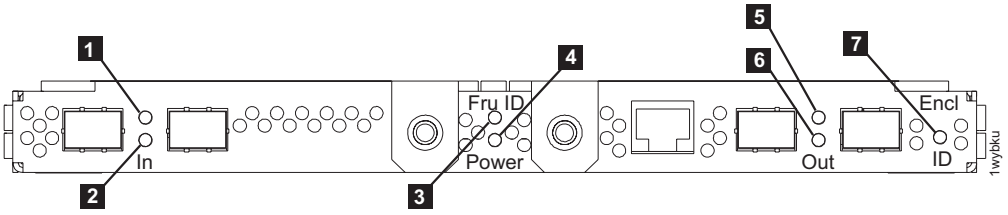


Figure 328. LEDs on a fibre channel interface card (at a storage enclosure)

Table 151. Storage enclosure identity LEDs

FRU	Reference
FCIC card	Figure 328, LED (2)
DDM	Figure 329 on page 510, LED (1)

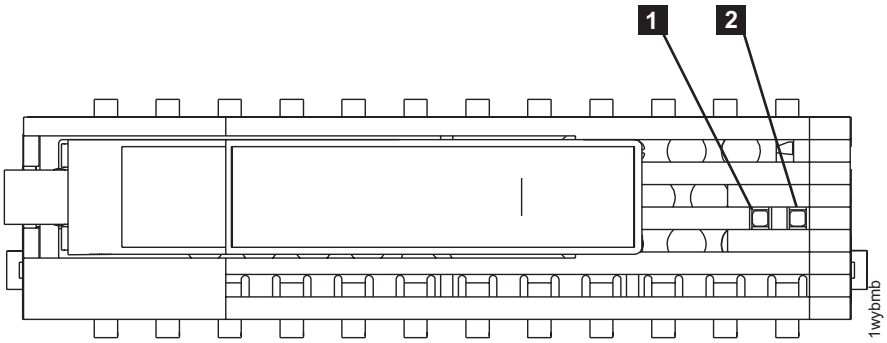


Figure 329. LEDs on a disk drive module (DDM)

MAP1240 Section-10 (CEC Enclosure)

1. At the front of the rack, find the CEC enclosure with the enclosure identify LED **(1)** blinking.

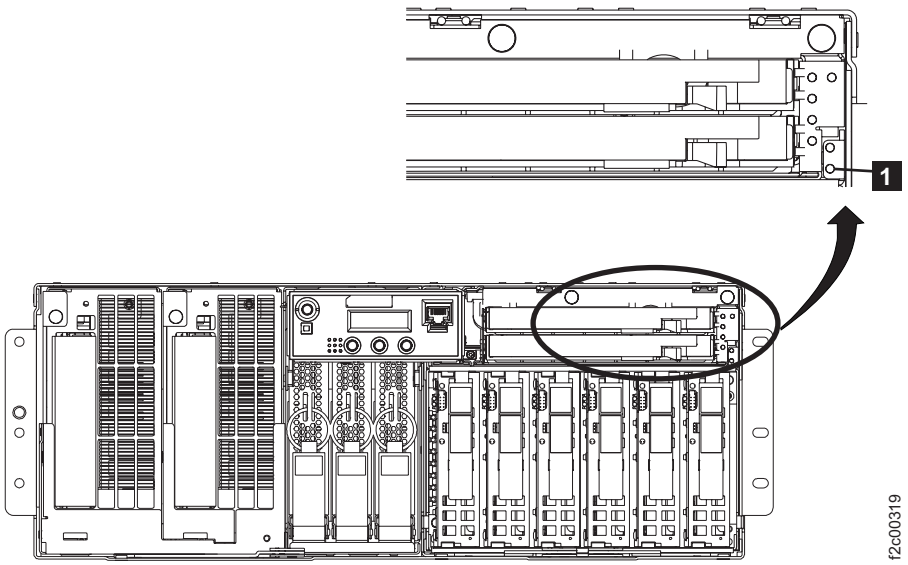


Figure 330. The "Identify" indicator (LED) for a CEC enclosure (front)

2. Find the FRU identify LED location that is blinking using the following table and figures.

FRU	Reference
CEC disk drive backplane	Figure 331 on page 511, LED (13)
CEC disk drive	Figure 331 on page 511, LED (22)
CEC enclosure control panel	No LED, use location code
CEC enclosure fan	Figure 331 on page 511, LED (9) or (11)
CEC enclosure IO backplane assembly	Figure 333 on page 512, LED (11)
CEC enclosure power supply	Figure 332 on page 512, LED (1) or (10)
CEC enclosure RIO card	Figure 332 on page 512, LED (9)
DVD RAM drive	Figure 331 on page 511, LED (3)
Ethernet card	Figure 332 on page 512, LED (2)

FRU	Reference
Media backplane assembly	Figure 331, LED (6)
NVC card	Figure 332 on page 512, LED (2)
System processor card	Figure 332 on page 512, LED (6)
System processor dummy card	No LED, use location code
System processor voltage card	Figure 331, LED (23)
System processor voltage dummy card	No LED, use location code
VPD card	No LED, use location code

CEC Enclosure LEDs (Front)

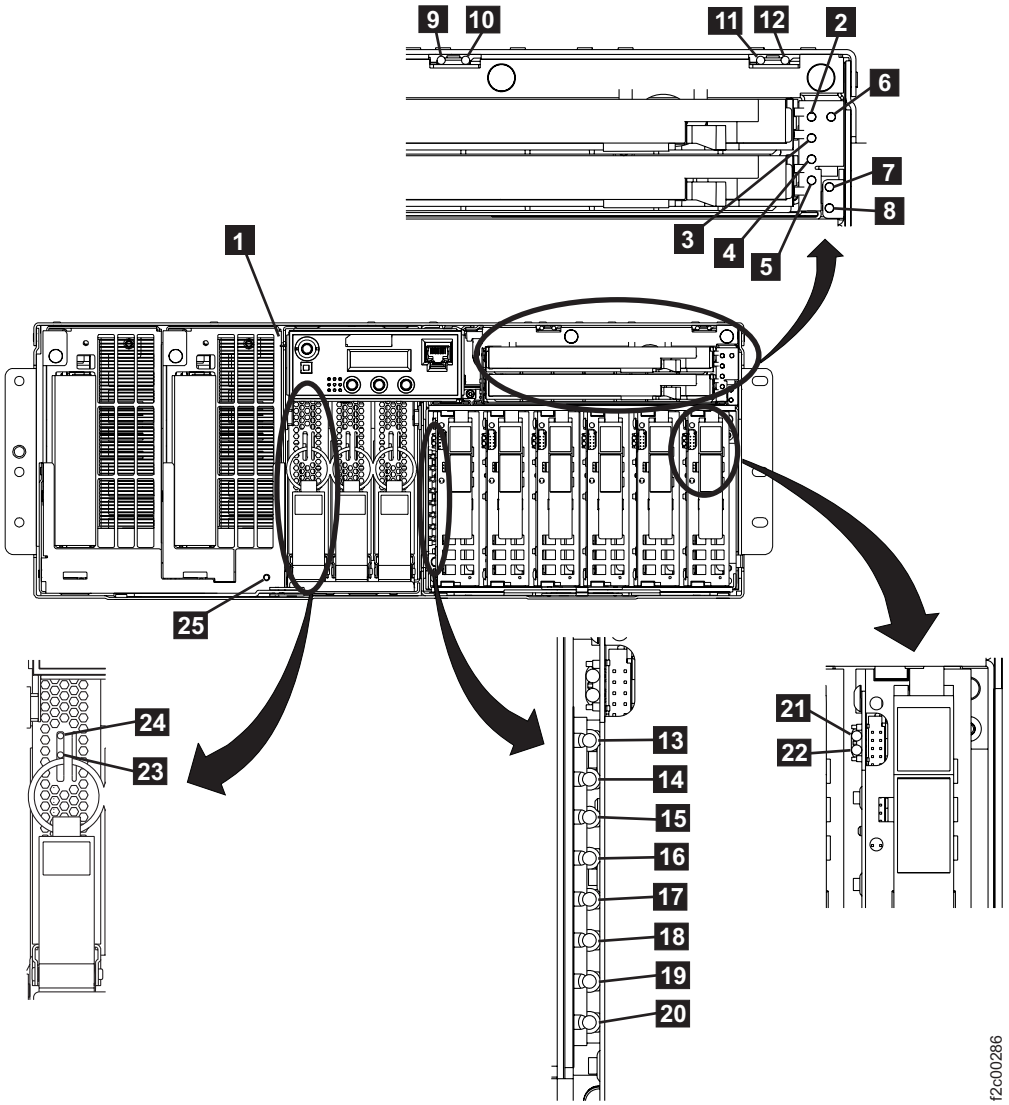


Figure 331. LED CEC enclosure front

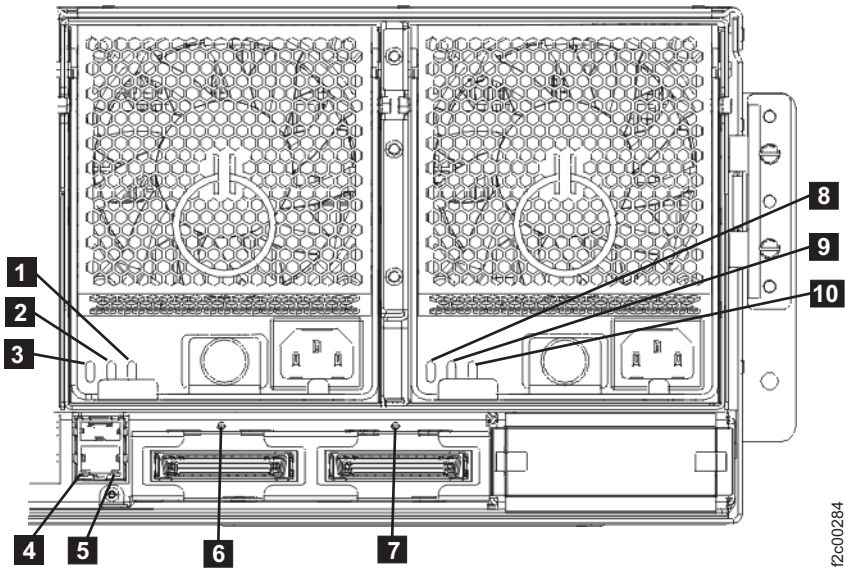


Figure 332. LED CEC enclosure right rear

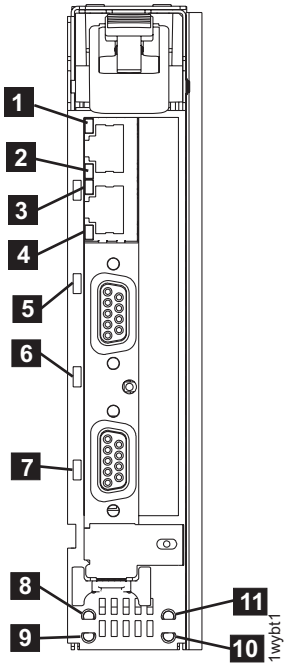


Figure 333. LED CEC enclosure service processor card

MAP1240 Section-11

1. At the rear of the rack, find the IO enclosure with the enclosure identify LED **(1)** blinking.

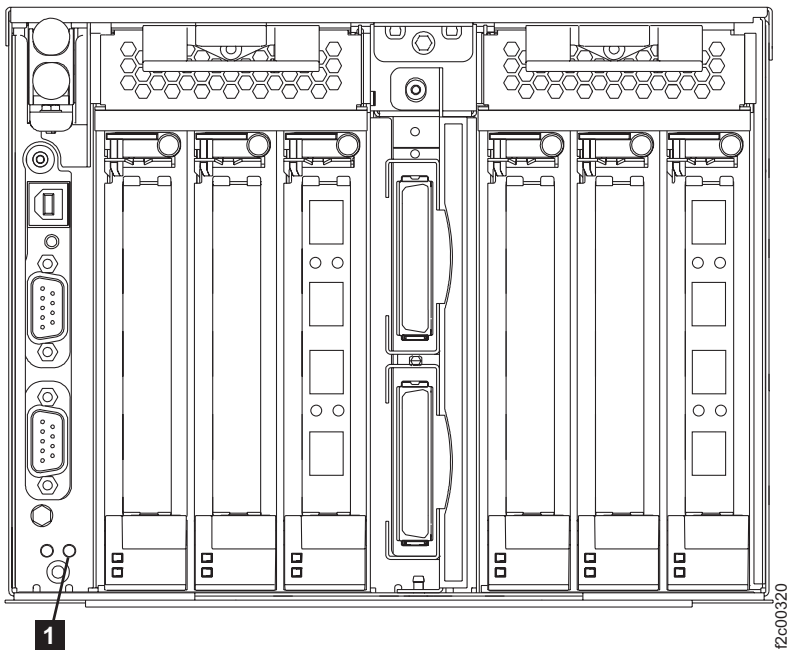


Figure 334. The "Identify" indicator (LED) for an I/O enclosure (rear)

2. Find the FRU identify LED location that is blinking using the following table and figures.

Table 152.

FRU	Reference
Device adapter card	Figure 335 on page 514, LED (5)
ESCON host card	Figure 335 on page 514, LED (5)
Fibre channel host card, long wave	Figure 335 on page 514, LED (5)
Fibre channel host card, short wave	Figure 335 on page 514, LED (5)
I/O enclosure backplane	Figure 335 on page 514, LED (4)
I/O enclosure fan	Figure 336 on page 514, LED (7)
I/O enclosure power supply	Figure 336 on page 514, LED (3) or (6)
I/O enclosure RIO card	Figure 335 on page 514, LED (tbd)

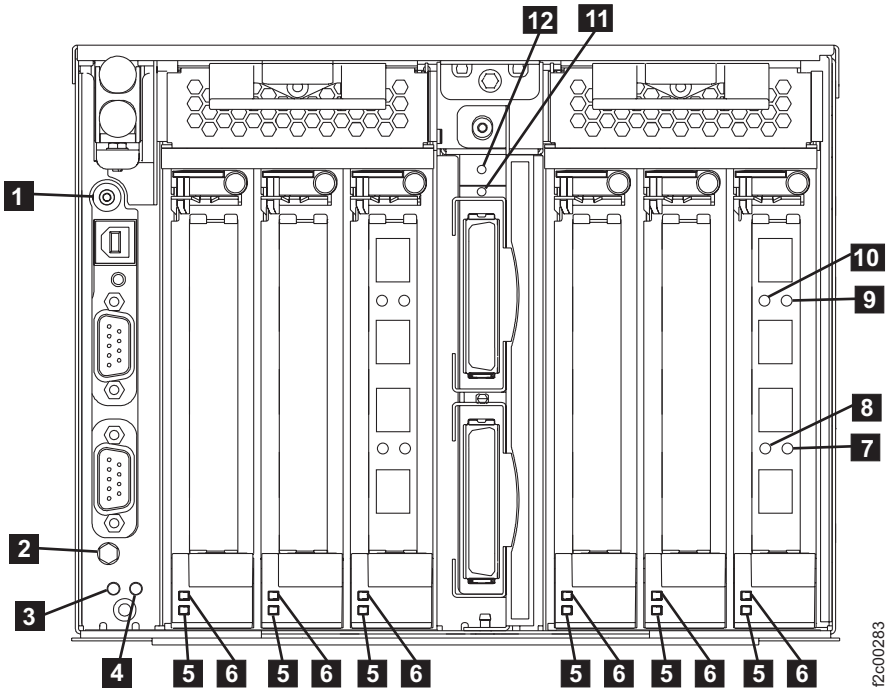


Figure 335. LEDs on the I/O enclosure (rear) and RIO card

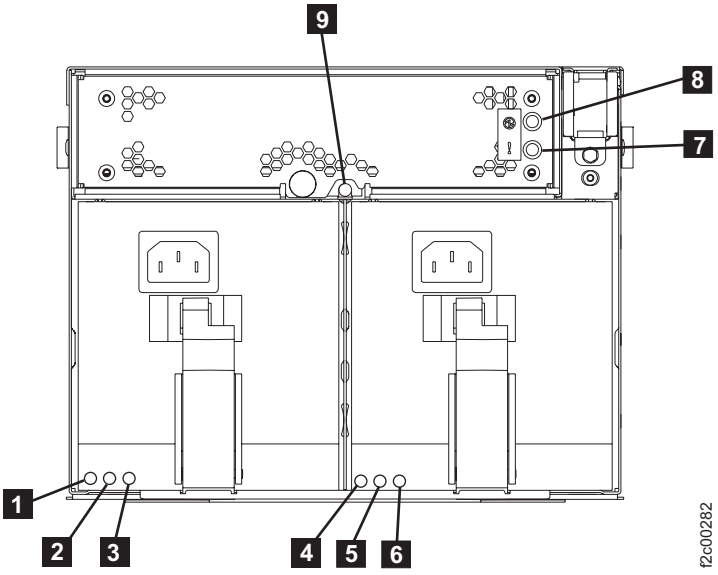


Figure 336. LEDs on the I/O enclosure (front)

MAP1245 Finding FRUs using location codes

This section describes how to translate a location code to the storage facility location that contains the FRU or function.

In most cases, any FRU listed in a serviceable event will include a location code. Cables are a special case because they do not have their own location code. Cables that can be identified as failing by the microcode will use the location of the FRU connectors they connect to. This means those cables will have two location codes, one for each end of the cable. In the case of a *Y* cable in the power system, there

will be three location codes. Cables that are not reported directly by the microcode will be determined by guided isolation procedures.

MAP1245 Section-1

1. Location codes have two parts:
   - the ″MTMS″ (machine type, model, serial number) of the rack or enclosure within the rack
   - the physical location within the rack or enclosure

   Example of location code: U2*nnn*.D01.1300177-P1-C2-T3
   - The ″MTMS″ (machine type, model, serial number):
     - U2*nnn*.D01 = storage enclosure (machine type/model)
     - 1300177 = storage enclosure serial number (visible on the bar code label)
   - The physical location:
     - P1- = Planar 1
     - C2- = FCIC card 2 (second from left in storage enclosure)
     - T3 = FC-AL cable connector (third FC-AL cable connector from left on FCIC card)
2. Use Table 153 to translate the MTMS or location code to the FRU type or enclosure type.
   - mmm = model (i.e. 921, 9A2)
   - sssssss = rack or enclosure serial number

Table 153. Location code translation

MTMS or location code	Description	MTMS label location	Second part of Location Code
2nnn.mmm.ssssss0	Storage Facility Rack (DS8000)	On the rack operator panel, below the UEPO red switch cover.	“Rack power and cooling location codes” on page 1425
U2*nnn*.mmm.ssssssy (y=1, 2)	Storage Facility Image (SFI)	(The SFI is not a physical FRU; it is a logical partition on the CEC enclosure.)	
U2*nnn*.A01.sssssss-A*x* (*x*=1, 2, 3)	DASD Fan Trays	On the rack operator panel, below the UEPO red switch cover.	“Rack power and cooling location codes” on page 1425
U2*nnn*.A01.sssssss-C*x* (*x*=1, 2)	Rack Power Control (RPC) card	On the rack operator panel, below the UEPO red switch cover.	“Rack power and cooling location codes” on page 1425
U2*nnn*.A01.sssssss-C*x* (*x*=3, 4)	Fan sense card	On the rack operator panel, below the UEPO red switch cover.	“Rack power and cooling location codes” on page 1425
U2*nnn*.A01.sssssss-C*x* (*x*=5)	Rack identity card	On the rack operator panel, below the UEPO red switch cover.	“Rack power and cooling location codes” on page 1425

Table 153. Location code translation (continued)

MTMS or location code	Description	MTMS label location	Second part of Location Code
U2*nnn*.A01.sssssss-C*x* (*x*=6)	Local/Remote or zSeries switch card	On the rack operator panel, below the UEPO red switch cover.	"Rack power and cooling location codes" on page 1425
U2*nnn*.A01.sssssss-E*x* (*x*=1, 2)	Primary Power Supply (PPS)	On the rack operator panel, below the UEPO red switch cover.	"Rack power and cooling location codes" on page 1425
U2*nnn*.A01.sssssss-E*x* (*x*=10, 11, 12)	Battery module enclosure	On the rack operator panel, below the UEPO red switch cover.	"Rack power and cooling location codes" on page 1425
U2*nnn*.D01.sssssss	Storage enclosure	On the front of the storage enclosure, at the far right in between the rack mounting screws (in a vertical orientation).	"Storage enclosure location codes" on page 1437
9117-570*sssssss	CEC complex (1 or more than 1 CEC enclosure cabled together and controlled by the service processor in the first CEC enclosure)	On the front of the CEC enclosure, on the operator panel.	"CEC enclosure location codes" on page 1415
U7879.001.sssssss	CEC enclosure (a CEC complex may have more than one CEC enclosure, each with a unique ssssss)	On the front of the CEC enclosure, at the far right, in between the rack mounting screws (in a vertical orientation).	"CEC enclosure location codes" on page 1415
U1300.001.sssssss	I/O enclosure	On the front of the I/O enclosure, at the bottom of the left I/O enclosure power supply.	"I/O enclosure location codes" on page 1420
8676.mmm.sssssss	Management console (MC)	On the front of the HMC server, at the far right, near the thumb screw (in a vertical orientation).	"Management console (MC) server location codes" on page 1424

MAP1250 Activating and deactivating the identify LEDs

MAP1250 Section-1

Use Table 154 to select your action:

Table 154. LEDs start table

You are here to:	Go to:
Activate, deactivate, display state of a CEC or I/O enclosure identify LED.	"MAP1250 Section-2"
Test all LEDs for a CEC enclosure and the I/O enclosures it controls. **Note:** This also tests CEC enclosure control panel display character segments.	"MAP1250 Section-3" on page 518
All other storage enclosure/FRUs and rack power FRUs.	Not implemented yet.

MAP1250 Section-2

Activate, deactivate, display state of a CEC or I/O enclosure identify LED.

The system provides several LEDs that help identify various components, such as enclosures or field replaceable units (FRUs), in the system. For this reason, they are called Identify LEDs.

You can activate or deactivate the following types of identify LEDs:

- Identify LED for an enclosure If you want to add an adapter to a specific drawer (enclosure), you need to know the machine type, model, and serial number (MTMS) of the drawer. To determine whether you have the correct MTMS for the drawer that needs the new adapter, you can activate the LED for a drawer and verify that the MTMS corresponds to the drawer that requires the new adapter.
- Identify LED for a FRU associated with a specified enclosure If you want to hook up a cable to a specific I/O adapter, you can activate the LED for the adapter which is a field replaceable unit (FRU), and then physically check to see where you should hook up the cable. This is especially useful when you have several adapters with open ports.

To activate or deactivate an identify LED for an enclosure or FRU, follow these steps:

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
2. Open **Service Applications → Service Focal Point**.
3. In the right content area, select **Service Utilities**, a window appears displaying a list of **Machine Type/Machine Serials**.
4. Select a **Machine Type/Machine Serial** from the list.
5. Click **Selected** (on top tool bar), then select **Get Storage Facility Images**, a window appears displaying a list of **Machine Type/Machine Serials**.
6. Select a **Machine Type/Machine Serial** from the list. Click **Selected** (on top tool bar), then select **Identify LED processing**.
7. A window appears displaying a list of **Machine Type/Machine Serials**. The Identify LED status is displayed, and buttons to activate and deactivate the LEDs.

MAP1250 Section-3

Test all LEDs for a CEC enclosure and the I/O enclosures it controls.

This function shows whether any control panel indicators or display characters are burned out. In addition all LEDs on the CEC enclosure (front and rear) and I/O enclosures controlled by the CEC will be lit for 4 minutes.

1. The CEC enclosure should be fully powered on.
2. At the CEC enclosure control panel, press the Increment (10) or Decrement (8) buttons on the control panel to display Panel Function Number 04 (displayed in upper left of display). Press the Enter button (9) to start the lamp test.

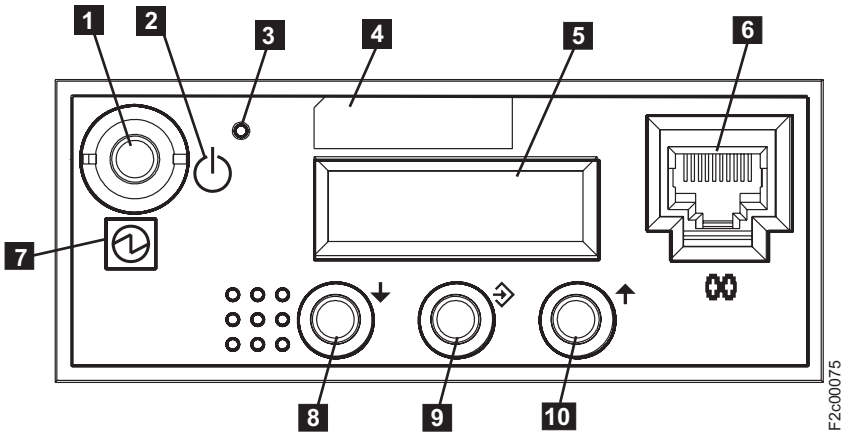


Figure 337. CEC enclosure control panel

Table 155. Key codes for CEC enclosure control panel

Key	Description
1	Power push-button
2	On/off power symbol
3	Service processor card reset pinhole
4	Type and serial number label
5	Function/data display
6	Ethernet connector
7	Power on light • A blinking light indicates standby power to the unit. • A constant light indicates full system power to the unit.
8	Decrement
9	Enter push-button
10	Increment

MAP1260 Displaying the storage facility image (SFI) state

Use this MAP to display the SFI state to ensure the LPARs are ready for customer use.

MAP1260 Section-1

Display the partition activation state for each LPAR on a storage facility image.

Note: States of the CEC enclosure partitions (LPARs).

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
2. Click **Service Applications** → **Service Focal Point**.
3. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
4. Select the storage facility Machine Type/Machine Serial.
5. On the main menu (top toolbar), click **Selected** → **Get Storage Facility Images**. The System Selection and Action Invocation window is displayed.

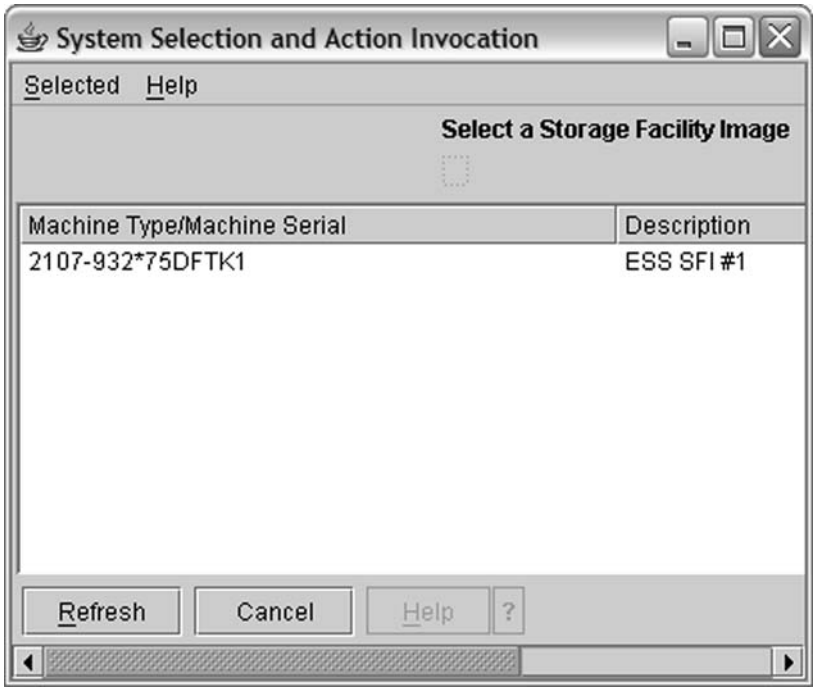


Figure 338. System Selection and Action Invocation - Select a Storage Facility Image

6. Select the storage facility image (Machine Type/Machine Serial).

   Note: Some models of the storage facility have two storage facility images.
7. On the main menu (top toolbar), click **Selected** → **Change/Show SFI State**. The SFI Server's Control window is displayed, and the status is shown below the state values.

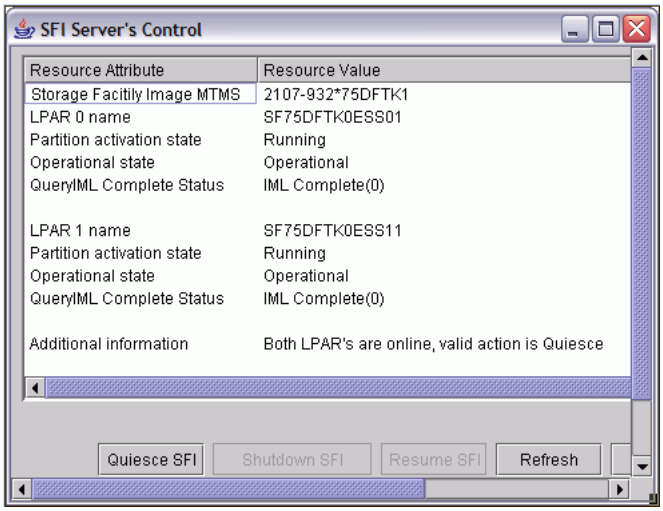


Figure 339. SFI Server's Control

MAP1301 Isolating Call Home/remote services failure

You are here to isolate a failure to Call Home. There are two options for Call Home on DS8000 - 'Call Home via modem' and 'Call Home via Internet VPN'. The customer can choose to use either, both or none of these options.

MAP1301 Section-1

1. Use the following steps to verify that the correct Call Home options have been configured per the customization worksheets.

   Note: If there are two management consoles connected to this storage complex, one or both of the management consoles must be configured as the 'Call Home Server' in order to enable Call Home. In that case, perform these steps as appropriate on both consoles.

   a. Logon to the management console using the CE userid. (The default password is `serv1cece`).
   b. Select **Service Applications** → **Remote Support** → **Customize Outbound Connectivity**.
   c. Reference the customization worksheets and verify the outbound connectivity settings.
   d. Select **Service Applications** → **Remote Support** → **Customize Customer Information**.
   e. Ensure that all mandatory fields (indicated by an asterisk) have been completed.
2. Does the management console use a modem connection for Call Home?
   - Yes, continue with "MAP1301 Section-2."
   - No, continue with the next step.
3. Does the management console utilize an Internet VPN connection for Call Home?
   - Yes, continue with "MAP1301 Section-3" on page 521.
   - No, Call Home is not configured. **This ends the procedure.**

MAP1301 Section-2

In this section, the modem connection will be tested. If problems are found, then actions to diagnose and repair the problem will be performed.

1. Select **Service Applications → Remote Support → Customize Outbound Connectivity**.
2. Click on the **Local modem** tab.
3. Repeat this step for each listed phone number.
   a. Select the phone number.
   b. Click on **Test**.
   c. Click on **Start** to initiate the modem test.
4. Did the test complete successfully for all listed phone numbers?
   - Yes, continue with step 5 in this section.
   - No, continue with step 6 in this section.
5. Does the management console also use the Internet VPN connection?
   - Yes, continue with "MAP1301 Section-3."
   - No, click on **Cancel** to close the window. Continue with "MAP1301 Section-4" on page 522.
6. Verify that the phone number or phone numbers being used are valid and that the customer phone line is functional:
   a. Connect the customer's analog phone line to a phone handset.
   b. Call any of the phone numbers that failed in step 3. Did a modem answer?
      - Yes, hang up and reconnect the customer's phone line to the modem. Continue with step 7 in this section.
      - No, If all numbers fail, then one of the following may be causing the problem. Resolve as appropriate:
        – The telephone line is faulty. Ask the customer to correct the problem.
        – A dial prefix is needed but has not been configured.
        – A dial prefix is not needed but has been configured.
        – Outbound calls are not allowed for this line.

      If only one number fails, then the remote modem/port could be faulty or incorrect. Report the problem to your phone company and configure a different call-home number.
7. Either the modem or the telephone cable appears to be faulty. Go to "MAP6590 Modem problem" on page 838.

MAP1301 Section-3

In this section, the Internet VPN connection will be tested. If problems are found, then actions to diagnose and repair the problem will be performed.

1. Select **Service Applications → Remote Support → Customize Outbound Connectivity**.
2. Click on the **Internet VPN** tab and select **Test**. Click on **Start** to initiate the test.
3. Did the test complete successfully?
   - Yes, click on **Cancel** to close the window. Continue with "MAP1301 Section-4" on page 522.
   - No, continue with step 4 in this section.
4. Verify that the HMC customer Ethernet port is configured per the customization worksheets.
   a. Select **HMC Management → HMC Configuration → Customize Network Settings**.
   b. Verify that the Console Name and Domain Name are set correctly.

c. Click on the **LAN adapters** tab, select **eth2** and click on **Details**. Verify that the IP information is correct.
d. Click on the **Name Services** tab and verify if the customer's DNS is defined correctly (if required).
e. Click on the **Routing** tab and verify that the customers gateway is defined correctly (if required).

5. Did you find a problem with any of the settings?
   - Yes, return to step 1 of this section and retest the Internet VPN connection. If the tests still fail then continue with the next step.
   - No, continue with the next step.
6. Work with the customer to test connectivity from the network to the HMC. Was the customer able to access the HMC from the network?
   - Yes, continue with the next step.
   - No, go to "MAP6580 Customer Ethernet connection problem" on page 833.
7. Does the customer have a gateway configured?
   - Yes, continue with the next step.
   - No, continue with step.
8. Perform the following to test connectivity to the customer gateway.
   a. Select **HMC Management → HMC Configuration → Test Network Connectivity**.
   b. Type the gateway IP address in the 'Ping utility' entry panel.
   c. Click **OK**.
   d. Did the test complete successfully?
      - Yes, click on **Close**. Continue with the next step.
      - No, work with the customer to resolve the problem with their gateway device. Return to step 1 of this section to retest the Internet VPN connection.
9. Ensure that the customer has enabled access to the following IP addresses, protocols and ports through any firewall that is in place.

   IP Addresses:
   207.25.252.196 - IBM Boulder VPN Server
   129.42.160.16 - IBM Rochester VPN Server
   207.25.252.198 - IBM VPN Test Server

   Ports and protocols:
   Protocol ESP 500
   Protocol UDP Port 500
   Protocol UDP Port 4500
10. Did you identify and resolve problem with the customer firewall?
    - Yes, return to step 1 of this section to retest the Internet VPN connection.
    - No, call your next level of support.

MAP1301 Section-4

In this section, a Test PMH will be created to test the Call Home. If problems are found, then actions to diagnose and repair the problem will be performed.

1. Perform the following to create a Test PMH.
   a. Select **Service Applications → Service Focal Point → Service Utilities**.
   b. Select the **Storage Facility** which is having problems with Call Home.
   c. Click on **Selected** and choose **Generate Test PMH** from the drop-down.

d. Click on **Yes** to initiate the test.
e. Click on **OK** when you see the TestPMR Successful message.

2. Allow 5 minutes, then perform the following to check if a PMR was created.
   a. Select **Service Applications → Service Focal Point → Manage Serviceable Events**.
   b. Leave the defaults and click **OK**.
   c. Check the list of Serviceable Events for an SRC of BEB20010.
3. Does the Serviceable Event have a PMH # listed?
   - Yes, the Call Home was successful. This ends this MAP.
   - No, continue with the next step.
4. Perform the following to determine the cause of the failure.
   a. Select **HMC Management → HMC Configuration → View Console Events**.
   b. View the list of console events to determine the cause.
   c. Use the following table to determine the possible cause and action.

Failure Message	Possible cause/Action
Remote support call generated on {1} failed at server {0}. Reason: Machine is not registered.	The Storage Facility MTMS is not registered in Retain. Contact your next level of support to register the machine.
Remote support call generated on ras55hmca failed at server not assigned. Reason: Internal error.	The Customer details are incomplete. Use the following menu option to check the information: **Service Applications → Remote Support → Customize Customer Information**.
Other failure messages.	Contact your next level of support.

MAP1305 Isolating SNMP notification problems

This MAP provides guidance on how to isolate SNMP Notification problems.

The HMC can send SNMP Trap messages to the customer's LAN when it requires service or to notify the customer of certain information events. The HMC generates Simple Network Management Protocol (SNMP) traps and supports a read-only management information base (MIB) to allow monitoring by the customer's network.

Notes:

1. SNMP is required for PPRC status reporting for Copy Services in Open Systems environments. For SNMP to function, the HMC must be attached to the customer LAN. The configured SNMP traps are sent to the TCP/IP addresses of the Trap Destinations that are configured by the IBM service representative through the Service Agent/Customer Notification panels.
2. These addresses must be the dotted TCP/IP address form.

MAP1305 Section-1

1. Verify that the SNMP notification is configured per the Customization worksheets. The SNMP is configured as follows:
   a. From the WebSM GUI, select **Service Applications → Service Agent**.
   b. On the Service Agent Configuration panel, select **Customer Notification**.
   c. On the Customer Notification Panel, click on **SNMP Trap Configuration**.

d. Ensure that the customer-supplied trap destinations are listed. Click on each of the destinations, select **Change** and verify that the required events are selected for notification.

   Note: To test SNMP notification, make sure that **Problem Log Entry Created** is selected.

e. Click **OK**.

2. Test SNMP notification by creating a Test PMH. (The side effect of this is that it will create a Problem Log Entry and a corresponding SNMP event). Perform the following steps:
   a. From the WebSM GUI, select **Service Applications** → **Service Focal Point** → **Service Utilities**.
   b. Select a Storage Facility to test for SNMP notification.
   c. Click on **Selected** and choose Generate Test PMH from the drop-down.
   d. Click on Yes to initiate the test.
   e. Click on **OK** when you see the Test PMR Successful message.
   f. Allow 5 minutes, then ask the customer to verify if a SNMP trap was received.
3. Did the customer receive an SNMP event from the HMC?
   - Yes, the problem is resolved.
   - No, continue with the next step.
4. Verify if a Problem Log Entry (Serviceable Event) was created. Perform the following steps:
   a. From the WebSM GUI, select**Service Applications** → **Service Focal Point** → **Manage Serviceable Events**.
   b. Leave the defaults and click **OK**.
   c. Check the list of Serviceable Events for an SRC of BEB20010.
5. Was a Serviceable Events created with an SRC of BEB20010?
   - Yes, continue with the next step.
   - No, contact your next level of support.
6. Attempt to 'ping' the SNMP server(s) as specified on the Customization worksheets. Perform the following steps:
   a. From the WebSM GUI, select **HMC Management** → **HMC Configuration** → **Test Network Connectivity**.
   b. Type in the TCP/IP address for the SNMP server and click **OK**.
7. Was the 'ping' test successful?
   - Yes, continue with step 9.
   - No, continue with the next step.
8. The ping test might have failed because of customer firewall settings. Check with the customer to ensure that they have not chosen to block 'ping' through the customer firewall. If that is not the case, go to "MAP6580 Customer Ethernet connection problem" on page 833.
9. It appears that there is connectivity to the SNMP server and that SNMP configurations settings are correct.
   a. Ask the customer to verify that SNMP traffic is not being blocked by a customer firewall.
   b. Ask the customer to test the customer SNMP server with events from another source.
   c. If none of the above resolve the problem, call your next level of support.

MAP1310 Isolating e-mail notification problems

This MAP provides guidance on how to isolate e-mail notification problems.

The HMC can send e-mail messages to the customer's LAN when it requires service or to notify the customer of certain information events. For e-mail to function, the following conditions must be satisfied:

- The HMC must be installed on the customer LAN.
- The hostname or TCP/IP address of a mail server must be provided. If a hostname is provided, then a DNS server must also be configured.
- E-mail messages are sent to the addresses that are configured by the CE through the Service Agent/Customer Notification panels.

MAP1310 Section-1

1. Verify that the e-mail notification is configured per the customization worksheets. The e-mail is configured as follows:
   a. From the WebSM GUI, select **Service Applications → Service Agent**
   b. On the Service Agent Configuration Panel, select **Customer Notification**.
   c. On the Customer Notification Panel, click on **Email**.
   d. Ensure that 'Email notification for problem events' is checked.
   e. Ensure that the TCP/IP address or hostname of the customer Email server is correctly entered in the 'SMTP server' box and that the correct port is specified.

      Note: If a hostname is configured for the Email server (rather than a TCP/IP address), then a DNS server must be configured.
   f. Ensure that all required e-mail notification addresses are listed and that the correct choice of '**All**' versus 'Only call-home problem events' is selected.
   g. Do not close the 'Customer Notification Panel', continue with the next step.
2. Did the customer specify a hostname (rather than a TCP/IP address) for the Email server?
   - Yes, continue with the next step.
   - No, continue with step 4.
3. Verify that the HMC customer Ethernet port is configured per the Customization worksheets.
   a. Select **HMC Management → HMC Configuration → Customize Network Settings**.
   b. Verify that the Console Name and Domain Name are set correctly.
   c. Click on the **LAN adapters** Tab, select **eth2** and click on **Details**. Verify that the IP information is correct.
   d. Click on the **Name Services** tab and verify if the customer's DNS is defined correctly.
   e. Click on the **Routing** tab and verify that the customer's Gateway is defined correctly (if required).
   f. If changes are made and a reboot of the HMC is needed, then ensure that the customer is not accessing the HMC.
4. Test the e-mail notification. Perform the following steps:
   a. If a reboot was performed in step 3, then reselect the 'Customer Notification Panel' as described in step 1.
   b. Select an e-mail address and click on **Test Email**.

5. Ask the customer if the e-mail was received. Did the e-mail arrive at its destination?
   - Yes, the problem is resolved.
   - No, continue with the next step.
6. Attempt to 'ping' the e-mail server(s) as specified on the Customization worksheets. Perform the following steps:
   a. From the WebSM GUI, select **HMC Management** → **HMC Configuration** → **Test Network Connectivity**.
   b. Type in the Host address for the e-mail server and click **OK**.
7. Was the 'ping' test successful?
   - Yes, continue with step 9.
   - No, continue with the next step.
8. The ping test might have failed because of customer firewall settings. Check with the customer to ensure that they have not chosen to block 'ping' through the firewall. If that is not the case, go to "MAP6580 Customer Ethernet connection problem" on page 833.
9. It appears that there is connectivity to the e-mail server and that e-mail configurations settings are correct.
   a. Ask the customer to verify that e-mail traffic is not being blocked by a customer firewall.
   b. Ask the customer to look for incoming e-mail from the HMC on the customer e-mail server and check if the addresses seem to be correct.
   c. If the HMC has connectivity to the intranet, then you can substitute the IBM e-mail server and try sending a test e-mail to a known address. Contact your next level of support for details.
   d. If none of the above resolve the problem, then call your next level of support.

MAP1320 Isolating problems using visual symptoms

Visual symptoms should only be used to start a repair if there is no related serviceable event.

MAP1320 Section-1

Most visual symptoms create a related serviceable event that should be used to start the problem repair. Display open serviceable events.

1. Is there a related serviceable event for the visual symptom?
   - Yes, exit this MAP and repair that serviceable event.
   - No, go to the next step.
2. Use Table 156 to find the DS8000 area with the visual symptom and then go to the referenced MAP section.

Table 156. DS8000 areas

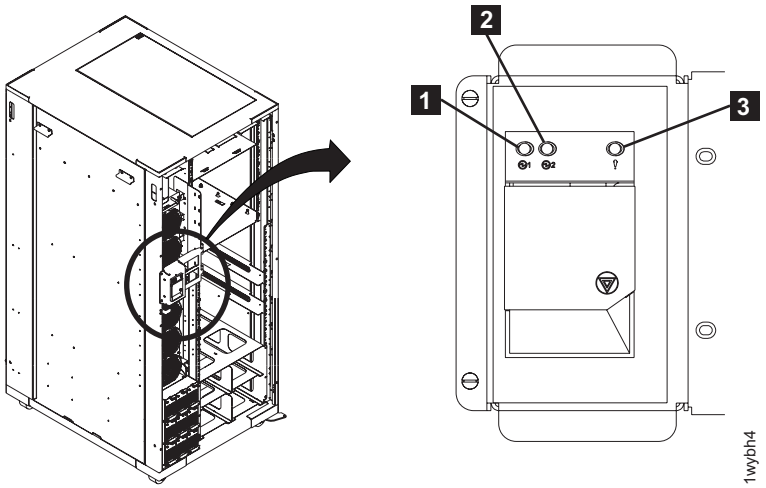
DS8000 area	Go to
Rack operator panel	"MAP1320 Section-2" on page 527
CEC enclosure	"MAP1320 Section-3" on page 528
I/O enclosure (host adapters, device adapter)	"MAP1320 Section-4" on page 528
Storage enclosure (FCIC card, DDMs)	"MAP1320 Section-5" on page 529
Rack power (Primary power supplies, battery enclosure, RPC card, sense card, rack identifier card)	"MAP1320 Section-6" on page 529

Table 156. DS8000 areas (continued)

DS8000 area	Go to
Management console (MC)	"MAP1320 Section-7" on page 529

MAP1320 Section-2

1. Rack operator panel LED indicators show high level status of the primary power supplies, the storage facility containing a FRU that is being replaced, and a request for service. Normally, there should be a serviceable event for any problems needing repair. If there is not, there might be other visual symptoms elsewhere in the storage facility. Use Table 157 to find the visual symptom and then go to the referenced MAP section.
2. For the definition of the rack operator panel LED indicators, go to "Rack power and cooling light indicators" on page 1455.



. LEDs on the rack operator panel UEPO switch assembly

Table 157. Rack Operator Panel

Visual Symptom	Description and Action
Both green LED indicators **[1]** and **[2]** are off	• Ensure that the mainline input CBs on the primary power supplies (PPS) are switched on. • Have the customer restore mainline power.
Green LED indicator **[1]** and **[2]** slow blink (2 flash per second)	This is normal during PPS power off or power on.
Green LED indicator **[1]** and **[2]** fast blink (1 flash per second)	This is normal when PPS is in standby.
Amber LED indicator **[3]** is slow blinking.	This is normal when a FRU is being identified by an HMC guided procedures to exchange a FRU. This LED identifies the storage facility that contains the FRU being replaced. Additional identify LEDs that are on the enclosure containing the FRU, on the FRU, and even on the FRU connector if a cable is being replaced should be blinking also.
Amber LED indicator **[3]** is lit solid.	This is normal when a serviceable event is created that needs repair. The LED should turn off when the service representative logs into the management console and begins the repair.

MAP1320 Section-3

1. CEC enclosure problems must normally be identified and repaired using a serviceable event. The only exception would be problems that prevent the CEC enclosure from booting up normally. Use Table 158 to find the visual symptom and then go to the referenced MAP section.
2. For the definition of the CEC enclosure LED indicators, go to "CEC enclosure light indicators" on page 1441.

Table 158. CEC enclosure

Visual symptom	Description and action
All CEC enclosure LED indicators are off.	• The CEC enclosure might not be receiving power. At the rear of the CEC enclosure observe the LEDs on the two power supplies. The power input LED (the left most LED) on each power supply should be lit if the rack has customer input power and is not in the UEPO condition. Ensure that the power input cable to each power supply is connected. • Check the other CEC enclosure to see if the problem is common to both CECs.
The CEC enclosure control panel is not updating and is displaying a 2-character (*xx*) or 8-character (*xxxxxxxx*) code.	Go to "MAP4360 Codes displayed by the CEC enclosure control panel" on page 680.
The CEC enclosure control panel is not updating and is displaying something other than a 2-character (*xx*) or 8-character (*xxxxxxxx*) code.	Go to "MAP4370 CEC enclosure control panel does not show a normal display" on page 683.
The CEC enclosure panel does not display a code that will repair the problem.	• Use the **HMC → Server and Partion → Server Management** to display the Operator Panel Value for the CEC enclosure • Use the service processor (FSP) ASMI interface (see "MAP6F10 Accessing the ASMI using the management console" on page 852) to display error logs; **Service Aids → Event/Error Logs**.

MAP1320 Section-4

1. I/O enclosure problems must normally be identified and repaired using a serviceable event. Use Table 159 to find the visual symptom and then go to the referenced MAP section.
2. For the definition of the I/O enclosure LED indicators, go to "I/O enclosure light indicators" on page 1448.

Table 159. I/O enclosure

Visual Symptom	Description and Action
All I/O enclosure LED indicators are off.	• The I/O enclosure might not be receiving power. At the front of the I/O enclosure, observe the LEDs on the two power supplies. The power input LED (leftmost LED) on each power supply should be lit if the rack has customer input power and is not in the UEPO condition. Ensure that the power input cable to each power supply is connected at the power supply and the 208V bus bar swing gate behind the PPS power supplies. • Check the other I/O enclosure to see if the problem is common to all I/O enclosures.

MAP1320 Section-5

1. Storage enclosure problems must normally be identified and repaired using a serviceable event. Use Table 160 to find the visual symptom and then go to the referenced MAP section.
2. For the definition of the storage enclosure LED indicators, go to “Storage enclosure light indicators” on page 1464.

Table 160. Storage enclosure

Visual Symptom	Description and Action
None	N/A

MAP1320 Section-6

1. Rack power problems must normally be identified and repaired using a serviceable event. Use Table 161 to find the visual symptom and then go to the referenced MAP section.
2. For the definitions of the rack power LED indicators, go to “Rack power and cooling light indicators” on page 1455.

Table 161. Rack power

Visual Symptom	Description and Action
PPS status display two digit error codes	• Error codes report the problem that the PPS has detected and should cause the PPS Fault LED indicator below the PPS status display to be lit. This causes a serviceable event to be created. The only exception would be during an install if the rack is not yet far enough along to report and create a serviceable event. In that case, the install instructions will provide guidance. • For definitions of the PPS LED indicators, go to “MAP2340 codes on the PPS status display” on page 620

MAP1320 Section-7

1. Management console (HMC) problems can create a serviceable event. If there is a second HMC in this storage plex, it can create a serviceable event for the failing HMC. If a second HMC does not exist and the failing HMC cannot boot, there might be a visual symptom. Repair the HMC platform using the maintenance manual (for example, the X335, X335 eServer maintenance manual) that is included on the DS8000 service documentation CD for that platform.
2. Use the Table 162 to find the visual symptom and then go to the referenced MAP section.
3. For the definitions of the rack power LED indicators, go to “Management console (MC) server light indicators” on page 1451.

Table 162. Management console (MC)

Visual Symptom	Description and Action
Cannot login	Go to “MAP6000 Entry point for analyzing management console problems” on page 766.
Not powered on	Go to “MAP6000 Entry point for analyzing management console problems” on page 766.

MAP1330 SRC BE9Cxxxx

This MAP provides the definitions of the code update SRCs.

MAP1330 Section-1

To determine the definition of your SRC (BE9Cwxyz), see the individual definition tables below for your values of w, x, and yz. Repairs of code update process errors must begin with a serviceable event. The definitions listed here are only for reference purposes.

Note: If your SRC is not listed in the combination of wxyz values below, check the serviceable event, the latest version of the DS8000 Infocenter on the Product Engineering web site or call the next level of support.

*Table 163. BE9C**w**xyz*

w	**Definition**
0	Acquisition of code packages from CD or network being to the HMC library (“MAP4A10 Code update error during acquire” on page 717)
1	Verification that HMC and storage facility are in the proper states (“MAP4AC0 Code update pre-verify check” on page 727)
2	HMC install and activate process (“MAP4A20 Error during update of HMC code” on page 718)
3	Distribution of code packages from HMC library to the storage facility
4	Update managed system firmware
5	Update AIX on managed system LPAR
6	Update DS8000 LIC code on managed system LPAR
7	Update of host adapter card for managed system storage facility image (SFI)
8	Update of storage enclosure fibre channel interface cards
9	Update the RPC cards and primary power supplies (PPS)
A	Update the storage enclosure DDMs
E	Update control error
F	Unknown error

*Table 164. BE9Cw**x**yz*

x	**Description**
0	Setup code package
1	Transfer code package
2	Install code package
3	Reserved
4	Deactivate application
5	Deactivate target hardware
6	Install code to target hardware
7	Activate target hardware
8	Activate application

*Table 165. BE9Cwx**yz***

yz	**Definition**
00-3F	Reserved
40	Utility code update process suspended manually by service provider (“MAP4A80 Code update utility process was manually suspended” on page 725)
41	Utility code update process detected an error and automatically suspended (“MAP4A90 Code update utility process was automatically suspended” on page 725)
42-7F	Utility code update process errors (“MAP4AA0 Code update utility errors that caused a suspend” on page 726)
80-81	Acquire code package process errors or HMC code update process errors
82-BF	CCL errors that do not suspend the code update (“MAP4A70 CCL code update process completed but not all resources were updated” on page 723)
C0	CCL code update process suspended manually by service provider (“MAP4A30 CCL code update process was manually suspended” on page 718)
C1	CCL code update process detected an error and automatically suspended (“MAP4A40 Code update CCL process was automatically suspended” on page 719)
C2-FD	CCL code update process errors (“MAP4A50 CCL Code update errors that will result in code update being automatically suspended” on page 720)
FE	HMC or communication error (“MAP4A00 HMC failure with CCL code update or code update utility still active” on page 716)
FF	Unknown problem (“MAP4AB0 Unknown Code Update Error” on page 727)

MAP1400 HMC is reporting an installation error prior to serviceable events being created

This MAP guides you to repair a problem that was found during the 'Install Storage Facility' process and continue with the storage facility installation after the problem is repaired.

CAUTION:
Only use this MAP when you are directed by the Installation instructions or an on-screen message.

MAP1400 Section-1

1. You are here because a problem occurred during the 'Install Storage Facility' process. Identify the symptom in Table 166 and follow the listed actions.

Table 166. Symptoms of installation problems

Symptom	**Actions**
You were sent here by an on-screen message indicating a MAP1400 Entry Point.	Go to the next step.

Table 166. Symptoms of installation problems (continued)

Symptom	Actions
The storage facility is listed on the 'Install/Add/Remove Hardware' display but shows an error condition.	Go to "MAP1400 Section-G" on page 535.
The storage facility is not listed on the 'Install/Add/Remove Hardware' display.	Go to "MAP1400 Section-N" on page 537.
The storage facility is listed on the 'Install/Add/Remove Hardware' display but shows 'Install Complete'.	Go to "MAP1400 Section-U" on page 543.

2. Use Table 167 to determine the next action.

Table 167. Entry points and actions

Entry Point	Actions
A	Go to "MAP1400 Section-A."
B	Go to "MAP1400 Section-B" on page 533.
C	Go to "MAP1400 Section-C" on page 533.
D	Go to "MAP1400 Section-D" on page 534.
E	Go to "MAP1400 Section-E" on page 535.
F	Go to "MAP1400 Section-F" on page 535.
G	Go to "MAP1400 Section-G" on page 535.
H	Go to "MAP1400 Section-H" on page 536.
J	Go to "MAP1400 Section-J" on page 536.
K	Go to "MAP1400 Section-K" on page 537.
L	Go to "MAP1400 Section-L" on page 537.
N	Go to "MAP1400 Section-N" on page 537.
P	Go to "MAP1400 Section-P" on page 542.
Q	Go to "MAP1400 Section-Q" on page 542.
R	Go to "MAP1400 Section-R" on page 542.
S	Go to "MAP1400 Section-S" on page 542.
T	Go to "MAP1400 Section-T" on page 543.
U	Go to "MAP1400 Section-U" on page 543.
V	Go to "MAP1400 Section-V" on page 544.
W	Go to "MAP1400 Section-W" on page 544.

MAP1400 Section-A

The Field Install Storage Facility process requires that the managed system is in 'Power Off' state before it will start. You were sent to this section because it was determined that a managed system belonging to the selected storage facility was found to be in the 'Operating' state.

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
2. Click **Server and Partition → Server Management**.
3. View the State of the managed system that was listed in the message that sent you here. Do both of the managed systems belonging to the storage facility show as 'Powered Off'?

- Yes, return to the Install Section and repeat the operation to perform the 'Field Install Storage Facility'. If the problem persists, call your next level of support.
- No, go to the next step.

4. Power off the storage facility.
   a. Ensure that the Local/Remote switch on the LR/ZLR card is set to Remote.
   b. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
   c. Click **Service Applications → Service Focal Point**.
   d. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   e. Select the appropriate storage facility.
   f. On the main menu (top tool bar), click **Selected → Manage Power Control**. The Power Control window is displayed.
   g. Ensure that the Power Control Mode is set to Manual. Click **Power Off Storage Facility** and then click **OK**.
5. Allow up to 5 minutes for the storage facility to power off. Use steps 1 through 3 to verify that the Managed system is now powered off.
6. Return to the Install process and repeat the operation to perform the 'Field Install Storage Facility'.

MAP1400 Section-B

You were sent to this section because the clocks in the managed systems (or storage facility system) for the storage facility require adjustment. The clocks must be set to CUT (Coordinated Universal Time). The 'File Install Storage Facility' process fails if the clocks are not within 60 seconds of each other. When you set the clocks, attempt to set them to be as close as possible (for example, within 5 seconds).

1. Login to the ASMI.
   a. Click **Service Applications → Service Focal Point**.
   b. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   c. Select the appropriate storage facility.
   d. On the main menu (top tool bar), click **Selected → Get SF Systems**. A list of storage systems is displayed.
   e. Select the appropriate storage system.
   f. On the main menu (top tool bar), click **Selected → Launch ASM Menu**.
   g. Click **OK** to confirm the launch of the ASMI. The Web browser launches and the Advanced System Management interface is displayed.
   h. Login to ASMI using a user ID of `admin` and a password of `admin2107`.
2. Select System Configuration and then Time Of Day.
3. Enter the CUT time. Click **Save Settings**.
4. Click **Log out** and then close the Web browser.
5. If necessary, repeat steps 1 through 4 for the other storage system.
6. Return to the Install process and repeat the operation to perform the 'Field Install Storage Facility'.

MAP1400 Section-C

You were sent to this section because the configuration file for the storage facility could not be found. If the storage facility was shipped with an integrated

management console, then the configuration file will normally be resident on the management console hard-drive. If the storage facility was shipped without an integrated management console then the configuration file will be provided on a CD-ROM or DVD-RAM which is in the ship group. If the automated process does not find the file on the management console hard drive then you will be asked to insert the CD-ROM or DVD-RAM media.

1. Ensure the correct CD-ROM or DVD-RAM media is inserted and repeat the operation to perform the 'Field Install Storage Facility'.
2. If problems persist contact your next level of support.

MAP1400 Section-D

You were sent to this section because the Field Install Storage Facility Verification test detected an error on one or more of the RIO or SPCN buses that interconnect the CEC enclosures and the I/O enclosures. A serviceable event is normally logged for the detected error. Follow this MAP first.

1. Power off the storage facility.
   a. Ensure that the Local/Remote switch on the LR/ZLR card is set to Remote.
   b. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
   c. Click **Service Applications** → **Service Focal Point**.
   d. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   e. Select the appropriate storage facility.
   f. On the main menu (top tool bar), click **Selected** → **Manage Power Control**. The Power Control window is displayed.
   g. Ensure that the Power Control Mode is set to Manual. Click **Power Off Storage Facility** and then click **OK**.
2. If this installation included multiple storage facility racks, perform a quality check of the following:
   - Ensure that the racks were installed in the correct sequence.
   - On each expansion rack, check the serial number (S/N) on the label near the rack operator panel. See Figure 340 on page 535. Ensure that the serial number matches the serial number of Rack-1, indicating which rack the expansion rack must be installed to.
   - Ensure that all RIO and SPCN cables were routed to the correct location.
   - Ensure that all RIO and SPCN cables are correctly seated and have not become dislodged during shipment.
   - Ensure that all racks have power available to them.
   - Go to step 4.

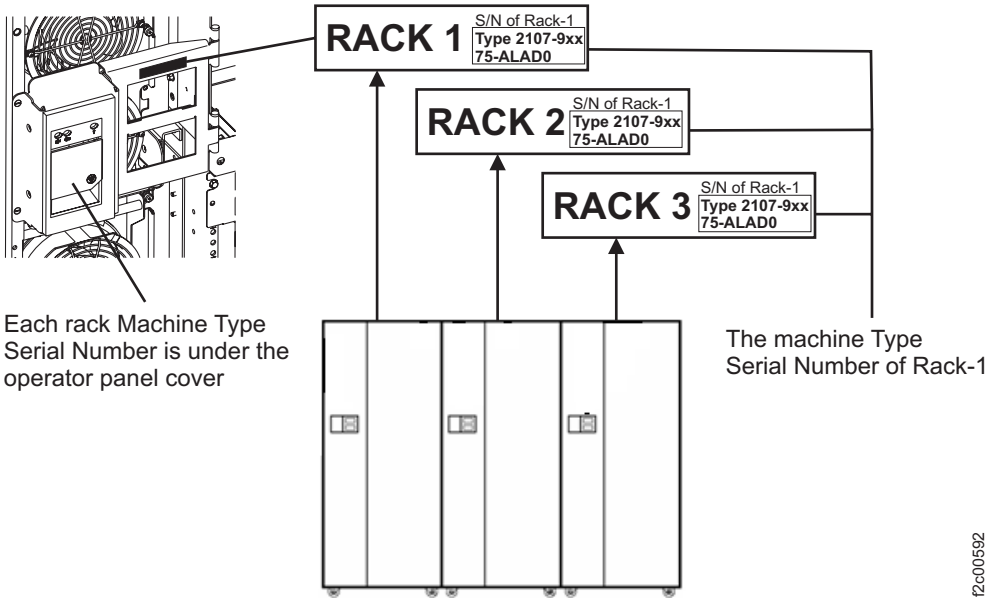


Figure 340. Rack serial number

3. If this installation included a single storage facility rack, perform the following check:
   - Ensure that all RIO and SPCN cables are correctly seated and have not become dislodged during shipment.
4. Return to the Install process and repeat the operation to perform the Field Install Storage Facility.

   Note: The storage facility may display an 'Error state' when starting the Field Install along with a message. This is normal. When you see the message, click **Yes** to continue.

MAP1400 Section-E

You were sent to this section because the 'Field Install Storage Facility' process encountered a microcode error.

1. Record any on-screen error messages.
2. Contact your next level of support.

MAP1400 Section-F

You were sent to this section because the 'Field Install Storage Facility' process encountered a microcode error.

1. Record any on-screen error messages.
2. Contact your next level of support.

MAP1400 Section-G

You were sent to this section because the 'Field Install Storage Facility' process found that the storage facility shows an error state. This is set when the process was run previously and is for information only. This state does not indicate that the storage facility is still failing.

1. Did you already repair a problem?
   - Yes, click **Yes** to continue.
   - No, repair any outstanding problems.
2. If the problem persists, then contact your next level of support.

MAP1400 Section-H

You were sent to this section because the Field Install Storage Facility Verification process found a mismatch between the resources discovered on the storage facility and those reported in the configuration file.

1. View and repair any Open Serviceable Events for this storage facility.
   - If problems were found and repaired, go to the next step to power off the storage facility. Then repeat the operation to perform the 'Field Install Storage Facility'.
   - If there were no Open Serviceable Events, go to the next step.
2. Power off the storage facility.
   a. Ensure that the Local/Remote switch on the LR/ZLR card is set to Remote.
   b. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
   c. Click **Service Applications** → **Service Focal Point**.
   d. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   e. Select the appropriate storage facility.
   f. On the main menu (top tool bar), click **Selected** → **Manage Power Control**. The Power Control window is displayed.
   g. Ensure that the Power Control Mode is set to Manual. Click **Power Off Storage Facility** and then click **OK**.
3. Perform the following checks:
   - Ensure that you did not add or remove any features before starting the installation process.
   - Ensure that you loaded the CD/DVD containing the latest version of the configuration file.
   - Ensure that all cables connected during installation are in the correct locations.
   - Inspect the storage facility to ensure that no parts became dislodged during shipment.
4. Return to the Install process and repeat the operation to perform the 'Field Install Storage Facility'.
5. If the problem persists, contact your next level of support.

MAP1400 Section-J

You were sent to this section because the 'Field Install Storage Facility' process was unable to update either the Time Zone or the Time on one or more of the storage facility image LPARs.

1. View and repair any Open Serviceable Events for this storage facility.
   - If problems were found and repaired, go to the next step.
   - If there were no open serviceable events, contact your next level of support.
2. Power off the storage facility.
   a. Ensure that the Local/Remote switch on the LR/ZLR card is set to Remote.
   b. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
   c. Click **Service Applications** → **Service Focal Point**.
   d. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   e. Select the appropriate storage facility.

f. On the main menu (top tool bar), click **Selected → Manage Power Control**. The Power Control window is displayed.

g. Ensure that the Power Control Mode is set to Manual. Click **Power Off Storage Facility** and then click **OK**.

3. Return to the Install process and repeat the operation to perform the 'Field Install Storage Facility'.
4. If the problem persists, then contact your next level of support.

MAP1400 Section-K

You were sent to this section because the 'Field Install Storage Facility' process detected that the storage facility in not in the correct Install State to allow the process to continue. The option to perform a Field Install is only available if the storage facility is in a state of 'Ready for Field Install' or 'New'.

1. Record the state of the storage facility as displayed in the Install/Add/Remove panel.
2. Contact your next level of support.

MAP1400 Section-L

You were sent to this section because the 'Field Install Storage Facility' process detected that the 'Service Lock' was already set before the process was started. This indicates that a Service Action is already in progress for this storage facility.

1. Ensure that all service actions on this storage facility initiated from the management console were completed or cancelled.
2. Ensure that all service actions on this storage facility initiated from an alternate management console were completed or cancelled.
3. Ensure that all service actions on this storage facility initiated from a WebSM client of the private network or remotely were completed or cancelled.
4. Return to the Install process and repeat the operation to perform the 'Field Install Storage Facility'.
5. If the problem persists, then contact your next level of support.

MAP1400 Section-N

You were sent to this section because the storage facility was not listed on the Install/Add/Remove panel. Selection of this panel causes the management console to attempt to 'discover' all attached storage facilities. If the storage facility is not listed then it is likely that the management console cannot communicate with the service processor cards in the storage facility. This problem cannot occur when installing a storage facility from an integrated management console in the same storage facility.

1. Allow sufficient time for the service processor cards to power on and IML.

   Note: The service processor card takes 10 minutes to IML from the time that AC power is applied to the CEC enclosure.

   Did you wait 10 minutes from turning on CB00 to apply rack power?

   - Yes, go to the next step.
   - No, allow 10 minutes and retry the operation. Return here if you have the same problem.

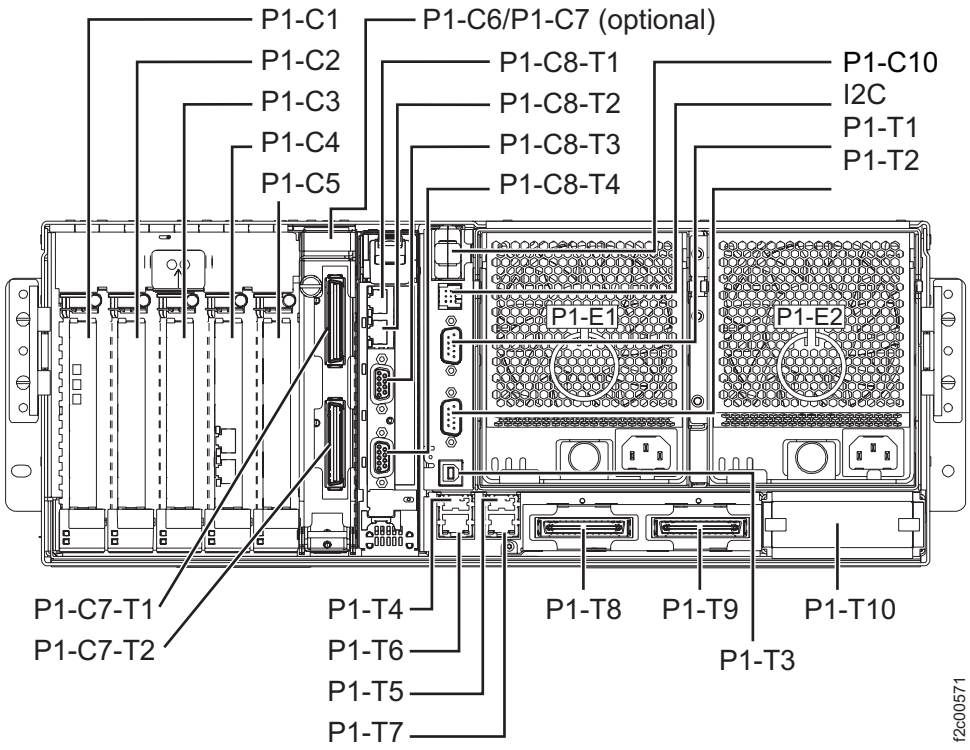


Figure 341. Location codes for the CEC enclosure (rear)

2. Verify that all CEC enclosures in the storage facility being installed have standby power. Check the LEDs on the rear of the CEC enclosure power supplies. Figure 341 shows the various CEC enclosure locations.

   Note: Standby power is indicated by the AC good LED (**1**) being on solid and the DC good LED (**2**) flashing. Figure 342 on page 539 shows the CEC enclosure power supply LEDs.

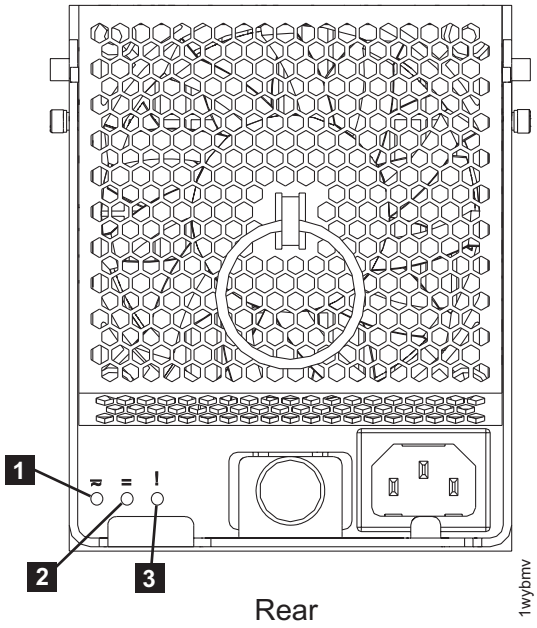


Figure 342. CEC Enclosure Power Supply LEDs

Is Standby power available on the CEC enclosures?

- Yes, go to the next step.
- No, go to "MAP1400 Section-P" on page 542.

3. If this is not the first storage facility in the storage complex, then verify that the network cables were installed between the storage facilities. There should be an Ethernet cable from Port T-16 on each of the Ethernet switches in the storage facility being installed. The cables should be routed and connected to the appropriate ports on the switches in the storage facility that houses the management console. Figure 343 and Figure 344 on page 540 show switch 1 and 2 in the storage facility being installed. Figure 345 on page 540 shows switch 1 and 2 in the storage facility that houses the management console

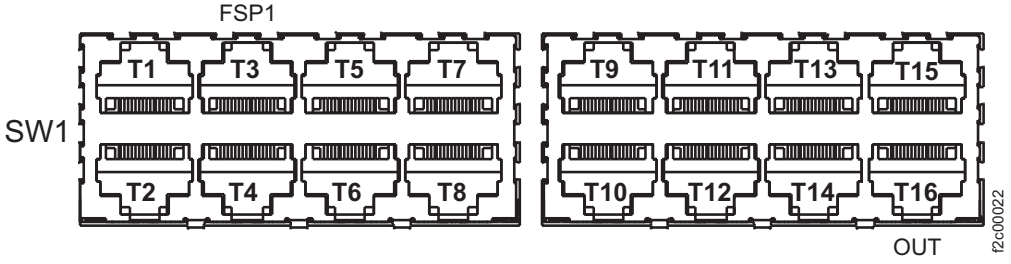


Figure 343. Switch 1 in the SF being installed

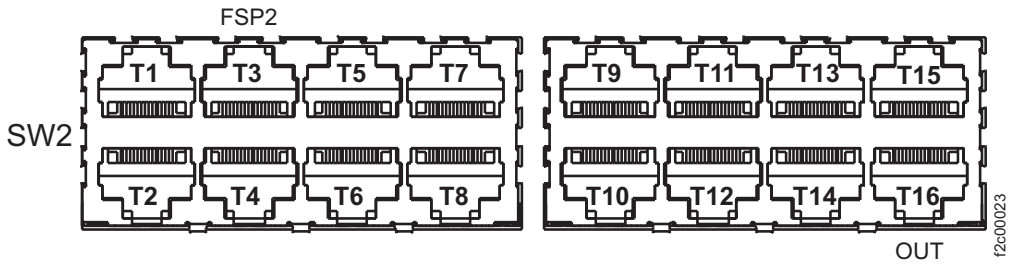


Figure 344. Switch 2 in the SF being installed

Are the cables connected?

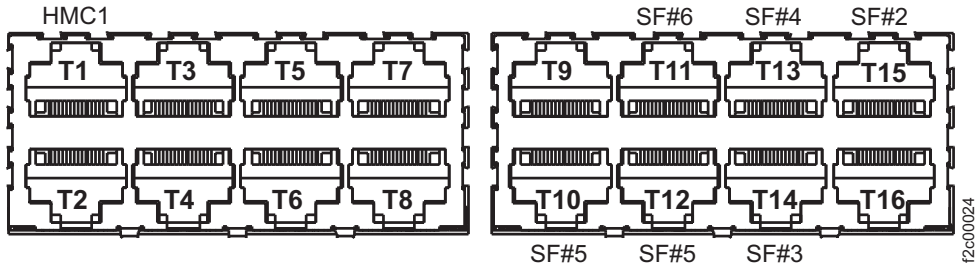


Figure 345. Switch 1 & 2 in the SF which houses the management console

- Yes, go to the next step.
- No, connect the cables and retry the Install action.

4. Verify that both the Ethernet switches in the SF being installed are powered on. Are both Ethernet switches powered on?
   - Yes, go to the next step.
   - No, go to "MAP1400 Section-Q" on page 542.
5. Verify that the corresponding link LEDs are lit on the switches for the connections between the storage facilities. See Figure 343 on page 539, Figure 344, and Figure 345. Are all the expected link LEDs lit?
   - Yes, go to the next step.
   - No, swap the Ethernet cable between switches to determine if the problem is an Ethernet switch port or cable. Replace the failing FRU and retry the Install action.
6. For the storage facility being installed, verify that power is available for the service processor cards (P1-C8) in each of the CEC enclosures containing a service processor card.

   Note: There are 4 LEDs towards the bottom of the service processor card, see Figure 346 on page 541. The top LED on the left should be green.

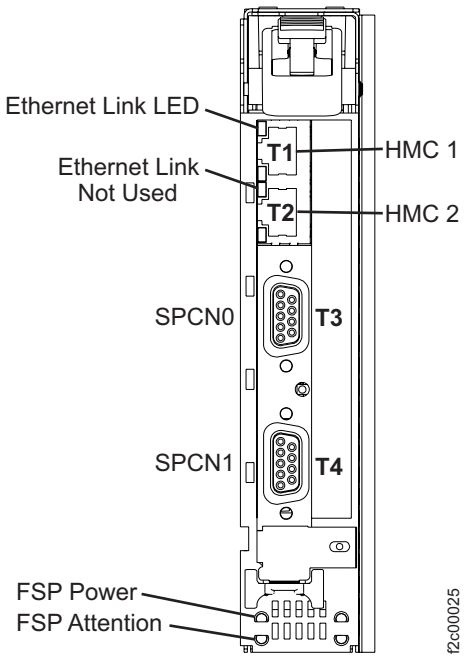


Figure 346. FSP card indicators

Is power available to both of the service processor cards?

- Yes, go to the next step.
- No, go to "MAP1400 Section-R" on page 542.

7. Verify that the service processor card attention LEDs are off. See Figure 346. Is a service processor card attention LED on?
   - Yes, go to "MAP1400 Section-R" on page 542.
   - No, go to the next step.
8. Verify the Ethernet connection is working between the service processor cards and the Ethernet switches. Observe the T1 Ethernet Link LEDs on the service processor cards and the T3 link LEDs on the Ethernet switches. See Figure 343 on page 539, Figure 344 on page 540, and Figure 346. Are all four Link LEDs lit (one on each service processor card T1 port and one on each switch T3 port)?
   - Yes, go to step 10.
   - No, go to the next step.
9. Identify the failing FRU by doing the following:
   a. Move the Ethernet cable to other service processor card port (T2) and see if the Link LED is now lit. If successful, that would indicate a faulty service processor card.
   b. Move the Ethernet cable to another port on the Ethernet switch and see if the Link LED is now lit. If successful, that would indicate a faulty Ethernet switch.
   c. Replace the Ethernet cable between service processor card T1 port and Ethernet switch T3 port.
10. Visual checks did not identify a problem. Go to "MAP1400 Section-R" on page 542.

MAP1400 Section-P

You were sent to this section because there was no power available on one or both of the CEC enclosures.

1. Is the power unavailable on both of the CEC enclosures?
   - Yes, go to the next step.
   - No, ensure that no power cables became dislodged from the failing CEC enclosure during delivery. If no problem is found, then call your next level of support.
2. Were the steps in the Install Section, "Performing the power and safety checks" on page 52, completed?
   - Yes, ensure that all switches and circuit breakers are turned on on the PPSs. If no problem is found, then call your next level of support.
   - No, return to the Install Section, "Performing the power and safety checks" on page 52, and complete the tasks.

MAP1400 Section-Q

You were sent to this section because there was no power available on one or both of the Ethernet switches.

1. Is the power unavailable on both of the CEC enclosures?
   - Yes, go to the next step.
   - No, ensure that no power cables became dislodged from the failing switch during delivery.
   - If no problem is found, then replace the Ethernet switch. If the problem is not resolved, then call your next level of support.
2. Were the steps in the Install Section, "Performing the power and safety checks" on page 52, completed?
   - Yes, ensure that all switches and circuit breakers are turned on on the PPSs. If no problem is found, then call your next level of support.
   - No, return to the Install Section, "Performing the power and safety checks" on page 52, and complete the tasks.

MAP1400 Section-R

You were sent to this section because there is a problem with the card in one of the CEC enclosures.

Go to "MAP4100 Repairing a service processor card (FSP) problem" on page 672.

MAP1400 Section-S

You were sent to this section because you found that a new Serviceable Event was opened while the 'Field Install Storage Facility' process was running.

CAUTION:
If you Click on the NO button in answer to the question "Do you want to continue with the Installation Process?" then the Field Install Storage Facility process will terminate. The automated process must then be run again from the start to complete the installation.

1. Review the list of serviceable events and analyze the listed FRUs or Isolation procedures. Does the list only contain errors which relate to redundant hardware, for example: Power or Private network?
   - Yes, defer the repair until after the Installation has been completed. Return to the Message box and click **YES** to continue.

- No, go to the next step.

2. Contact your next level of support to determine if a repair is needed in order to allow the 'Field Install Storage Facility' process to complete. Follow the guidance from support to click YES or NO.

MAP1400 Section-T

You were sent to this section because the 'Field Install Storage Facility' process detected a problem in updating the Time Of Day clock on one or both of the managed systems within the storage facility.

1. View and repair any Open Serviceable Events for this storage facility.
   - If problems were found and repaired, return to the Install process and repeat the operation to perform the 'Field Install Storage Facility'.
   - If there were no open serviceable events, go to the next step.
2. Login to the ASMI.
   a. Click **Service Applications → Service Focal Point**.
   b. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   c. Select the appropriate storage facility.
   d. On the main menu (top tool bar), click **Selected → Get SF Systems**. A list of storage systems is displayed.
   e. Select the appropriate storage system.
   f. On the main menu (top tool bar), click **Selected → Launch ASM Menu**.
   g. Click **OK** to confirm the launch of the ASMI. The Web browser launches and the Advanced System Management interface is displayed.
   h. Login to ASMI using a user ID of `admin` and a password of `admin2107`.
3. Select System Configuration and then Time Of Day.
4. Enter the CUT time. Click **Save Settings**.
5. Click **Log out** and then close the Web browser.
6. Were you able to set the Time Of Day clock?
   - Yes, return to the Install process and repeat the operation to perform the 'Field Install Storage Facility'.
   - No, contact your next level of support.

MAP1400 Section-U

You were sent to this section because the storage facility is listed on the 'Install/Add/Remove Hardware' display as 'Install Complete'. The 'Install Storage Facility' process cannot proceed with the storage facility in this state.

1. Are you performing the first installation of a new storage facility shipped from IBM?
   - Yes, contact your next level of support for assistance in establishing the correct storage facility state.
   - No, go to the next step.
2. Go to Chapter 10, "Relocating a storage facility," on page 259 or Chapter 12, "Discontinuing a storage facility," on page 347 as appropriate to verify that the process was completed correctly. If you are unable to resolve the problem, then contact your next level of support.

MAP1400 Section-V

You were sent to this section because one or more LPARs did not complete IML. Only the first LPAR in a storage facility image (SFI) is listed on the screen that sent you here. Both LPARs in the same SFI may be failing.

1. Display any open serviceable events.

   Are there any events that are related to the CEC or I/O enclosures?

   - Yes, go to the next step.
   - No, ensure that the circuit breakers (CB0 and CB1) on the rear of each battery enclosure were switched on (up position). The storage facility is shipped with them switched off. If they are in the proper position, contact your next level of support.

2. Repair the serviceable event(s) and then go to the next step.

   Note: If both LPARs in the SFI have failed, the normal repair procedure will not work because the quiesce/resume process cannot be performed. Call the next level of support. You may need to power off the storage facility to replace the FRUs and then power it back on. If power comes up properly, close the serviceable event(s) and then go to the next step.

3. Power off the storage facility.
   a. Ensure that the Local/Remote switch on the LR/ZLR card is set to Remote.
   b. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
   c. Click **Service Applications** → **Service Focal Point**.
   d. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   e. Select the appropriate storage facility.
   f. On the main menu (top tool bar), click **Selected** → **Manage Power Control**. The Power Control window is displayed.
   g. Ensure that the Power Control Mode is set to Manual. Click **Power Off Storage Facility** and then click **OK**.

4. Start the installation from the beginning using the HMC **Install/Add/Remove Hardware** menu option (in **Service Focal Point**).

MAP1400 Section-W

You were sent to this section because the field installation failed, indicated by the fact that the code failed to set an internal code power option to ″autostart″ mode. Both of the CECs need to be power-cycled to allow finish-setting of the ″autostart″ mode.

1. Contact your next level of support to report this condition. Development must determine why the code process failed. The next level of support might direct you to perform the following general procedures that must be performed before the installation can be completed:
   - Power off the storage facility
   - Wait until the Current State status is ″Off″
   - Power on the storage facility
   - Verify that the internal code power option is now set to ″autostart″ mode

2. Login to the ASMI.
   a. Click **Service Applications** → **Service Focal Point**.
   b. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.

c. Select the appropriate storage facility.
d. On the main menu (top tool bar), click **Selected → Get SF Systems**. A list of storage systems is displayed.
e. Select the appropriate storage system.
f. On the main menu (top tool bar), click **Selected → Launch ASM Menu**.
g. Click **OK** to confirm the launch of the ASMI. The Web browser launches and the Advanced System Management interface is displayed.
h. Login to ASMI using a user ID of `admin` and a password of `admin2107`.

3. Select **Power/Restart Control → Power On/Off System**. See "MAP6F00 Accessing the ASMI" on page 851.

   What value is displayed in the field that is labeled "Boot to system service firmware"?
   - "Running", go to the next step.
   - "Standby", do not continue.

4. Did you previously select the option to certify DDMs?
   - Yes, the Certify DDMs process was not started by the install process. You must manually start it. See "MAP1470 Manually start the Certify DDMs process." After you manually start the Certify DDMs process, go to the next step.
   - No, go to step 6.

5. The Certify DDMs process has been started. When you originally ran the Certify DDMs process, did you select the option that causes a call home to occur when the process was to be completed?
   - Yes, the above procedure reset that code flag, preventing the call home from occurring. You must manually monitor the progress of the Certify DDMs process to see when it is complete. Later during the installation, when you are asked if you selected the call home option, answer "No" to be guided to manually check the progress and notify the customer when the process is complete.
   - No, go to the next step.

6. To complete the installation, perform the procedures in "Completing the management console customization and configuration" on page 85.

MAP1460 Isolating e-mail report errors

A problem was detected, a serviceable event was created and an e-mail copy of it was sent to e-mail destination provided by the customer. The customer may have given you a copy of the e-mail or may just have told you that an e-mail occurred. The WebSM login will be used to display and then repair the serviceable event.

MAP1460 Section-1

Use the following information to begin the problem repair. If you have a copy of the e-mail problem, you might be able to plan the service action prior to arriving at the storage facility that is reporting the problem. The serviceable event should have been "called home" already, so a service representative may have already been notified. To repair the serviceable event, go to "MAP1210 Displaying and repairing a serviceable event" on page 477.

MAP1470 Manually start the Certify DDMs process

Only use this procedure if sent here from another MAP. Use this MAP to manually start the Certify DDMs process.

Manually start the Certify DDMs process.

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
2. Open **Service Applications** → **Service Focal Point**.
3. In the right content area, select **Service Utilities**. A window displays a list of Storage Facilities.
4. Click the Storage Facility in the list. On the main menu (top toolbar), click **Selected** → **View/Certify DDMs...**. A window displays the number and type of DDMs to be certified.
5. Click the **Certify** button.

MAP1500 Ending a service action

This MAP describes how to end a service action.

MAP1500 Section-1

1. View the serviceable event and check whether the repair process closed it. Refer to "MAP1210 Displaying and repairing a serviceable event" on page 477.
2. If the repair process did not automatically close the serviceable event, then perform the following actions to close it.
   a. At the management console, select **Service Applications** → **Service Focal Point** → **Manage Serviceable Events**.
   b. Select the serviceable event, click **Selected** (on tool bar), select **Close Event**.
3. Use the management console option listed below to ensure all resources for this repair were returned to customer use. Any resources which show an exception condition should be investigated.
   a. At the management console, select **Service Applications** → **Service Focal Point** → **Service Utilities**.
   b. Select the **Storage Facility**, click **Selected** (on tool bar), select **View Resources State**.

   Did any system check types show Failed status?
   - Yes, refer to "MAP1100 View storage facility state (end of call)" on page 446 for more information and actions. Normally the action is to display and repair all Open Serviceable Events for this Storage Facility. If there are no open serviceable events, then call your next level of support.
   - No, click on **Close** to end the 'View Resource State'. Continue with the next step.
4. If FRUs containing network nodes (Service processor, Ethernet adapters, Ethernet switches) were replaced then perform the following steps to Save the Network Topology.
   a. At the management console, select **Service Applications** → **Service Focal Point** → **Service Utilities**.
   b. Select the **Storage Facility**, click **Selected** (on tool bar), select **Get Storage Plex**.
   c. Select the **Storage Plex**, click **Selected** (on tool bar), select **View Network Topology**.
   d. When the Network Topology window tool appears, click on **Save**.
   e. Click on **Close** to end the 'View Network Topology'.
5. Ensure that the rear cover screws are reinstalled to prevent access to hazardous areas by non-service personnel.

MAP2xxx range

Use this section for rack power isolation procedures

MAP2010 RPC card causing false fence

The failing RPC card has an internal problem that is causing it to fence the working RPC card when it should not.

The false fence must be reset before the failing RPC card can be replaced. The RPC to RPC communication cable will be unplugged so the working RPC card will not continue to be fenced by the failing RPC card.

MAP2010 Section-1

1. Verify that one of the two RPC cards is fenced. Observe the green LED on each RPC card. Is the green LED indicator off on one of the cards?
   - Yes, continue at the next step.
   - No, neither RPC is fenced. The original failing condition is no longer present. Call the next level of support before cancelling this problem.
2. Unplug the RPC to RPC communication cable from the J2-08 connector on the failing RPC card (green LED is lit).
3. Observe the green LED on the working RPC card (green LED was off). Is the green LED indicator lit?
   - Yes, continue at the next step.
   - No, the working RPC card did not unfence when the RPC to RPC communication cable carrying the fence signal was unplugged. Both RPC cards may be failing. Call the next level of support.
4. Return to the SAEL problem screen and continue.

   Note: Both RPC cards are not available and normal guided FRU replace procedures will be used.

MAP2020 Service processor I2C interface failure

A failure in the I2C interface between one or both RPC cards and the service processor in the CECs is indicated.

Multiple problems may be reported for this error. The RPC cards as well as the CECs may create problems to be repaired.

MAP2020 Section-1

1. Display all problems needing repair and look for any problems that list a CEC Service Processor Card FRU. Is there a related problem that lists MAP2220 in the FRU list?
   - Yes, exit this MAP and repair that serviceable event.
   - No, go to the next step.
2. Display all problems needing repair looking for any problems listing a CEC Service Processor Card FRU. Is there a related problem listing a CEC Service Processor Card in the FRU list?
   - Yes, go to the next step.
   - No, return to the screen that sent you here and continue the repair.
3. Exit this problem, then select and repair the problem listing the CEC service processor card as a FRU.

- If that repair fixes the failure, remember to cancel this problem (and any other related problems) which will also reset any related fence conditions.
- If that repair does not fix the problem, use this problem to repair the failure.

MAP2030 Check / Reorder Cable FRU

A cable can cause the failure if it is unplugged, incorrectly plugged, or otherwise damaged.

Do not attempt to correct any cable defect until you are directed to repair the cable.

MAP2030 Section-1

1. The serviceable event FRU list that sent you here contains one or more cables in addition to other FRUs.
   - Normally the cables are listed last in the FRU list as they are least likely to fail.
   - Each end of the same cable will appear seperately in the FRU list, with its own location code.
   - In this special case, the cable that is listed in the FRU list will be inspected and/or replaced next, ahead of other FRUs that are listed.
2. Visually check each end of the cable listed on the screen that sent you here to ensure it is properly plugged into the correct connector. Also visually check to ensure it is not damaged. Is the cable properly plugged and not damaged?
   - Yes, return to the screen that sent you here and click the No button (a non-cable FRU is most likely the problem).
   - No, return to the screen that sent you here, and click the Yes button (there may be a cable connection problem).

MAP2031 Repair ground continuity

The previous procedure measured more than 0.1 ohm resistance between the ground pin of the mainline power cable and the primary power supply enclosure.

Note: Customer disruption may occur if microcode and power boundaries are not in the proper conditions for this service action. Verify that you start all service activities in Chapter 1, “Start here,” on page 1.

MAP2031 Section-1

1. Disconnect the failing mainline power cable **(1)** or **(2)** from the line cord bracket.

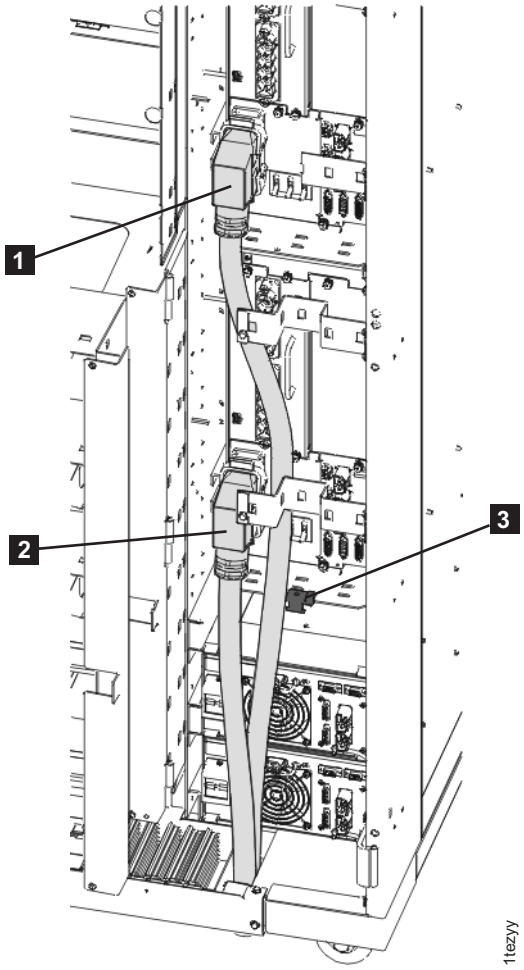


Figure 347. AC line cord

2. Prepare the multimeter to measure 0.1 ohm or less resistance. Place one lead of the multimeter on each ground pin of the male plug on the mainline power cable. Place the other lead on the conductive metal of each primary power supply enclosure. Refer to Figure 348 on page 550 for the location of the ground pin.
   - For the **mainline power cable (plug in)**: Place one lead of the multimeter on the ground pin of the male plug on the mainline power cable.

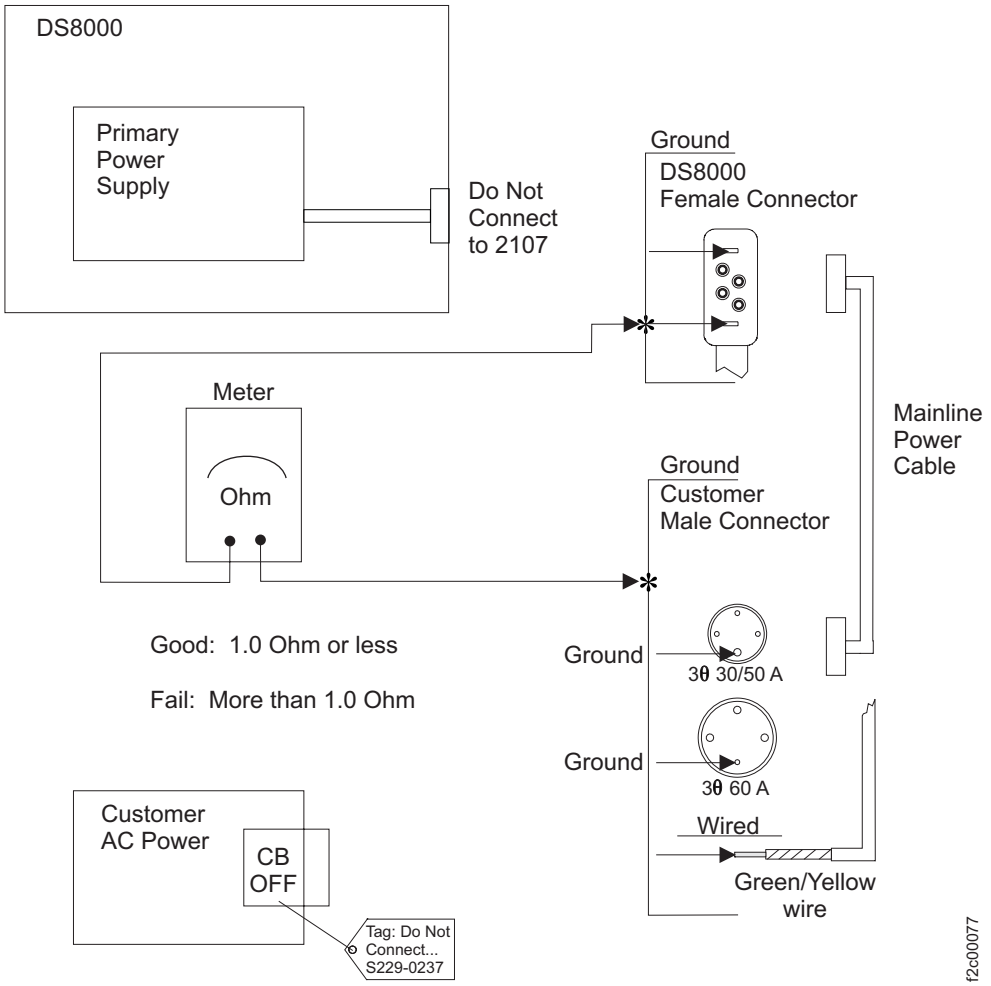


Figure 348. Ground continuity repair diagram

- For the **mainline power cable (wired):** Place one lead of the multimeter on the green and yellow wire at the customer end of the mainline power cable.

3. Place the other lead on the ground pin of the female connector on the mainline power cable. Refer to Figure 348
   - If there is 0.1 ohm or less resistance, the mainline power cable is good but the PPS enclosure is not grounded. Perform steps 7 through 9.
   - If there is more than 0.1 ohm resistance, the mainline power cable ground lead is open or has resistance. Perform steps 4 through 6.
4. The ground lead on the PPS is open or has resistance. Replace the mainline power cable. Go to the Chapter 34, “Exchanging parts,” on page 991 section on Chapter 35, “Cables,” on page 993, then return here to continue.
5. Insert the female connector on the new mainline power cable into the inlet on the line cord bracket.
6. Return to “Checking customer ground continuity with customer CB off (wired)” on page 60 to verify that ground continuity now measures 0.1 ohm or less resistance on the replaced cable.
7. The primary power supply enclosure is not grounded, replace the primary power supply. Go to the Chapter 34, “Exchanging parts,” on page 991 section on Chapter 39, “Rack Power and Cooling,” on page 1197, then return here to continue.

8. Insert the female connector on the mainline power cable into the inlet on the line cord bracket.
9. Return to "Checking customer ground continuity with customer CB off (wired)" on page 60 to verify that ground continuity now measures 0.1 ohm or less resistance.

MAP2040 Check primary power supply input circuit breaker

The primary power supply input circuit breaker is being reported as not in the on position.

MAP2040 Section-1

1. Inspect the input circuit breaker on the primary power supply (PPS) listed in the FRU list. Find the condition that applies, the circuit breaker switch is:
   - in the middle position, neither completely up or completely down, go to step 2.
   - in the completely up position, go to step 3.
   - in the completely down position, go to step 4.
2. The input circuit breaker is in the center position because it is tripped as a result of an over current condition inside the PPS. **Do not reset the circuit breaker.** Return to the screen that sent you here to continue the repair process and replace the PPS FRU.
3. The input circuit breaker is in the completely up position, which is the normal position. The PPS is reporting that the circuit breaker is not in the completely up position. Return to the screen that sent you here to continue the repair process and replace the PPS FRU.
4. The input circuit breaker is in the completely down position, which is the normal position when it has been manually switched off. Determine who switched it off and why.
   - If it was switched off as part of a repair procedure, return to that procedure and continue.
   - If you cannot determine why it was switched off, go to the next step.
5. Observe the LED status display on the front of the PPS.

   Is an error code displayed?
   - No, go to the next step.
   - Yes, display and repair any related serviceable events. If there are none, go to "MAP2340 codes on the PPS status display" on page 620. If the error is internal to the PPS, replace the PPS. If the error is not internal, call the next level of support.
6. The functional code may have fenced the PPS (removed it from active use) as part of the error recovery. Determine if the PPS has been fenced.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
   b. Click **Service Applications → Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   d. Select a storage facility (identified by serial number).
   e. On the window menu, click **Selected → View Storage Facility State (end of call)**. The status (PASSED/FAILED) of a set of system checks is displayed in the View Storage Facility State (end of call) window.

f. At the bottom of the System Check Type column, observe the status of the Fenced Resources.

What is the status of the Fenced Resources?

- PASSED, no resources are fenced. Close the serviceable event and exit this MAP.
- FAILED, go to the next step.

7. Display details about the Fenced Resources.
   a. Select Fenced Resources in the list.
   b. Click the **Details** button. The Details window is displayed.

   Is the PPS listed as a fenced resource in the Details window?

   - Yes, go to the next step.
   - No, the PPS is not fenced. Close the serviceable event and exit this MAP. There should be serviceable events for resources that are fenced. These should be repaired.
8. Reset the PPS fence by doing a psuedo repair of the PPS FRU.
   a. Return to the repair screen that sent you here.
   b. Do a psuedo repair of the FRU. A psuedo repair of the PPS means that you use the normal FRU replacement procedure, but you do not replace the PPS or even disconnect the PPS cables.

MAP2050 Loss of AC Input to a single primary power supply

The primary power supply (PPS) is reporting a loss of line cord AC input. This can be due to a loss of customer line cord power or an internal failure in the AC to DC conversion section of the PPS.

This MAP assumes that only one PPS in this storage facility has reported a loss of line cord AC input. If more than one PPS in this storage facility lost AC input, a different problem would have been created reporting customer power problems that did not require a repair action.

MAP2050 Section-1

1. Using the location for the PPS FRU in the problem record, locate the PPS that has reported the loss of line cord AC.
2. Observe the AC INPUT GOOD LED that is located on the front of the PPS.

   Is the AC INPUT GOOD LED lit?

   - Yes, go to step 3.
   - No, go to step 4.
3. One of the following conditions applies:
   - The customer line cord input power to the PPS might have gone off and then been restored. If so, go to step 9 on page 553.
   - The PPS is incorrectly reporting the loss of line cord AC. Return to the repair screen that sent you here to continue and replace the PPS FRU.
4. Locate and observe the customer line cord circuit breaker. Is it set to the On position?
   - Yes, go to step 5 on page 553.
   - No, have the customer determine why the circuit breaker was off. When it is safe, have the customer set the circuit breaker to On and ensure that the PPS powers up properly. Then go to step 9 on page 553.

5. Ensure that all of the power connections between the customer power source and the PPS that is reporting the failure are properly connected before you continue with the next step.
6. At the rear of the rack, switch the failing PPS input circuit breaker to off (down).
7. At the rear of the rack, disconnect the mainline power cable from the failing PPS.
8. Measure the customer power on the line cord to the failing PPS. Use step 2 and step 3 in the procedure "Checking customer voltage with customer CB on (wired)" on page 62 to check the line cord voltages.

   Is the correct customer voltage present?

   - Yes, the PPS is failing. Return to the repair procedure to complete the replacement of the PPS. The line cord will be reconnected as part of the FRU replacement.
   - No, ensure the line cord is correctly connected to the customer power system. Report the problem to the customer, and after they have restored proper power that you can verify by measuring once again, complete the repair procedure for the PPS. This should reset any PPS fence that occurred. Then go to step 9 to ensure the PPS is available.
9. The functional code might have fenced (removed from active use) the PPS as part of the error recovery. Determine if the PPS has been fenced.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Service Applications** → **Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   d. Select the storage facility.
   e. On the main menu (top tool bar), click **Selected** → **View Storage Facility State**.
   f. A window displays the status (passed/failed) of 25 or more system checks.
   g. At the bottom of the **System Check Type** column, observe the **Fenced Resources** status.

   Find the status that is displayed:

   - PASSED (no resources are fenced), close the serviceable event and exit this MAP.
   - FAILED, go to step 10.
10. Display the fenced resource details.
    a. Click **Fenced Resources** to highlight it.
    b. Click the **Details** button.

       Does the **Details** screen list the PPS as a fenced resource?

    - Yes, go to step 11.
    - No, the PPS is not fenced. Close the serviceable event and exit this MAP. There should be serviceable events for resources that are fenced. These should be repaired.
11. The PPS fence needs to be reset using the PPS FRU replace procedure. Return to the repair screen that sent you here and do a psuedo repair of the FRU. A psuedo repair of the PPS means that you use the normal FRU replacement procedures, but you do not replace or even disconnect the PPS cables.

MAP2060 Only one primary power supply reports a UEPO power off request

Use this procedure when only one primary power supply (PPS) of a pair of PPSs in the rack is reporting that the UEPO circuit loop through the UEPO switch is open. The other PPS is reporting the UEPO circuit loop through the UEPO switch is closed (normal operation).

MAP2060Section-1

1. Use the FRU list to determine the location of the PPS reporting the UEPO circuit open loop. Ensure the AC INPUT GOOD LED is lit. If it is not, exit this problem and repair the problem report for the missing AC input.
2. Ensure the rack operator panel UEPO switch is in the up position. If it is not, exit this problem and determine why the UEPO switch has been switched off.
3. Observe the UEPO LOOP GOOD LED. Is the LED off?
   - Yes, go to the next step.
   - No, the failure is no longer present. Cancel the problem report that sent you here.
4. Observe the UEPO cable at the J4 connector on the PPS. Is it properly connected?
   - Yes, go to the next step.
   - No, connect the cable and observe the UEPO LOOP GOOD LED. If it is lit, the failure is repaired. Close the problem report. If it is off, go to the next step.
5. Check the continuity of the UEPO circuit through the UEPO cable and switch. (The cable is hard-wired to the UEPO switch). Disconnect the UEPO cable from the PPS J4 connector. Use a digital volt/ohm meter to check the continuity between the two wires of the cable connector. Is the continuity 1 ohm or less?
   - Yes, the UEPO cable and switch are working properly. Return to the screen that sent you here to replace the PPS.
   - No, replace the UEPO switch and attached cable. Go to "MAP2180 UEPO switch replacement, concurrent" on page 589.

MAP2070 Battery module enclosure circuit breaker problem

A battery module enclosure circuit breaker (CB) problem is being reported. One of the following has occurred:

- CB is in the off position. It needs to be reset using a dummy repair of the battery module enclosure FRU.
- CB is tripped (not in full off position), the battery module enclosure FRU needs to be replaced.
- CB is on, there is an internal error and the battery module enclosure FRU needs to be replaced.

MAP2070 Section-1

1. Visually check both circuit breakers (CBs) on the battery module enclosure. Find the condition that applies:
   - CB is in the off position, go to step 2.
   - CB is tripped (not in full off position), go to step 3 on page 555.
   - CB is on, go to step 3 on page 555.
2. Do a psuedo repair of the battery module enclosure FRU, and set the CB to on during that repair. A psuedo repair means you do not actually physically

replace the FRU, but you go through the normal FRU replacement process. Return to the PBcommonPostInfoCenterIsolateQuery10 screen and select **Problem not fixed** to replace the FRU.

3. Replace the battery module enclosure FRU. Return to the HMC screen titled PBcommonPostInfoCenterIsolateQuery10 and select **Problem not fixed** to replace the FRU.

MAP2080 Primary power supply output power boundary is off for one PPS

An output power boundary is off. Either the power boundary enable/disable switch is in the disable position or the power module has a failure.

MAP2080 Section-1

1. Determine the location of the failing primary power supply (PPS) by using the location code listed in the problem FRU list.
2. Find the failing PPS module by observing the LED on each PPS module shown in Figure 349. The LED is green if there is no problem. The LED is amber or off if there is a failure.

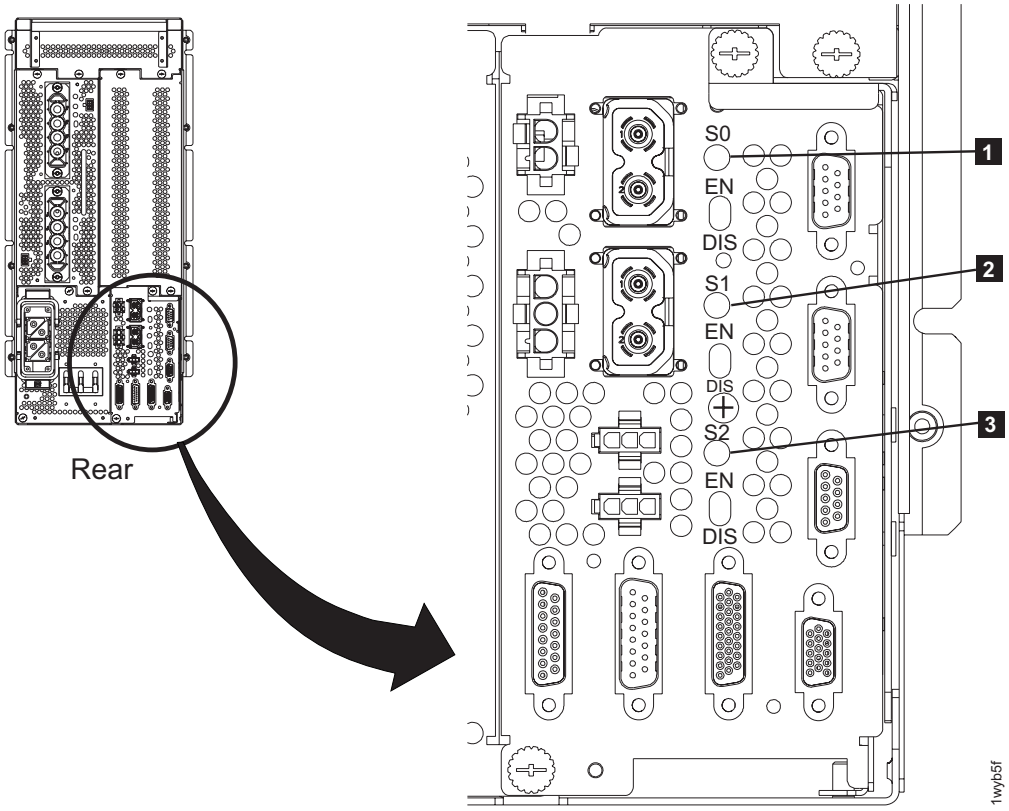


Figure 349. LEDs on the sequencer module

Are any LEDs amber or off?

- Yes, go to step 3 on page 556.
- No, the failure is not occurring at this time. To verify this, return to the repair process screen and do a pseudo repair of the next PPS FRU listed. **Note:** A pseudo repair means you use the normal procedures to replace the FRU, but do not exchange the original FRU with a new FRU. You still must power off, disconnect cables, and physically remove the FRU as guided. This

ensures the error conditions are properly reset and all verification tests including FRU power on self tests are correctly run.

3. Observe the enable/disable switch on the PPS FRU with the LED amber, or off. Is the switch in the disable position?
   - Yes, set the switch to the enable position. Return to the repair process screen and do a pseudo repair of the next FRU in the list. This will run verification tests to ensure the failure is not occurring. **Note:** A pseudo repair means you use the normal procedures to replace the FRU, but do not exchange the original FRU with a new FRU. You still must power off, disconnect cables, and physically remove the FRU as guided. This ensures the error conditions are properly reset and all verification tests including FRU power on self tests are correctly run.
   - No, return to the repair process screen and continue the repair by selecting the next FRU on the list.

MAP2090 Primary power supply 208 VDC overcurrent

Use this procedure when the primary power supply (PPS) reports an overcurrent in the 208 VDC power boundary.

This can be caused by a PPS failure or a short in the distribution system.

DANGER

Hazardous voltage, current, or energy levels are present inside of a component to which this label is attached. (L001)



MAP2090 Section -1

1. Determine the location of the PPS by using the location code listed in the problem FRU list.
2. Observe the LED on the PPS sequencer module labeled “S0” **(2)**. **(1)** shows the disable/enable switch.

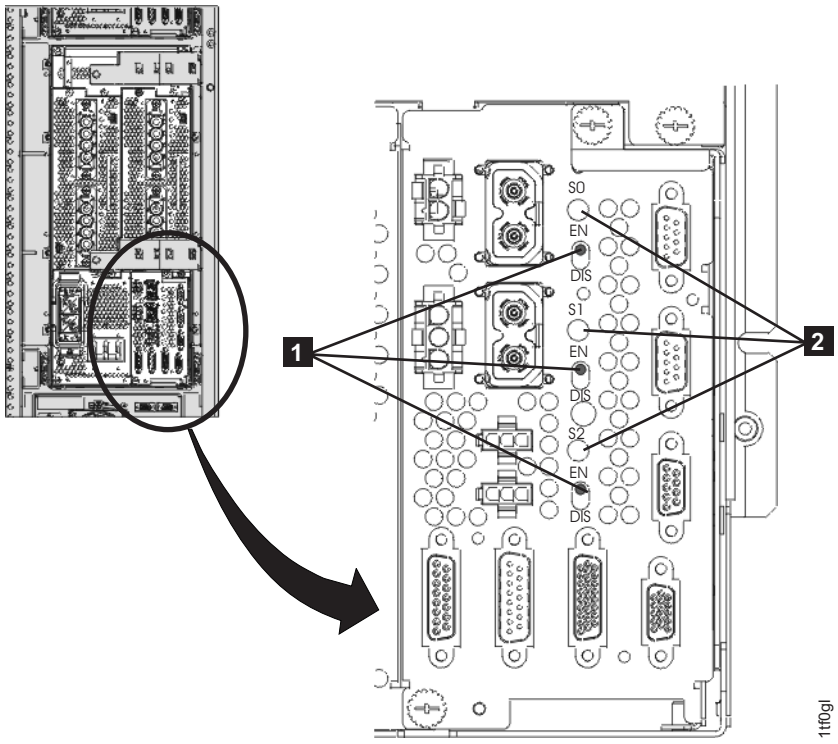


Figure 350. PPS sequencer module and LED enable/disable switch

Find the condition that applies:

- LED is amber, go to the next step.
- LED is green, the failure is not occurring now so you will not be able to isolate the problem with this MAP. Exit this MAP and close the problem.

3. The LED is amber. Disconnect the cable **(1)** from the PPS sequencer module to the 208 VDC bus bar. Reset the "S0" output by setting the enable/disable switch below the LED to disable (down) and then enable (up).

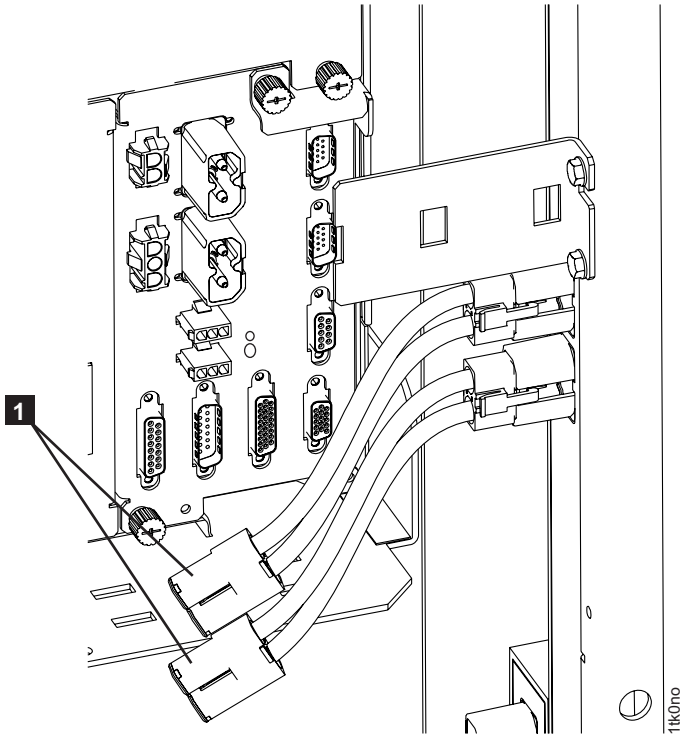


Figure 351. Disconnecting the cable from the PPS sequencer module to the 208VDC bus bar

a. Observe the LED on the PPS sequencer module labeled "S0". Find the condition that applies:

- LED is amber, the PPS is failing. Return to the repair screen to continue the repair and replace the PPS.
- LED is green, the failure is external to the PPS. Go to the next step.

4. There is an overcurrent in the bus bar distribution system.

   Note: The power supplies connected to the output connectors of the secondary 208 VDC bus bar are protected by individual fuses as shown in Figure 352 on page 559. Those fuses would blow before the PPS would detect an overcurrent.

   The possible failing FRUs are:

   - PPS to primary 208 VDC bus bar cable (2)
   - Primary 208 VDC bus bar (3)
   - Primary 208 VDC bus bar to secondary 208 VDC bus bar cable (4)
   - Secondary 208 VDC bus bar (5)

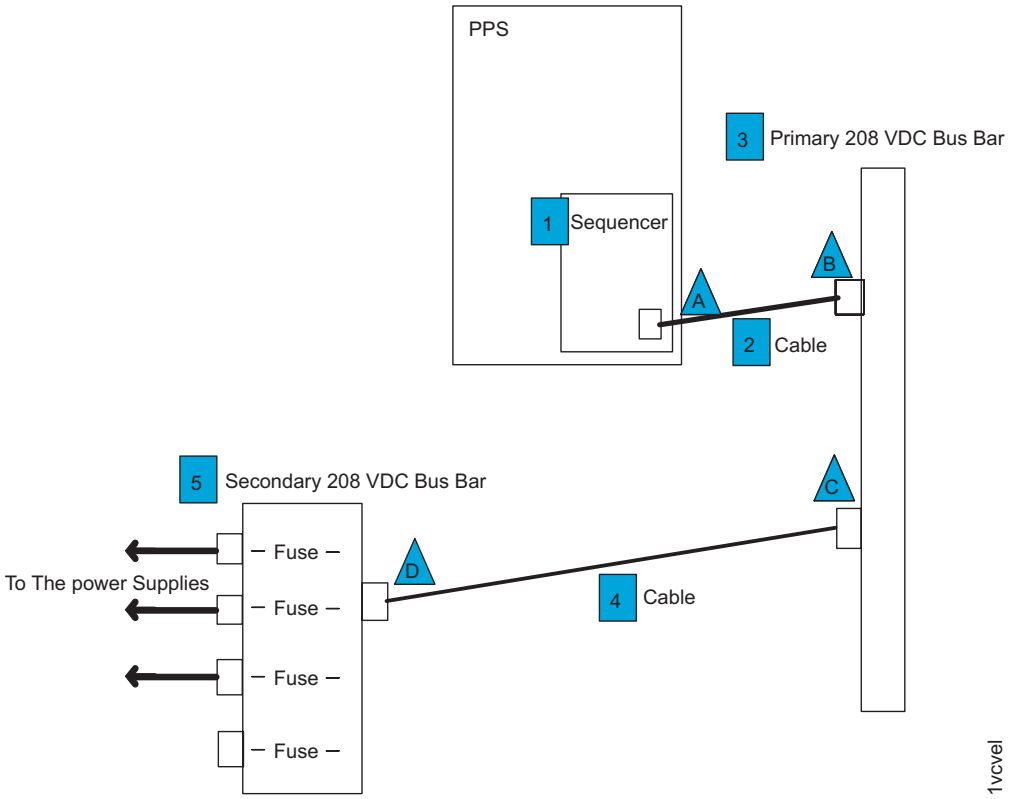


Figure 352. Power supplies connected to output connectors of the 208VDC bus bar

5. Disconnect cable **4** from connector **C**. Reset the "S0" output by setting the enable/disable switch below the LED to disable (down) and then enable (up).
   a. Observe the LED on the PPS sequencer module labeled "S0". Find the condition that applies:
   - LED is amber, the failing FRU is cable **2** or bus bar **3**. Go to the next step.
   - LED is green, the failing FRU is cable **4** or bus bar **5**. Go to step 7.
6. Disconnect cable **2** at connector **B**. Reset the "S0" output by setting the enable/disable switch below the LED to disable (down) and then enable (up). Observe the LED on the PPS sequencer module labeled "S0". Find the condition that applies:
   - LED is amber, the failing FRU is cable **2** or bus bar **3**. Go to the step 8 on page 560.
   - LED is green, the failing FRU is bus bar **3**. Go to step 8 on page 560.
7. Connect cable **4** to connector **C**.
   a. Disconnect cable **4** from connector **D**. Reset the "S0" output by setting the enable/disable switch below the LED to disable (down) and then enable (up). Observe the LED on the PPS sequencer module labeled "S0". Find the condition that applies:
   - LED is amber, the failing FRU is cable **4**. Go to the step 8 on page 560.
   - LED is green, the failing FRU is bus bar **5**. Go to step 8 on page 560.

8. Select the FRU to be replaced:

FRU to replace	Action
PPS to primary 208 VDC bus bar cable 2	Go to Chapter 35, "Cables," on page 993 to replace the FRU and then go to the next step.
Primary 208 VDC bus bar cable 3	Go Chapter 35, "Cables," on page 993 to replace the FRU then return to the next step.
Primary 208 VDC bus bar to secondary 208 VDC bus bar cable 4	Replace the FRU and then go to the next step.
Secondary 208 VDC bus bar 5	Go to "**Exchange the bus bar, 208VDC secondary**" on page 1225 to replace the FRU and then return to the next step.

9. Return to the service screen that sent you here and continue the repair by selecting the PPS in the FRU list. Do a pseudo repair of the PPS.

   Note: A pseudo repair means that you use the normal PPS FRU replace procedures, but do not disconnect cables, or physically remove the FRU as guided. The pseudo repair ensures the error conditions are properly reset and all verification tests, including FRU power on self test, are correctly run.

MAP20A0 Protected 208 VDC is Off

The protected 208 VDC output is off. Either one of the sequencer module S0, S1, or S2 enable/disable switches is set to disable or the PPS has a failure.

MAP20A0 Section-1

1. Determine the location of the failing Primary Power Supply (PPS) by using the location code listed in the problem FRU list.
2. Observe the S0, S1, and S2 LEDs **2** on the sequencer module, see Figure 353 on page 561. Find the condition that applies:
   - An LED is amber, go to step 3 on page 561.
   - All LEDs are green, the failure is not occurring now so this MAP will not be able to isolate it. Exit this MAP and close the problem.

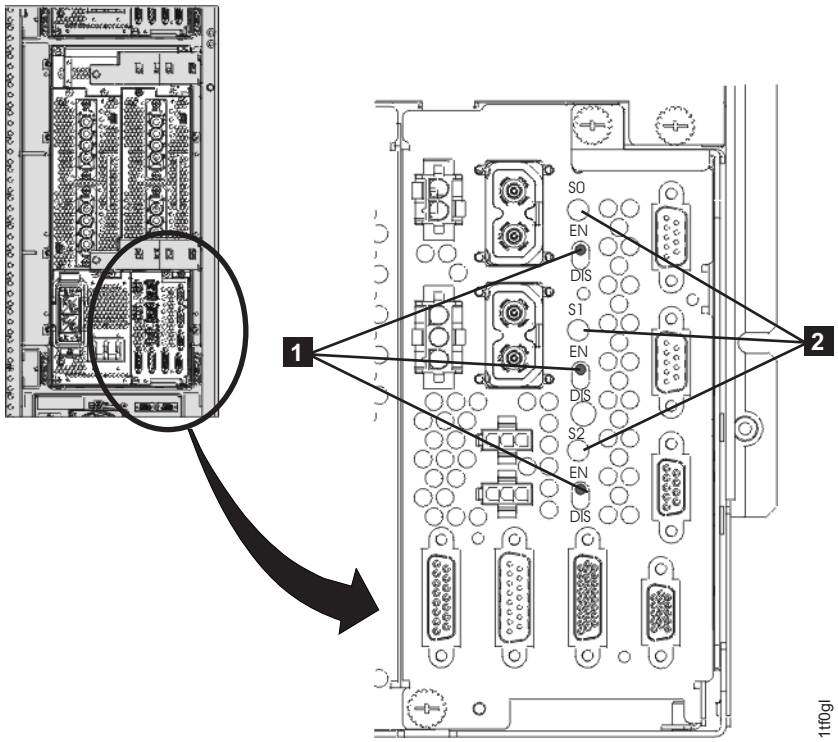


Figure 353. PPS sequencer module and LED enable/disable switch

3. Observe the S0, S1, and S2 enable/disable switches **1** on the sequencer module of the PPS FRU. Is a switch in the disable position?
   - Yes, set the switch to the enable position. Return to the repair process screen and do a pseudo repair (see Note) of the next FRU in the list. This will run verification tests to ensure the repair is successful.

     Note: A pseudo repair means you use the normal procedures to replace the FRU, but do not exchange the original FRU with a new FRU. You must still power off and disconnect the cables when directed. Do not remove or replace the FRU. Connect and power on the FRU when guided. This ensures the error conditions are properly reset and all verification tests, including the FRU power-on self test, are correctly run.
   - No, return to the repair process screen and continue the repair by selecting the next FRU on the list.

MAP20B0 Protected 208 VDC is off for both PPSs

The protected 208 VDC output is off for both PPSs. Either both PPSs have the enable/disable switch set to disable, or both PPSs have an overcurrent condition on output P9/P10 connectors.

MAP20B0 Section-1

1. Determine the location of the failing primary power supply (PPS) by using the location code listed in the problem FRU list. Both PPSs in the same frame should be listed.

2. Observe the S1 LED on the sequencer module for each PPS.

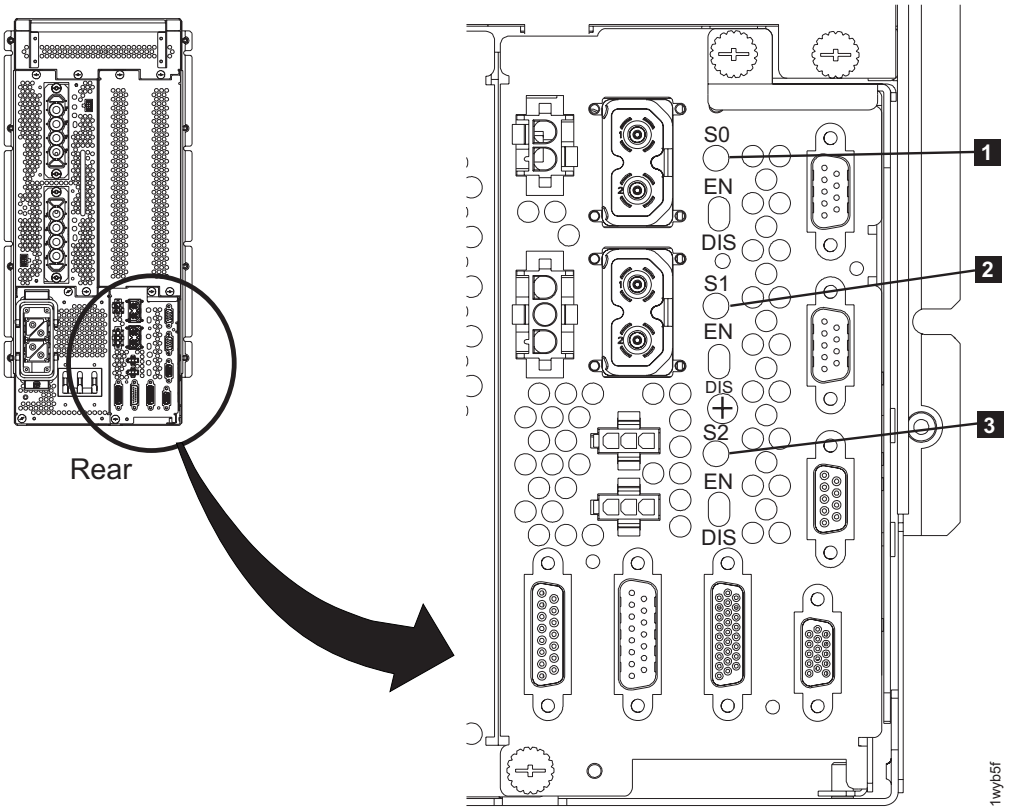


Figure 354. LED basic power supply

Find the condition that applies:

- LED is amber, go to step 3.
- LED is green, the failure is not occurring now so this MAP will not be able to isolate it. Exit this MAP and close the problem.

3. Observe the S1 enable/disable switch on the sequencer module of each PPS FRU. Is either switch in the disable position?
   - Yes, set the switch to the enable position. Return to the repair process screen and do a pseudo repair of the next FRU in the list. This will run verification tests to ensure the repair is successful. **Note:** A pseudo repair means you use the normal procedures to replace the FRU, but do not exchange the original FRU with a new FRU. You still must power off, disconnect cables, and physically remove the FRU as guided. This ensures the error conditions are properly reset and all verification tests, including FRU power on self-test, are correctly run.
   - No, there may be an overcurrent condition. Go to step 4.
4. Determine if PPS 1 is creating an overcurrent condition. Disconnect the cable from the PPS 1 sequencer module connector J9. Reset the ″S1″ output on both PPSs by setting the enable/disable switch below the LED to disable (down) and then enable (up). Does the PPS 1 S1 LED display green?
   - Yes, PPS 1 is not failing. Reconnect the cable and then go to step 5 on page 563.
   - No, PPS 1 is failing and needs to be replaced. Return to the repair screen to select and replace the FRU.

5. Determine if PPS 2 is creating an overcurrent condition. Disconnect the cable from PPS 2 sequencer module connector J9. Reset the ″S1″ output on both PPSs by setting the enable/disable switch below the LED to disable (down) and then enable (up). Did the PPS 2 S1 LED display green?
   - Yes, PPS 2 is not failing. Reconnect the cable and then go to step 6.
   - No, PPS 2 is failing and needs to be replaced. Return to the repair screen to select and replace the FRU.
6. Both PPSs are not failing, but there is an overcurrent condition present. The cable connected to J9 of each PPS is a single “Y” cable that connects to both PPS J9 connectors and also to the following in this rack:
   - the management console eServer enclosure (if present)
   - the management console display/keyboard enclosure (if present)
   - both Ethernet switches (if present)

   The enclosures previously listed should already be in a powered off state from the overcurrent failure.
7. Determine which enclosure is causing the overcurrent.
   a. Unplug the power input cable from each enclosure, one at a time.
   b. Reset the ″S1″ output on both PPSs by setting the enable/disable switch below the LED to disable (down) and then enable (up).
   c. Observe the sequencer module S1 LED.

      Do both PPS S1 LEDs display green?
   - Yes, the enclosure just unplugged is failing. Repair or replace the enclosure. Return to the display screen that sent you here to replace the failing FRU. Remember to close any related problem records when the repair is complete. There may be repair records for network failures.
   - No, reconnect the power input cable to the enclosure and repeat this step for the next enclosure. If all enclosures have been tested and it still fails, replace the cable assembly.

MAP20C0 PPS current sharing fault

A current sharing fault has been reported for one or more primary power supply (PPS) power boundaries.

A current sharing fault occurs when multiple power supplies provide power for the same load and one of the power supplies is not providing a reasonable share of the current to the load. The power boundaries that do current sharing are as follows:

- Main 5/12V DDM power module for both PPS
- Optional 5/12V DDM power module for both PPS
- Main 208 VDC module for both PPS
- Optional 208 VDC module for both PPS

A current sharing fault can be caused by a failure in the power supply but can also be the result of the supply being disconnected from the load.

MAP20C0 Section-1

1. Determine the location of the failing primary power supply (PPS) output module by using the location code listed in the problem FRU list.
2. Check that the cable from the PPS output module to the bus bar is properly connected. Is the cable properly connected?

- Yes, the PPS module is failing. Go to the next step.
- No, return to the repair screen that sent you here and use the FRU replace procedure for the PPS module to reconnect, repair, or replace the cable.

3. Return to the repair screen that sent you here to replace the PPS module.

MAP20D0 PPS input phase missing

A PPS has reported the loss of an AC input phase, only two phases of the three phase power are being detected. The failure can be internal to the PPS, the AC line cord, or the customer utility.

MAP20D0 Section-1

1. The primary power supply (PPS) must be powered off before continuing at the next step. Return to the repair screen that sent you here to replace the PPS FRU, but stop when the PPS is powered off. Then return here and go to the next step.
2. Determine if the primary power supply (PPS) is receiving proper three phase power. Reference the customer power checks in the Install information to do the checks. Do all three phases check good?
   - Yes, the PPS is failing. Return to the repair procedure to complete the replacement of the PPS.
   - No, correct the problem, then return to the repair procedure to do a pseudo repair of the PPS. **Note:** A pseudo repair means you use the normal procedures to replace the FRU, but do not exchange the original FRU with a new FRU. You still must power off, disconnect cables, and physically remove the FRU as guided. This ensures the error conditions are properly reset and all verification tests including FRU power on self tests are correctly run.

MAP20F5 Expansion rack PPS to rack 1 RPC communication problem detected

A PPS to RPC card communication problem was detected. The problem normally will be mis-plugged PPS or RPC card cables detected during an install or repair action.

MAP2030 Section-1

1. The RPC to PPS communication cable is a ″Y″ cable that connects one RPC card to the sequencer module in each PPS in a rack. Each rack in the storage facility has two ″Y″ cables, one going to each RPC card.
2. One or more PPS to RPC card cables have been detected as mis-plugged at PPS-1, PPS-2, or the RPC card. This should only occur during an install or repair action that caused you to connect or reconnect the cables.

   Note: If this occurred during an install, it is possible that a cable was mislabeled. If a labeling error is found, mark the label so it will not cause future problems.
3. Use the tables below to physically trace each cable and ensure all three ends are correctly plugged. If a problem is found, you must not hot plug the cables to correct the problem. Instead, return and repeat the procedure during which the cables were connected. If this is not possible, call the next level of support.

Table 168. Cable to RPC-1 and RPC-2 cards

RPC-1 card connector (see Figure 356 on page 566)	Rack number	PPS-1 and PPS-2 sequencer module connector (see Figure 355)	
		RPC-1 card	RPC-2 card
1	1	J1	J2
3	2	J1	J2
5	3	J1	J2

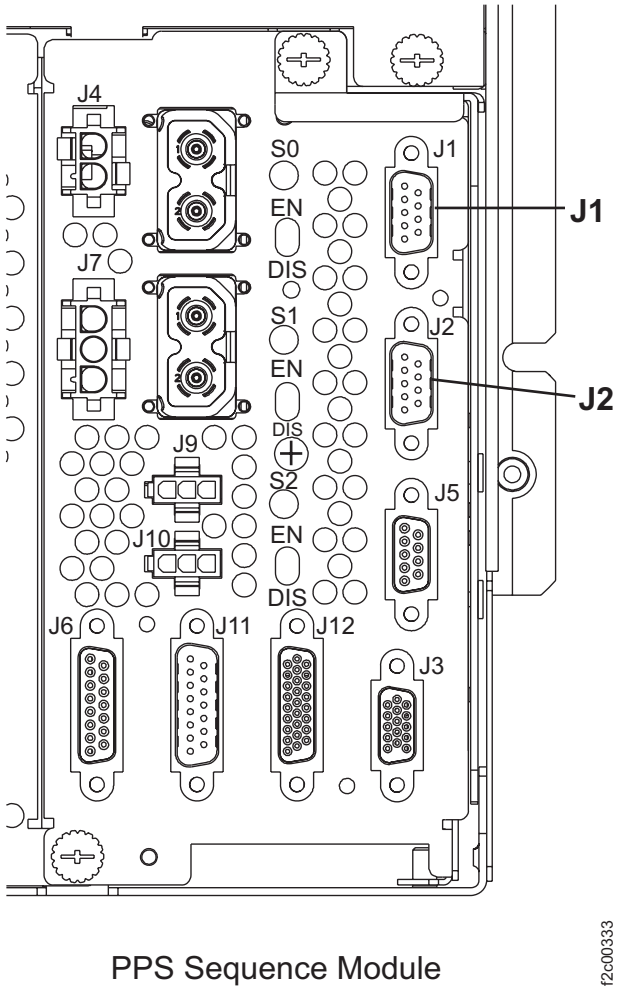


Figure 355. PPS sequencer module RPC connectors

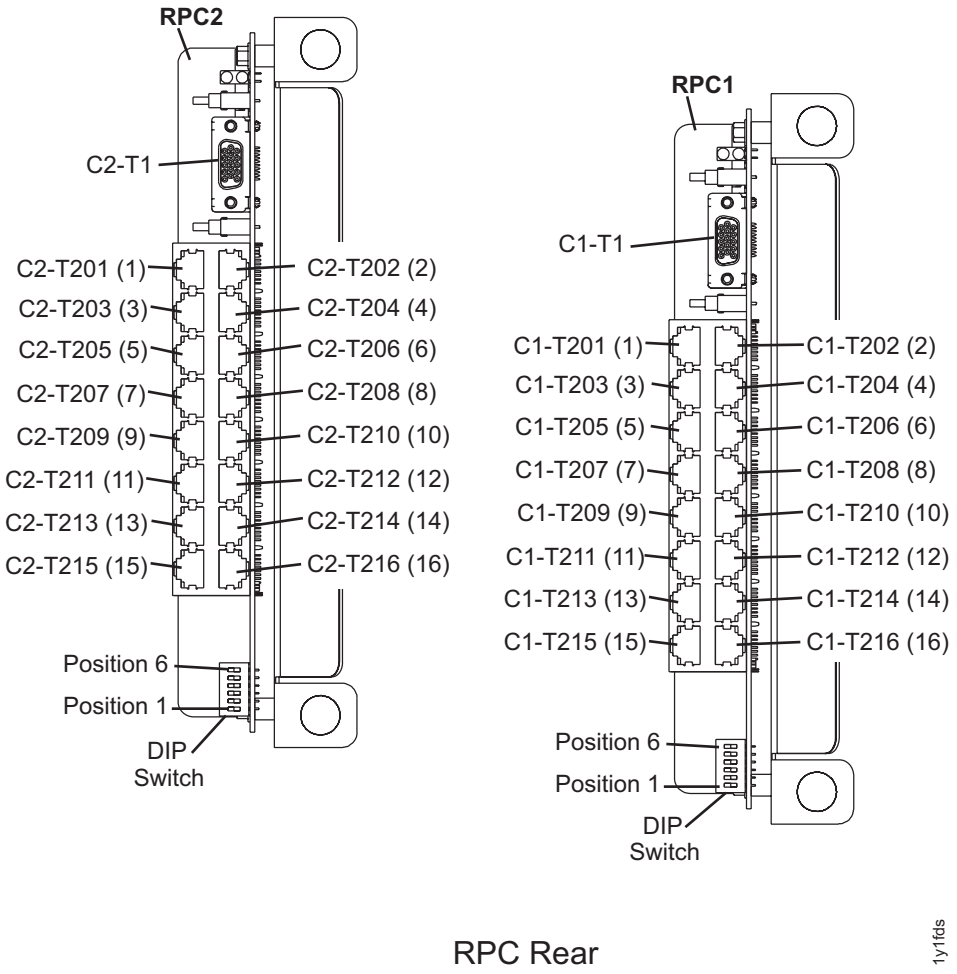


Figure 356. Location codes for the RPC card

MAP2110 Isolating problems using visual symptoms

Visual symptoms can be used to begin a repair. In most cases you will be directed to first display and repair any serviceable events.

MAP2110 Section-1

Use Table 169 on page 567 and Table 170 on page 568 to locate the visual symptom. Follow the description and actions.

Table 169. Rack operator panel indicators

Power Symptom	Description and Action
Attention / Identify indicator is on solid.	**Description:** The attention indicator is on for the first rack when an problem record has been logged for the storage facility. The indicator will go off when the IBM service representative logs in for service. **Action:** At the management console, display the open problems and begin the repair. **Note:** Each drawer or RPC is cabled to the rack identity card and is capable of turning on the LED. When there is no open problem and the LED is lit, there probably should be an isolation procedure so that the IBM service representative can fix the problem.
Attention / Identify indicator is flashing.	**Description:** The indicator will flash when a FRU within the frame is being identified for replacement. **Action:** The Identify LED will be turned off when the repair is complete.
Both Power Complete indicators are off.	**Description:** This is a normal condition when the storage facility is powered off, both primary power supplies will have some indicators on. **Action:** If both PPSs have some indicators on, no action is needed. If both PPSs have indicators off, ensure the PPS input circuit breakers are on and have the customer restore line cord power.
One Power Complete indicator is off, the other Power Complete indicator is on.	**Description:** Primary power supply input power section problem. **Action:** 1. At the management console, display and repair any related problems. 2. Observe the PPS front status display. If any codes are displayed, go to "MAP2340 codes on the PPS status display" on page 620. 3. Observe the PPS front LED indicators. If the 208VDC Power indicator and the DDM Power Good indicators are on, the front cover Power Complete indicator should be on. Replace the PPS.
Power Complete indicator is slow blinking.	**Description:** The indicator slow blinks if a problem has been detected. A code is displayed in the primary power supply status display. **Action:** 1. At the management console display and repair any related problems. 2. Observe the PPS front status display. Go to "MAP2340 codes on the PPS status display" on page 620.
Power Complete indicator is fast blinking.	**Description:** The indicator fast blinks while the storage facility is powering on. **Action:** None. Wait for up to two minutes for the power on process to complete.

Table 170. PPS and RPC card visual symptoms

Power Symptom	Description and Action
Both primary power supplies (PPSs) have all indicators off.	**Description:** This occurs when both customer line cords lose power or input circuit breakers are in the off position for both PPSs. **Action:** Ensure the PPS input circuit breakers are on and have customer restore line cord power.
A code is displayed in the PPS status display.	**Description:** The PPS has detected an error condition. **Action:** Go to "MAP2340 codes on the PPS status display" on page 620.
Primary power supply indicators	**Description:** The following are the PPS indicators which can be as follows: • AC INPUT GOOD indicator is lit when customer line voltage is available to the PPS. • UEPO LOOP GOOD indicator is lit when the customer line voltage input is available to the PPS and the UEPO switch is in the normal position. • 208V POWER GOOD indicator is lit while the storage facility is in standby or is powered on. • DDM POWER GOOD indicator is lit when the storage facility is powered on or is being powered on. The LED is off while the storage facility is in standby power and while the storage facility is on battery power and the extended power line disturbance ride through time has expired. • PPS FAULT indicator is lit when a PPS fault has been detected. The PPS display will show an error code. • ON BATTERY POWER indicator is lit when line cord power has been lost to both PPSs. **Action:** Use other visual symptoms to isolate ad correct any problems.
RPC card green indicator is off.	**Description:** The RPC card indicator LED is off when the line cord power is removed from the storage facility. The indicator is on when the RPC received standby control voltage from either PPS and has completed a boot of its firmware. If an RPC error is detected and is subsequently fenced (removed from service) the LED will be switched off and a serviceable event will be created. **Action:** Display and repair any related problems.
PPS circuit breaker is tripped.	**Description:**An overcurrent condition in the PPS has occurred. Do not reset the circuit breaker. **Action:** Display and repair any related problems.

MAP2111 Isolating the Identify/Attention indicator on the rack operator panel

This MAP describes the control circuit for the Identify/Attention indicator on the rack operator panel and includes procedures for how to isolate faults within it.

Each rack operator panel has an Identify indicator **3** . See Figure 357 on page 569. The indicator flashes two times per second when active. It is driven by the rack

identity card. The rack identity card can receive an ″activate Identify″ signal from a CEC enclosure, an I/O enclosure, a fan sense card, or an RPC card.

In rack-1 only, the Identify indicator is also used as an Attention indicator (on solid). The Attention condition indicates that the storage facility needs service. If the Identify and Attention signals are present at the same time, the Identify signal (flashing) takes precedence over the Attention signal (on solid). The rack identity card receives an ″activate Attention″ request only from a CEC enclosure.

When the rack Identify indicator is flashing, the Identify indicator on at least one of the related parts (the enclosures or cards mentioned above) must also be flashing. If the Identify indicator on a related part is not flashing, an indicator is burnt out or the ″activate Identify″ signal is being asserted falsely.

MAP2111 Section-1

Observer the Identify/Attention indicator **3** on the rack operator panel. See Figure 357.

What is the state of the indicator?

- On solid, go to "MAP2111 Section-2."
- Flashing, go to "MAP2111 Section-3" on page 570.
- Off, go to "MAP2111 Section-4" on page 576.

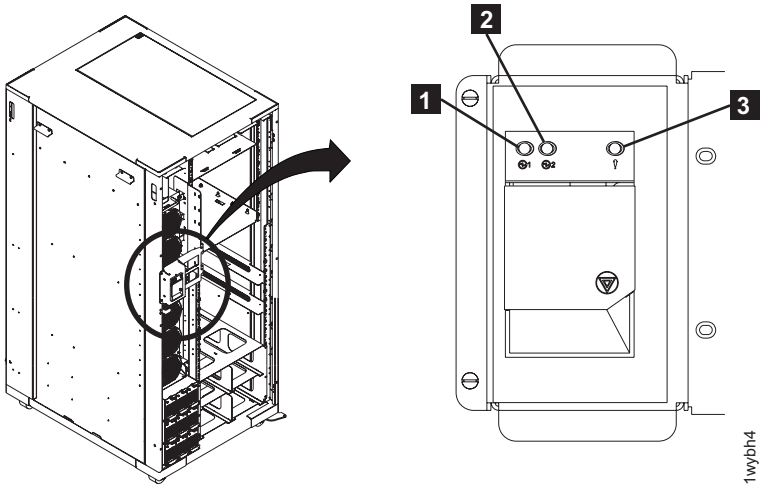


Figure 357. LEDs on the rack operator panel

MAP2111 Section-2

1. Are there any open serviceable events that have not been repaired and closed?
   - Yes, it is normal for the rack operator panel Identify/Attention indicator to be lit solid to visually notify the observer that there are open serviceable events to be repaired. Exit this MAP and repair the open serviceable events.
   - No, go to the next step.
2. Observe the Attention indicator **1** on each of the CEC enclosures. See Figure 358 on page 570.

   Is the Attention indicator on any of the CEC enclosures lit solid?
   - Yes, use "MAP2112 Activating or Deactivating CEC or I/O enclosure indicators" on page 576 to switch off the Attention indicator on that CEC

enclosure. The rack operator panel Attention indicator should be off when both CEC enclosure attention indicators are off.

- No, an Attention indicator on a CEC enclosure might be burned out, but the signal is still active. Go to the next step.

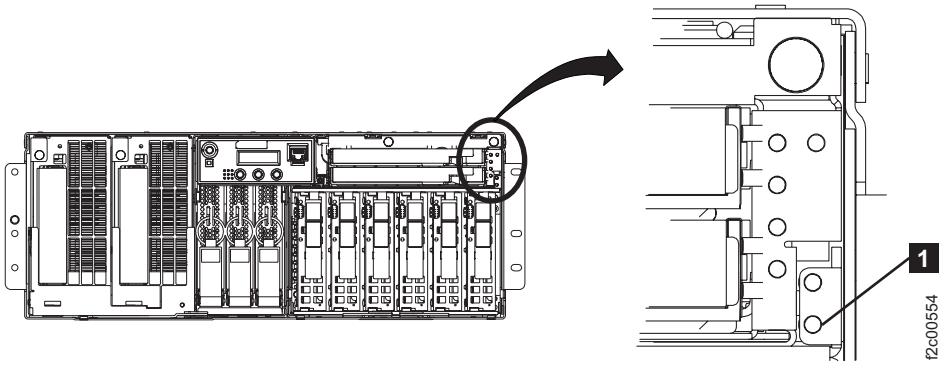


Figure 358. The Identify/Attention indicator (LED) on a CEC enclosure (front view)

3. Use ASMI to display the status of the Attention indicator for each CEC enclosure. See "MAP2112 Activating or Deactivating CEC or I/O enclosure indicators" on page 576.

   Does the status show that a CEC enclosure Attention indicator is on?

   - Yes, go to the next step.
   - No, replace the rack identity card using the **Service Applications** → **Service Focal Point** → **Exchange Parts** option.
4. You must switch off the Attention indicator on the CEC enclosure, which will then switch off the Attention indicator on the rack operator panel. See "MAP2112 Activating or Deactivating CEC or I/O enclosure indicators" on page 576.
5. The Attention indicator on the CEC enclosure should have been on solid when the ASMI status showed that it was on. The following parts might be failing:

   - media backplane assembly
   - service processor card
   - CEC enclosure I/O backplane assembly

   Replace the failing part using the **Service Applications** → **Service Focal Point** → **Exchange Parts** option.

MAP2111 Section-3

1. Is there a service action in progress for a parts exchange (FRU replace)?

   - Yes, exit this MAP and complete the parts exchange. When the parts exchange is complete, the Identify indicators should be off. When the Identify indicator on the part (FRU) is flashing, the Identify indicator on the enclosure and rack identity should also be flashing.
   - No, go to the next step.
2. The Identify indicator on the rack operator panel flashes when the indicator on one or more of the following parts flashes:

   - the Identify indicator **1** on a CEC enclosure. See Figure 358.
   - the Identify indicator **2** on a fan sense card. See Figure 359 on page 571.
   - the Identify indicator **1** on an I/O enclosure. See Figure 360 on page 571.
   - the Identify indicator **1** on RPC card 2. See Figure 361 on page 572.

- the Identify indicator **2** on RPC card 1. See Figure 361 on page 572.

Is the Identify indicator on one of the parts mentioned above flashing?

- Yes, the Identify indicator on the rack operator panel is working as expected. Go to the next step.
- No, go to step 4.

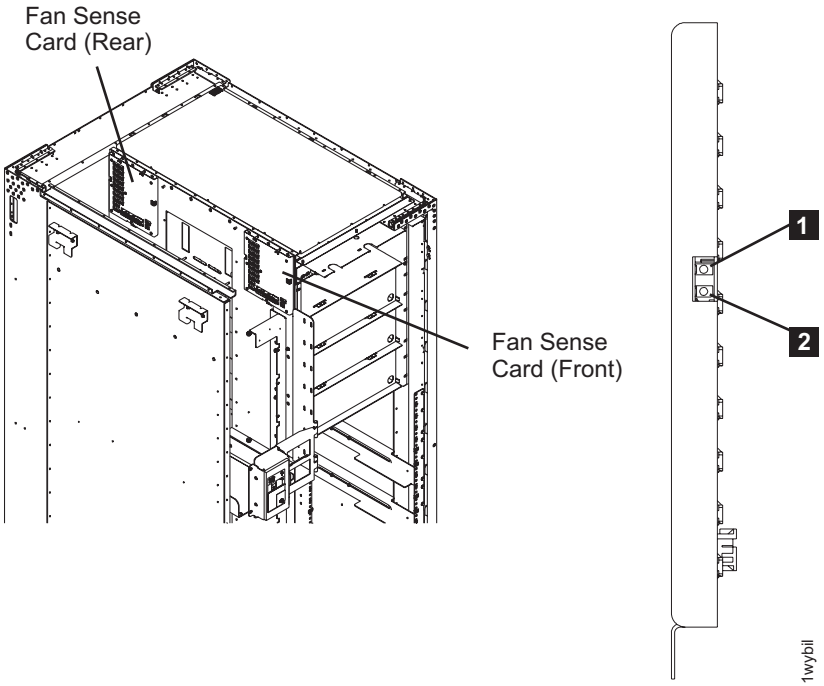


Figure 359. LEDs on the fan sense cards

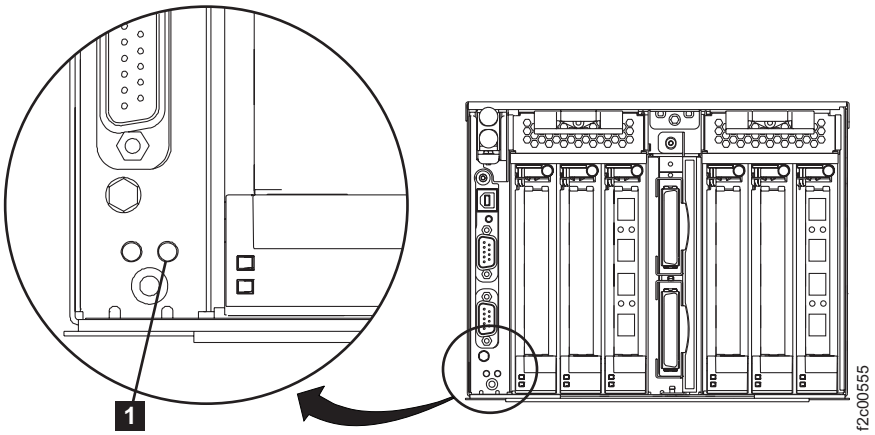


Figure 360. The "Identify" indicator (LED) for an I/O enclosure (rear)

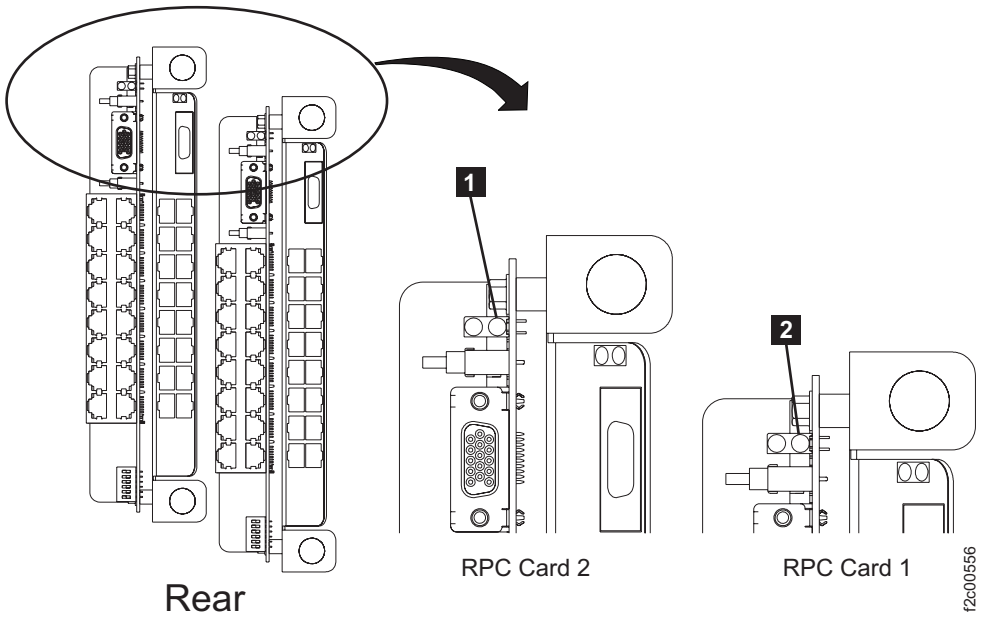


Figure 361. The Identify indicators (LEDs) for the RPC cards

3. The Identify indicator on the rack operator panel is working as expected. The problem is with the related part (enclosure or card) that is identified in step 2 (the part with the flashing Identify indicator). The Identify indicator should flash when a part exchange is in progress but not under any other circumstance. Use the following guidelines to repair the problem:
   - If the Identify indicator on a CEC enclosure or I/O enclosure is flashing, try to turn it off using "MAP2112 Activating or Deactivating CEC or I/O enclosure indicators" on page 576. If this doesn't work, call the next level of support.
   - If the Identify indicator on a fan sense card or RPC card is flashing, try using the Exchange Part option to do a psuedo part replace (this means that you remove and then reinstall the same part using the parts exchange procedure). If this doesn't work, call the next level of support.
4. The Identify indicator on the rack operator panel is flashing, but the Identify indicator on a related part (enclosure or card) is not flashing. The rack identity card has a cable from each related part that can activate the Identify indicator on the rack operator panel. See Figure 362 on page 573. Disconnect the cables from the rack identity card one at a time to determine which part is sending the Identify signal. See Table 171 on page 573.

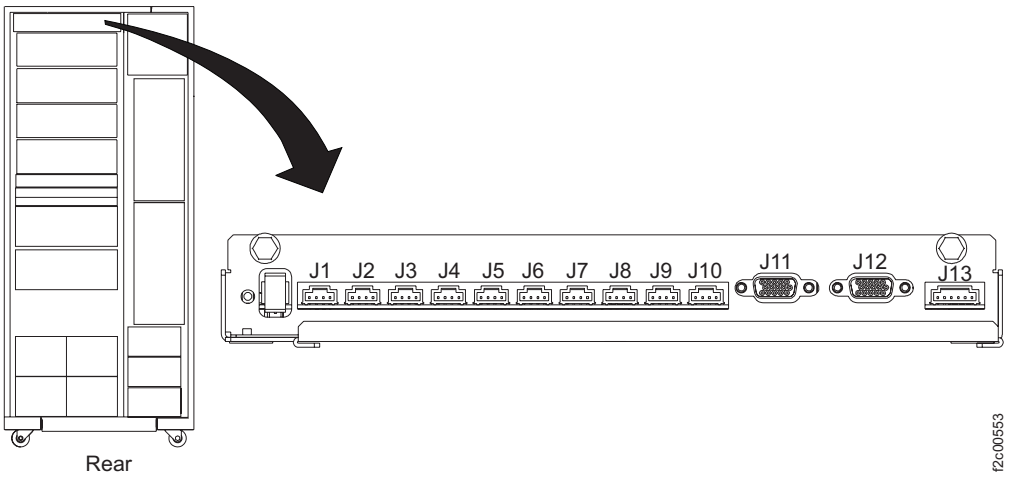


Figure 362. Connectors on the rack identity card

Table 171. Connectors on the rack identity card and their sources of input

Rack identity card connector[1]	Source of input signal			Possible failing part
	Part	Connector location code	See Figure	
J1	Fan sense card (front)	C3-T14	Figure 363 on page 574	Fan sense card (front)
J2	Fan sense card (rear)	C4-T14	Figure 363 on page 574	Fan sense card (rear)
J3	CEC enclosure XC1[2, 3]	P1-T3	Figure 365 on page 575	Service processor card
J4	CEC enclosure XC2[2, 3]	P1-T3	Figure 365 on page 575	Service processor card
J5	I/O enclosure XI1[2, 3]	P1-T1	Figure 366 on page 575	I/O enclosure backplane
J6	I/O enclosure XI2[2, 3]	P1-T1	Figure 366 on page 575	I/O enclosure backplane
J7	I/O enclosure XI3[2, 3]	P1-T1	Figure 366 on page 575	I/O enclosure backplane
J8	I/O enclosure XI4[2, 3]	P1-T1	Figure 366 on page 575	I/O enclosure backplane
J11	RPC card 1	C1-T1	Figure 367 on page 576	RPC card 1
J12	RPC card 2	C2-T1	Figure 367 on page 576	RPC card 2

Notes:

1. See Figure 362.
2. To locate the enclosure, see Figure 364 on page 574.
3. The Identify indicator might be burnt out. Use "MAP2112 Activating or Deactivating CEC or I/O enclosure indicators" on page 576 to display the status of the Identify indicator for this enclosure. If the status is on, the Identify indicator on the rack operator panel is working as expected and the enclosure indicator status needs to be set to off. If the status is off, replace the possible failing part.

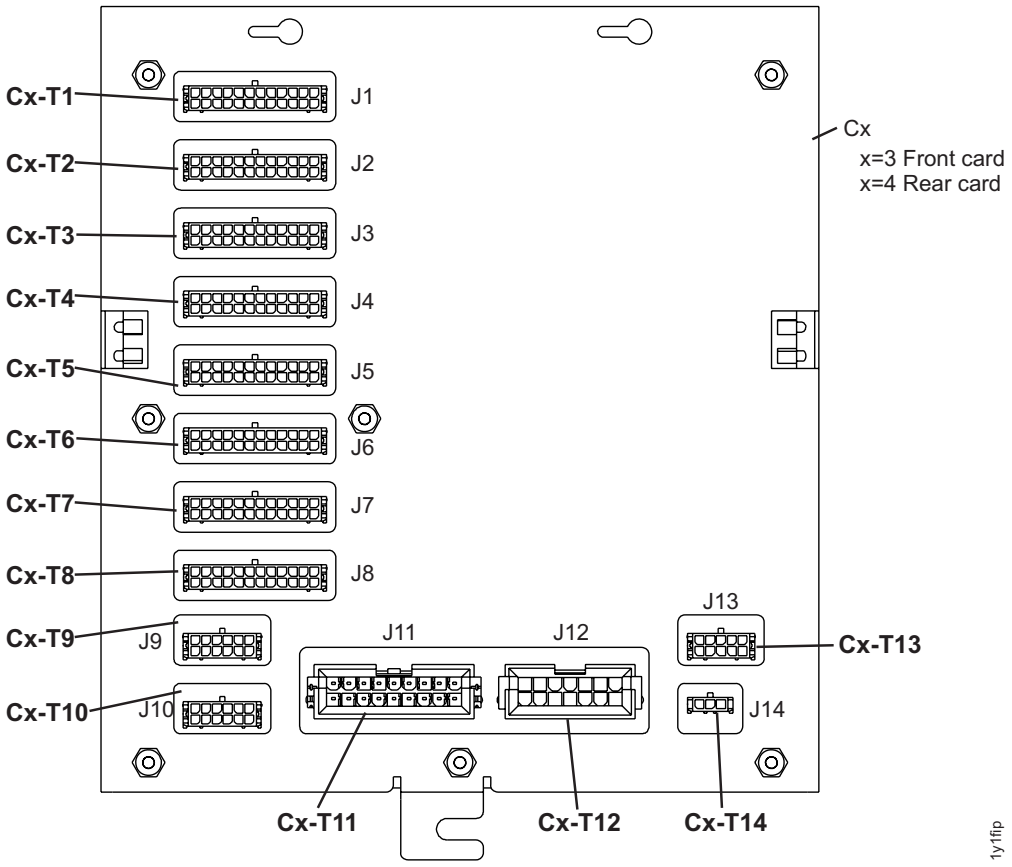


Figure 363. Location codes for the fan sense card

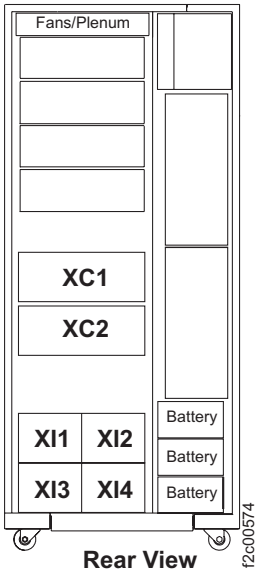


Figure 364. The physical location codes for the CEC enclosures and the I/O enclosures (rear view)

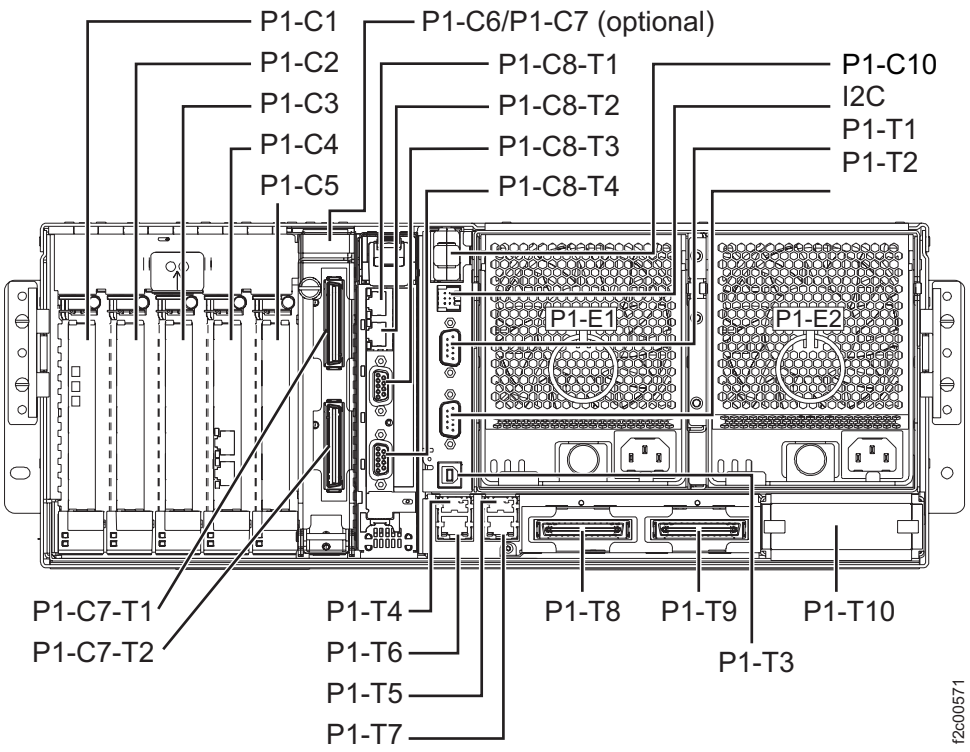


Figure 365. Location codes for the CEC enclosure (rear)

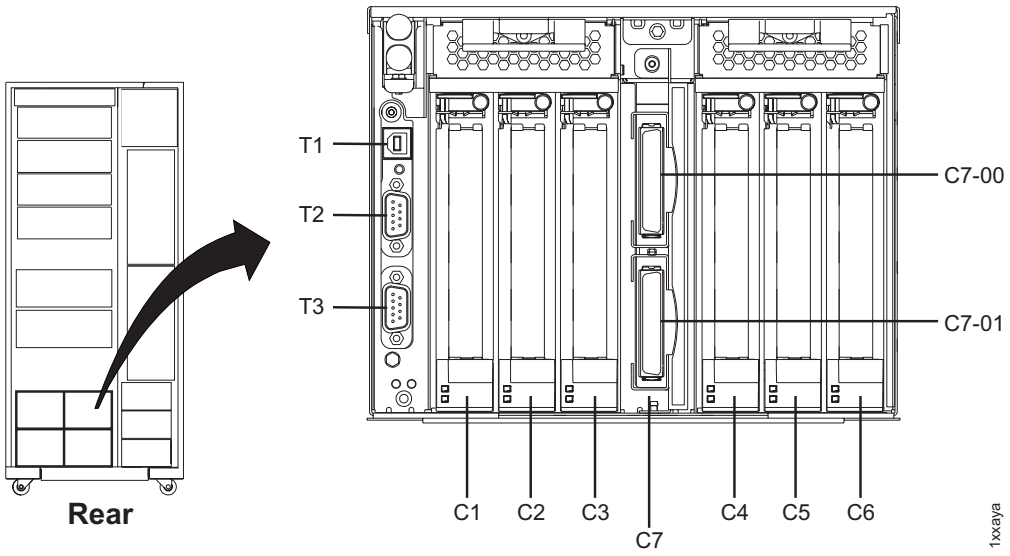


Figure 366. I/O enclosure locations (rear)

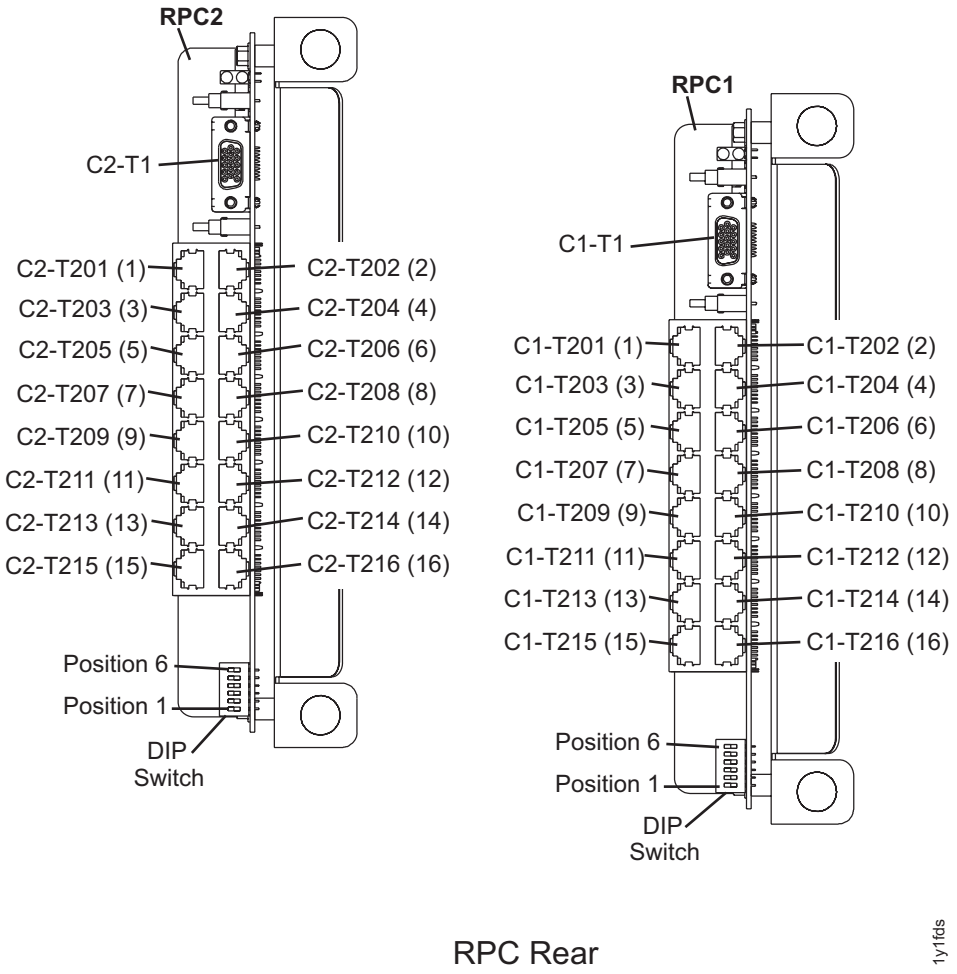


Figure 367. Location codes for the RPC card

MAP2111 Section-4

The Identify indicator on the rack operator panel should be flashing if the Identify indicator on any other part in the same rack is flashing. If the Identify indicator on the rack operator panel is not flashing:

- Ensure that the input cable between the enclosure or card and the rack identity card is correctly connected.
- The rack identity card might be failing. Use the ASMI to manually test the Identify indicator on the CEC enclosure to determine if the Identify indicator on the rack operator panel never works or if it only fails from one enclosure. See "MAP2112 Activating or Deactivating CEC or I/O enclosure indicators."
- Contact your next level of support.

MAP2112 Activating or Deactivating CEC or I/O enclosure indicators

You can test CEC and I/O enclosure indicators (LEDs) using the ASMI menus.

MAP2112 Section-1

1. To find the identity indicators, expand the service Information Center section **Part number**, **Locations**, **LEDs**, then expand Chapter 46, "Light indicators (LEDs)," on page 1441, then select **CEC enclosure light indicators**.
2. If you want to test or display the status for:
   - system attention indicator for CEC enclosure **(1)** in Figure 1, go to "MAP2112 Section-2."
   - identity indicators, go to "MAP2112 Section-3" on page 578
   - indicators by location code, go to "MAP2112 Section-4" on page 578
   - all indicators (lamp test), go to "MAP2112 Section-5" on page 578

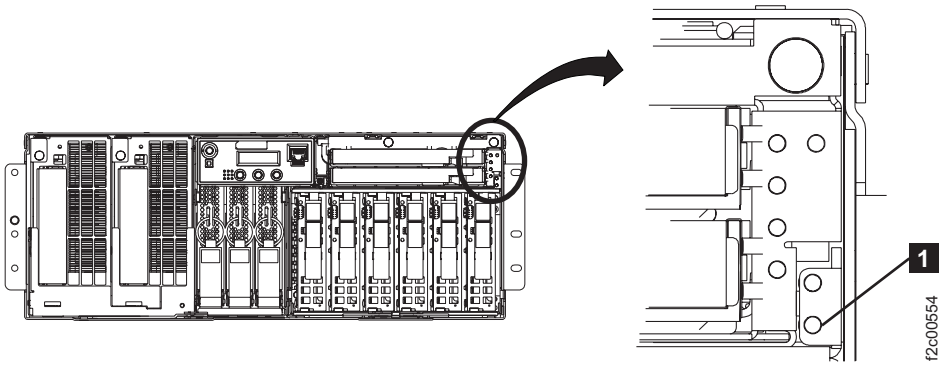


Figure 368. The Identify/Attention indicator (LED) on a CEC enclosure (front view)

MAP2112 Section-2

1. Log in to the ASMI menus. Refer to "MAP6F10 Accessing the ASMI using the management console" on page 852.
2. Expand **System Configuration**, select **Service Indicators**, select **System Attention Indicator**.
3. Is the system attention indicator current status displayed as On?
   - Yes, click the Turn off the system attention indicator button below the displayed status then go to the next step.
   - No, call the next level of support. The possible failing FRUs are the service processor card, CEC enclosure I/O backplane assembly, and media backplane assembly.
4. Is the system attention indicator LED now off?
   - Yes, logout of the ASMI, exit this MAP and return to the procedure that sent you here.
   - No, go to the next step.

   Note: When the state is on, the indicator will be on solid. This will cause the rack operator panel attention indicator to be on solid unless the indicator is already blinking because of an identify condition elsewhere in the rack.
5. Try this alternate method to turn off the indicator.
   a. In the HMC Navigation area, select the Management Environment. Select and expand the HMC.
   b. Expand **Service Applications**, then select **Service Focal Point**.
   c. In the right content area, select **Service Utilities**, a window displays a list of storage facilities.

d. Select a storage facility, click **Selected** (on top tool bar), and then select **View/Reset Attention Indicators**.

e. The LED state is displayed. Click the **Turn Off All Attention LEDs** button.

f. If the indicator is still lit, call the next level of support.

MAP2112 Section-3

1. Log in to the ASMI menus. Refer to "MAP6F10 Accessing the ASMI using the management console" on page 852.
2. Expand **System Configuration**, select **Service Indicators**, select **Enclosure Indicators**.
3. Select the enclosure from the displayed list and click **Continue**. Find the location code that contains the identity indicator and select the desired condition. Click the **Save Settings** button to activate the settings. Use the **Turn off all indicators** button as needed.

   Note: Activating any identity indicator will also activate that enclosure identity indicator which in turn also activates the rack operator panel identity indicator if everything is working properly.

MAP2112 Section-4

1. Log in to the ASMI menus. Refer to "MAP6F10 Accessing the ASMI using the management console" on page 852.
2. Expand **System Configuration**, select **Service Indicators**, select **Indicators by Location code**.
3. Select the enclosure from the displayed list and click **Continue**. Find the location code that contains the identity indicator and select the desired condition. Click the **Save Settings** button to activate the settings. Use the **Turn off all indicators** button as needed.

   Note: Activating any identity indicator will also activate that enclosure identity indicator which in turn also activates the rack operator panel identity indicator if everything is working properly.

MAP2112 Section-5

1. Log in to the ASMI menus. Refer to "MAP6F10 Accessing the ASMI using the management console" on page 852.
2. Expand **System Configuration**, select **Service Indicators**, select **Lamp test**.
3. All CEC and I/O enclosure indicators will light for 4 minutes and then automatically turn off.

MAP2130 Isolating power symptoms

This MAP covers power system problems that might not create a serviceable event.

MAP2130 Section-1

Locate the problem symptom in Table 172.

Table 172. Power symptoms

Power symptom	Description and action
The storage facility will not power on when in zSeries power mode.	**Description:** If the Local/Remote switch card is set to Remote and zSeries power control mode has been set at the management console, the storage facility should power on when the remote power control connection requests to power on. **Action:** go to "MAP2160 Power system identify LED failure" on page 585.
The storage facility will not power off when in zSeries power mode.	**Description:** If the Local/Remote switch card is set to Remote and zSeries power control mode has been set at the management console, the storage facility should power off when the remote power control connection requests to power off. **Action:** go to "MAP2150 Storage facility will not power on from zSeries host" on page 583.
An Identify LED indicator is flashing.	**Description:** While a repair is action, the Identify indicator for a FRU is set to flash. When the repair has been completed, the indicator is switched off. **Action:** go to "MAP2170 RPC card local/remote switch setting will not change" on page 588.
An Identify LED indicator is off.	**Description:** While a repair is active, the Identify indicator for a FRU is set to flash. When the repair has been completed the indicator is switched off. **Action:** go to "MAP2170 RPC card local/remote switch setting will not change" on page 588.
The setting of the Local/Remote switch will not change.	**Description:** The setting of the Local/Remote switch can be displayed at the management console. **Action:** go to "MAP2180 UEPO switch replacement, concurrent" on page 589.
UEPO problems.	**Description:** The UEPO switch on the front cover should prevent the storage facility from powering on when in the Off position and should allow the storage facility to power on when in the On position. **Action:** go to "MAP2190 Rack battery backup set charge low" on page 591.

MAP2140 Unable to power off from a System z host system

When the System z remote power feature is installed, the first rack contains a ZLR type of local remote switch card. The DIP switch located on each RPC card will have switch 3 set to the on (right) position. A failure that disables the remote power control can be internal or external to the storage facility.

You must determine the following:

- the feature is properly installed
- System z feature switch is set to ON (right) on both RPC logic cards
- all cable connections are correct
- the System z local remote switch card switch is set to Remote
- the management console is available and the power control mode at the management console is set to System z remote.

While the Local/Remote switch is set to Remote and the management console has enabled the System z power control mode, the storage facility is powered on and off from the attached System z hosts or power controller. A power off of the storage facility will be initiated when the last host has de-asserted both their +Pick and +Hold signals. When the last System z host has de-asserted the signals, the RPC cards will notify the management console and the management console will begin the storage facility power off. The management console must have System z power control mode active for this storage facility.

MAP2140 Section-1

DANGER: Read and fully understand Safety Notice "D005" on page 2138.

Ensure the customer can allow the storage facility to be powered off. The following procedure will require the storage facility to be powered off and on.

Note: You can temporarily bypass the failure to power off as described in step 4 on page 583.

1. Determine if the power off problem is internal or external to the storage facility. Slowly disconnect each host remote power control cable one at a time from the System z local remote switch card, refer to Figure 369 on page 581. Allow time for the storage facility to power off, if the problem was with that cable or host. Did the storage facility power off?
   - Yes, the failure is external to the storage facility. The failure is with the host remote power control cable, or the host itself not providing the proper signals.
   - No, the failure is internal to the storage facility. Go to the next step.

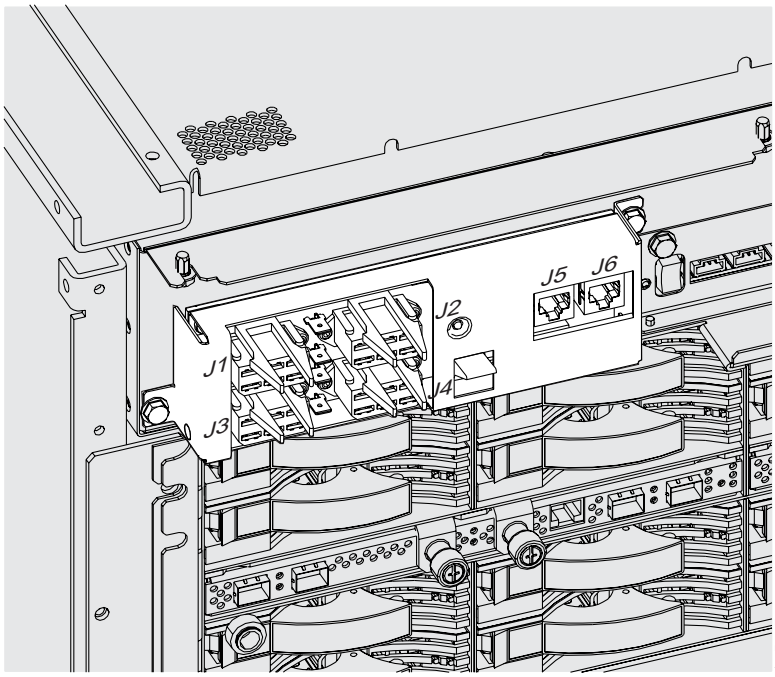


Figure 369. ZLR card with connectors

2. Replace the following FRUs in the order they are listed. Before a FRU is replaced, the Local/Remote switch must be set to the Local position. After you replace each FRU, return the Local/Remote switch to the remote position so you can verify the storage facility can be powered off from the System z interface. When you replace a FRU that resolves the problem, reconnect all of the remote power cables that were removed in step 1.
   a. System z local remote switch card
      1) Set the Local/Remote switch to the Local position.
      2) Ensure the system is fully powered on.
      3) Use the utilities at the management console to select system Level Deactivate for RPC-1.
      4) Replace the System z local remote switch card using the "Exchange the local remote or zSeries local remote switch card" on page 1278. Then return here and continue.

         Note: The local remote signals to the RPC cards will float to local mode when the cables to the RPC cards are unplugged. This FRU is not listed in the Exchange Parts option.
      5) Use the utilities at the management console to select System Level Activate for RPC-1.
      6) Go to step 3 on page 582.
   b. RPC Card 1
      1) Use the replace FRU utility to replace RPC card 1 (cpRPC0).
      2) Go to step 3 on page 582.
   c. RPC Card 2
      1) Use the replace FRU utility to replace RPC card 2 (cpRPC1).
      2) Go to step 3 on page 582.
   d. Cable from RPC Card 1 to the System z remote local switch card.

1) Set the System z local remote switch card switch to the Local position.
2) Ensure the storage facility is fully powered on.
3) Use the utilities at the management console to select System Level Deactivate for RPC-1.
4) Physically replace the cable from RPC Card 1 to the System z remote local switch card (PSCBL1E). Refer to Figure 370
5) Use the utilities at the management console to select System Level Deactivate for RPC-1.

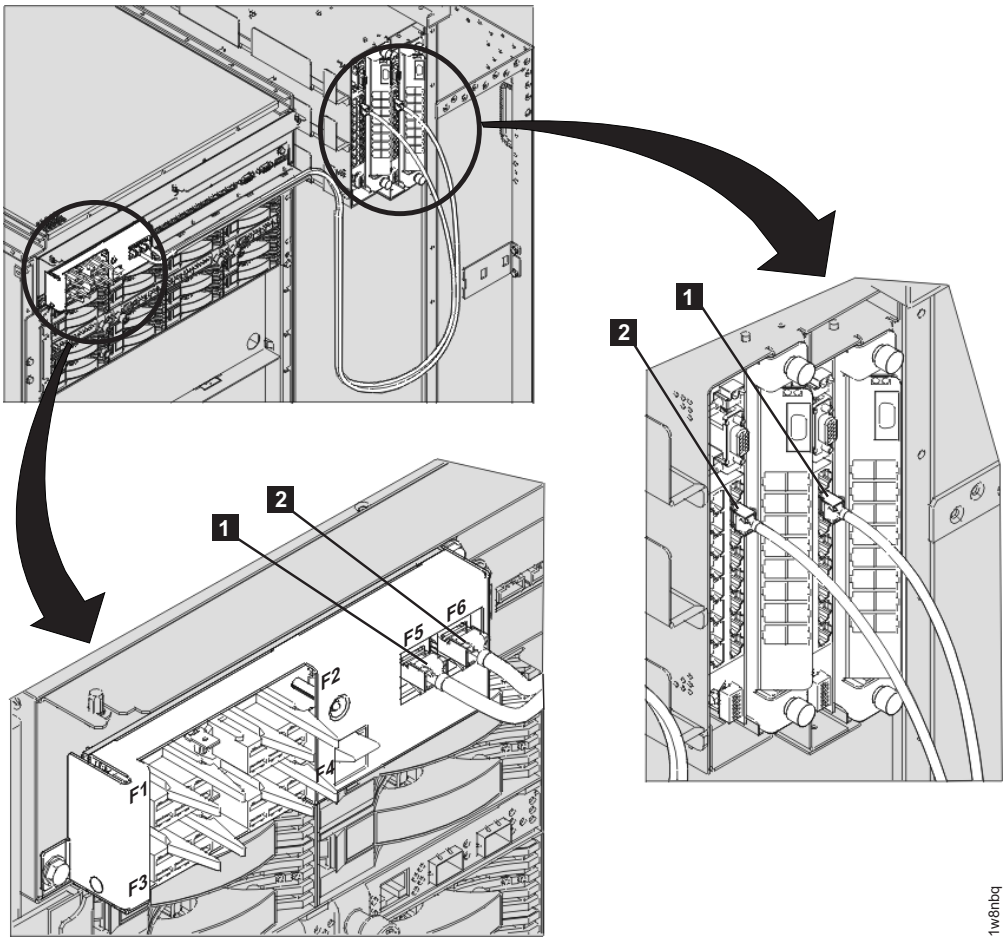


Figure 370. RPC cards to zSeries Local/Remote Switch

e. Cable from RPC Card 2 to the System z remote local switch card (PSCBL1F).
   1) Set the Local/Remote Switch to the Local position.
   2) Ensure the system is fully powered on.
   3) Use the utilities at the management console to select System Level Deactivate for RPC-2.
   4) Physically replace the Cable from RPC Card 2 to the System z remote local switch card (PSCBL1F). Refer to Figure 370
   5) Use the utilities at the management console to select System Level Deactivate for RPC-2.

3. Test the new FRU.

a. Set the System z local remote switch card switch to the Remote position.
b. Attempt to power off the storage facility from the remote host. Does the storage facility power off?
   - Yes, the FRU just replaced was failing. Return the storage facility to customer use.
   - No, return to step 2 on page 581 and replace the next FRU in the list. If all FRUs have been replaced, call the next level of support.

4. You can temporarily bypass the failure to power off in either of the following ways:
   - Switch the System z local remote card switch to Local and then momentarily press the System z local remote card Force Power Off switch (white rocker switch) to off (down).
   - Change the Power Mode at the management console to manual power and then power the storage facility off at the management console.

MAP2150 Storage facility will not power on from zSeries host

When the zSeries remote power feature is installed, the first rack contains a ZLR type of Local / Remote switch card. The DIP switch located on each RPC card will have switch 3 set to the on (right) position. A failure that disables the remote power control can be internal or external to the storage facility. An interface wrap tool has been provided to enable the MAP to isolate the failure at ZLR local remote switch card.

You must determine the following:

- the feature is properly installed
- zSeries feature switch is set to on (right) position on both RPC logic cards
- all cable connections are correct
- the ZLR local remote switch card switch is set to Remote
- the management console is available and the power control mode at themanagement console is set to zSeries remote.

While the Local / Remote switch is set to Remote and the management console has enabled the zSeries power control mode, the storage facility is powered on and off from the attached zSeries hosts. A power on for the storage facility will be initiated when the first power control interface asserts the +Pick signal. When the +Pick signal is received by either rack power control card from the zSeries local remote switch card, a storage facility power on will be initiated.

MAP2150 Section-1

DANGER: Read and fully understand Safety Notice “D005” on page 2138.

1. Ensure the zSeries local remote switch card switch is in the Remote position.
2. At the management console (HMC), set the Power Control Mode to zSeries Power Mode.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Service Applications** → **Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   d. Select a Storage Facility **Machine Type/Machine Serial** from the list.
   e. Click **Selected** (on top tool bar), select **Manage Power Control**.

f. Select the **zSeries Power Mode**.

3. Disconnect all remote host power control cables from the zSeries local remote switch card.
4. Test each of the four remote power control cable connector on the zSeries local remote switch card. Connect the remote power control wrap plug to a connector.

   Note: The wrap plug simulates pick and hold signals from a remote host system.

   a. After all four connectors have been tested, find the condition that applies:
      - The storage facility powers on with the wrap plug in all four connectors. The failure is external to the storage facility. Continue the isolation with the remote power control cables or the remote hosts.
      - The storage facility did power on for at least one connector, but not all four connectors. Go to step 5.
      - The storage facility did not power on with the wrap plug installed in any plug location. Go to step 6.
5. The failure is the zSeries local remote switch card. Do the following to replace that FRU.
   a. Set the zSeries local remote switch card switch to the Local position.
   b. Ensure that the storage facility is fully powered on.
   c. From the management console utilities menu, select System Level Deactivate for RPC1.
   d. Replace the zSeries local remote switch card using the procedure, "Exchange the local remote or zSeries local remote switch card" on page 1278. Then return here and continue.
   e. Use the Utilities Menu at the management console to select System Level Activate for RPC1.
   f. To verify the repair, go to "MAP2150 Section-2" on page 585.
6. The storage facility failed to power on with the remote power wrap plug installed in any remote power control cable connector cable position. Replace each of the following FRUs in the order listed until the problem is resolved.

   Note: Before replacing any FRU, ensure the Local/Remote switch is in the Local position and the storage facility is powered on. Following the replacement of each FRU, go to "MAP2150 Section-2" on page 585 to verify that the original failure has been repaired.

   a. RPC Card 1 - use the replace FRU utility to replace RPC1.
   b. RPC Card 2 - use the replace FRU utility to replace RPC2.
   c. zSeries Local Remote Switch Card
      1) Set the Local/Remote Switch to the Local position.
      2) Ensure the storage facility is fully powered on.
      3) From the Utilities menu at the management console, select System Level Deactivate for RPC card 1.
      4) Replace the ZLR card.
      5) From the Utilities menu at the management console, select System Level Activate for RPC card 1.
   d. RPC card 1 to zSeries local remote switch card cable.
      1) Set the Local/Remote Switch to the Local position.
      2) Ensure the system is fully powered on.

3) From the Utilities menu at the management console, select System Level Activate for RPC card 1.
4) Replace the RPC card 1 to zSeries local remote switch card cable.
5) From the Utilities menu at the management console, select System Level Activate for RPC1.

e. RPC card 2 to zSeries local remote switch card cable.
1) Set the Local/Remote Switch to the Local position.
2) Ensure the system is fully powered on.
3) From the Utilities menu at the management console, select System Level Deactivate for RPC2
4) Replace the RPC card 2 to zSeries local remote switch card cable.
5) From the Utilities menu at the management console, select System Level Activate for RPC2.

MAP2150 Section-2

Use this section to verify the remote power control interface.

1. Install the remote power wrap plug into the first power control cable connector on the zSeries local remote switch card.
2. Set the Local/Remote switch to the Remote position.
3. From the management console, set the remote power control to Remote Power. Does the storage facility stay powered on?
   - Yes, go to the next step.
   - No, the connector is failing. Return to the beginning of this MAP.
4. Set the Local/Remote Switch to the Local position.
5. Have all four connectors been tested?
   - Yes, return to the step that sent you here.
   - No, remove the remote power wrap plug from the current connector and install it in the next connector. Then go to "MAP2150 Section-2," step 2

MAP2160 Power system identify LED failure

A Rack or FRU Identify LED can fail to light or be lit when a repair is not active.

The storage facility power system has an Identify LED on most FRUs. The power system FRUs that do not have supporting Identify LEDs are the battery backup, primary power supply (PPS) fans and all cable assemblies. An Identify LED is set to flashing when that FRU is to be replaced. When the Identify LED for a power system FRU is set to flashing the controlling source will also set the Rack Identify LED to flashing.

MAP2160 Section-1

Find the condition that applies in the following table.

Symptom	Go to:
Rack Identify LED is off and should be flashing	"MAP2160 Section-2" on page 586
FRU Identify LED is blinking and should be off	"MAP2160 Section-3" on page 588
FRU Identify LED is lit and should be off	"MAP2160 Section-4" on page 588
LED does not light	"MAP2160 Section-5" on page 588

MAP2160 Section-2

Rack Identify LED is off and should be flashing. The rack Identify LED is set to flashing while any power system FRU Identify LED is set to flashing. If a FRU Identify LED is flashing and the rack Identify LED for that rack is not flashing, one of the FRUs in the steps that follow is failing.

1. Ensure cables to the FRUs in the following steps are properly connected and then replace the following FRUs until the Rack Identify LED lights.
2. Replace the Local Remote Switch card.
   a. Use the utilities at the management console to select System Level Deactivate for rack power control (RPC) card 1.
   b. Replace the local remote switch card using the procedures in "Exchange the local remote or zSeries local remote switch card" on page 1278.
   c. Use the Utilities Menu at the management console to select System Level Activate for RPC1.
3. Replace the Rack Identify LED source.
   a. Refer to the table in step 4. Locate the source for the Identify signal for the FRU with the flashing Identify LED. Use the replace FRU option to replace the FRU.
4. Replace the cable between Rack Identify source and cpLRcard. Locate the source for the Identify signal for the FRU with the flashing Identify LED and the cable signal.
   a. Use the Utilities Menu at the management console to select System Level Deactivate for the FRU that is the source for the Identify signal.
   b. Replace the signal cable listed in the same row as the Identify signal source.
   c. Use the Utilities Menu at the management console to select System Level Activate for the FRU that is shown as the utility source.

Table 173. Source of Identify LED Signal

FRU with Failing Identify LED • **FRU Name** • **Logical FRU Name** • **Location Code**	**Source of LED signal** • **FRU Name** • **Logical FRU Name** • **Location Code**	**Source of LED signal** • **FRU Name** • **Logical FRU Name** • **Location Code (end of cable)** • **Location Code (other end of cable)**
-Primary Power Supply 1 (PPS-1) -cpPPSx0 -U2*nnn*.92B.ssssss-E1	-Primary Power Supply 2 (PPS-2) - cpPPSx1 -U2*nnn*.92B.ssssss-E2	-PPS to PPS Cable -PSCBL00 -U2*nnn*.92m.ssssss-E1-T3 -U2*nnn*.92m.ssssss-E2-T3
-5/12V DDM Power (base PPS) -ModulecpPPSDDMx00 -U2*nnn*.92B.ssssss-E1-E1	-Primary Power Supply 2 (PPS-2) -cpPPSx1 -U2*nnn*.92B.ssssss-E2	N/A
-Booster Power Module (optional) -cpPPSBoosterx01 -U2*nnn*.92B.ssssss-E1-E2	-Primary Power Supply 1 (PPS-1) -cpPPSx0 -U2*nnn*.92B.ssssss-E1	N/A
-5/12V DDM Power Module (optional) -cpPPSDDMx02 -U2*nnn*.92B.ssssss-E1-E3	-Primary Power Supply 1 (PPS-1) -cpPPSx0 -U2*nnn*.92B.ssssss-E1	N/A
-5/12V DDM Power Module (optional) -cpPPSDCVx02 -U2*nnn*.92B.ssssss-E1-E3	-Primary Power Supply 1 (PPS-1) -cpPPSx0 -U2*nnn*.92B.ssssss-E1	N/A

Table 173. Source of Identify LED Signal (continued)

FRU with Failing Identify LED • **FRU Name** • **Logical FRU Name** • **Location Code**	**Source of LED signal** • **FRU Name** • **Logical FRU Name** • **Location Code**	**Source of LED signal** • **FRU Name** • **Logical FRU Name** • **Location Code (end of cable)** • **Location Code (other end of cable)**
-Primary Power Supply 2 (PPS-2) -cpPPSx1 -U2*nnn*.92B.ssssss-E2	-Primary Power Supply 2 (PPS-2) -cpPPSx0 -U2*nnn*.92B.ssssss-E2	-PPS to PPS Cable -PSCBL00 -U2*nnn*.92m.ssssss-E1-T3 -U2*nnn*.92m.ssssss-E2-T3
-5/12V DDM Power (base PPS) -ModulecpPPSDDMx10 -U2*nnn*.92B.ssssss-E2-E1	-Primary Power Supply 2 (PPS-2) -cpPPSx1 -U2*nnn*.92B.ssssss-E2	N/A
-Booster Power Module (optional) -ModulecpPPSBoosterx11 -U2*nnn*.92B.ssssss-E2-E2	-Primary Power Supply 2 (PPS-2) -cpPPSx1 -U2*nnn*.92B.ssssss-E2	N/A
-5/12V DDM Power Module (optional) -cpPPSDDMx12 -U2*nnn*.92B.ssssss-E2-E3	-Primary Power Supply 2 (PPS-2) -cpPPSx1 -U2*nnn*.92B.ssssss-E2	N/A
-5/12V DDM Power Module (optional) -cpPPSDCVx12 -U2*nnn*.92B.ssssss-E2-E3	-Primary Power Supply 2 (PPS-2) -cpPPSx1 -U2*nnn*.92B.ssssss-E2	N/A
-Battery Backup Unit Chassis 1 -cpBBUx0 -U2*nnn*.92B.ssssss-E10	N/A	N/A
-Battery Backup Unit Chassis 2 -cpBBUx1 -U2*nnn*.92B.ssssss-E11	N/A	N/A
-Battery Backup Unit Chassis 3 -cpBBUx2 -U2*nnn*.92B.ssssss-E12	N/A	N/A
-Local/Remote Switch Card -cpLRcard -U2*nnn*.92B.ssssss-C6	-Rack Power Control Card 1 -cpRPC0 -U2*nnn*.92B.ssssss-C1	-Local/Remote Switch Card to Rack Power Control Card 1 Cable -PSCBL1E -U2*nnn*.92B.ssssss-C1-T204 -U2*nnn*.92B.ssssss-C6-T1
-Rack Identity Card -cpRackID1 -U2*nnn*.92B.ssssss-C5	-Rack Power Control Card 1 -cpRPC0 -U2*nnn*.92B.ssssss-C1	-Rack Identity Card to RPC-1 Cable -PSCBL0B -U2*nnn*.92B.ssssss-C1-T1 -U2*nnn*.92B.ssssss-C5-T1
-Rack Identity Card -cpRackIDx (x=2 to 8) -U2*nnn*.92B.ssssss-C5	-Primary Power Supply 1 (PPS-1) -cpPPS0 -U2*nnn*.92B.ssssss-E1	-Rack Identity Card to PPS-1 Cable -PSCBL05 -U2*nnn*.92m.ssssss-E1-T5 -U2*nnn*.92m.ssssss-C5-T1
Note: x indicates the rack that contains the failing Identify LED. ssssssss in the location indicates the serial number of the rack.		

MAP2160 Section-3

The Identify LED is blinking and should be off. Each FRU Identify LED is driven by a source external to the FRU that contains the LED. When the Identify LED is flashing, a failure is indicated. A failure at the source that drives the LED is indicated because the source provides the flash timing function.

Replace the FRU that is listed in the table as the source of the LED indicator.

MAP2160 Section-4

The FRU Identify LED is lit and should be off. Each Identify LED is driven by a source external to the FRU that contains the LED. If a repair action is not being taken for the FRU, the LED should be off. It the LED is on solid, a failure is indicated. When the LED is on solid, the failure can be at the source of control, the FRU that contains the LED of the cable that connects the two.

Replace each of the FRUs in the following order until the LED is off.

1. FRU with failing Identify LED.
2. FRU that provides Identify LED control.
3. Cable that connects the above two FRUs if applicable.

MAP2160 Section-5

The LED does not light.

When an Identify LED fails to flash during the repair process, you need to complete the repair for the original problem and then determine if the Identify LED is still failing.

1. Complete the repair for the original problem and then determine if the Identify LED is still failing.
2. After you complete the repair, use the replace FRU option and perform a logical FRU replacement for the FRU that had the failing Identify LED.
3. If the Identify LED fails to flash while you replace the FRU, replace the source for the failing Identify LED or the cable that provides the signal.

   Note: Refer to Table 173 on page 586, 'x' in the table indicates the rack that contains the failing Identify LED and 'ssssss' in the location is the serial number of the rack.

MAP2170 RPC card local/remote switch setting will not change

When the local remote switch card switch setting changes, it causes each RPC to set interrupts for the management console and the storage facility image LPARs. When the switch setting being reported by the two RPCs disagrees, the management console will create a serviceable event and then fence the RPC that is reporting a switch change.

This MAP is required when the Local / Remote switch setting is changed and that change is not reflected in an interrupt to the management console from either RPC card. The signal to each RPC is provided by independent switch contacts. When the switch is opened, the +Local signal to each RPC is pulled up at the RPC. Therefore, Local becomes the default setting if the RPC card to local remote switch card cables are disconnected. The +Local signals to both RPC cards only come together at the switch on the LR/ZLR logic card so a failure of the switch or the card will be the cause of this failure.

MAP2170 Section-1

Replace the local remote switch card.

1. Select System Level Deactivate for the local remote switch card (PRP1).
2. Replace the local remote switch card using the procedures FRU replace procedures for the local remote switch card, "Exchange the local remote or zSeries local remote switch card" on page 1278. Then return here and continue to the next step.
3. Select System Level Activate for the local remote switch card (PRP1).

MAP2180 UEPO switch replacement, concurrent

The UEPO switch can be replaced while the storage facility is operational, even when one side of the switch or the wires that connect that side to a primary power supply are defective.

MAP2180 Section-1

Choose the UEPO switch FRU replacement method.

- Concurrent with customer operations, go to "MAP2180 Section-2."
- Non-concurrent, storage facility will be powered off, go to "MAP2180 Section-3" on page 590.

MAP2180 Section-2

Do not disconnect the UEPO switch cable connector at J4 on the back of either PPS until instructed.

This procedure will not test the ability of the new UEPO switch to actually power off the storage facility. Instead it will check that the new UEPO switch contacts do open before it is connected to the PPS.

1. Use a volt/ohm meter to check the continuity of the new FRU between the two pins on the cable connector that would plug to the PPS J4 connector. With the switch in the closed position, the continuity should be less than 0.1 ohm. With the switch in the open position, the continuity should be infinite. Ensure both cables connectors checkout correctly before you continue.
2. Remove the existing UEPO switch from the sheet metal swing frame. Temporarily leave the switch assembly hanging by its wires. Ensure it does not contact any exposed circuits. The old UEPO switch assembly and its associated cables will be removed later in the procedure.
   a. At the front of the rack, remove the two screws and swing out the rack operator panel.
   b. Remove the four screws (two in front, two on the left side) that hold the rear sheet metal cover that blocks access to the rear of the UEPO switch.
   c. Remove the two screws fastening the UEPO switch to the operator panel and remove the UEPO switch.
3. Mount the new UEPO switch assembly on the front cover and route the UEPO switch cables to the appropriate primary power supply, but do not connect them yet. Ensure the UEPO switch setting is ON.

   Note: Observe the "top" label on the UEPO switch and ensure it is facing up. (There are two versions of the switch, one that has the wires connected to the bottom four pins, the other connecting to the top four pins. The "top" label ensures it is installed in the correct orientation). Mount the new UEPO switch assembly on the front cover with the "top" label facing up.

4. Observe the UEPO LOOP GOOD LED indicator on the front of both PPSs. Find the condition that applies:
   - LED is lit on both PPSs, go to step 5.
   - LED is off on PPS-1 (top PPS), go to step 5.
   - LED is off on PPS-2 (bottom PPS), go to step 6.
5. Make a connection to PPS-1 by performing the following steps.
   a. Use the utilities at the management console to select System Level Deactivate for PPS-1.
   b. Switch off the PPS-1 power input circuit breaker.
   c. Unplug the UEPO cable connected to the PPS-1 connector J4.
   d. Connect the cable from the new UEPO switch assembly.
   e. Switch on the PPS-1 power input circuit breaker.
   f. Ensure the ″UEPO LOOP GOOD″ LED indicator is now on.
   g. Use the utilities at the management console to select System Level Activate for PPS-1.
   h. Go to step 7.
6. Make a connection to PPS-2 by performing the following steps.
   a. Use the utilities at the management console to select System Level Deactivate for PPS-2.
   b. Switch off the PPS-2 power input circuit breaker.
   c. Unplug the UEPO cable connected to the PPS-2 connector J4.
   d. Connect the cable from the new UEPO switch assembly.
   e. Switch on the PPS-2 power input circuit breaker.
   f. Ensure the ″UEPO LOOP GOOD″ LED indicator is now on.
   g. Use the utilities at the management console to select System Level Activate for PPS-2.
7. Find the condition that applies:
   - The new UEPO switch has been connected to both PPSs. Go to the next step.
   - The new UEPO switch has not yet been connected to PPS-1. Go to step 5.
   - The new UEPO switch has not yet been connected to PPS-2. Go to step 6.
8. Remove the old UEPO switch assembly. Complete the routing for the new cables.

MAP2180 Section-3

1. Power off the storage facility.
2. Switch off the PPS-1 and PPS-2 power input circuit breakers.
3. Observe the ″top″ label on the UEPO switch and ensure it is facing up. (There are two versions of the switch, one that has the wires connected to the bottom four pins, the other connecting to the top four pins. The ″top″ label ensures it is installed in the correct orientation). Replace the UEPO switch assembly. Refer to “Exchange the PPS to rack operator panel UEPO switch assembly cable” on page 1037.
4. Set the UEPO switch to on.
5. Switch on the PPS-1 and PPS-2 power input circuit breakers.
6. Observe the UEPO Loop Complete LED on PPS-1 and PPS-2. Are both LEDs lit?
   - Yes, go to step 8 on page 591.

- No, at the PPS with the LED off, unplug the UEPO switch cable from the PPS connector J4. Go to the next step.

7. Use a volt/ohm meter to check the continuity between the two pins on the cable connector that is unplugged from the PPS J4 connector. With the switch in the closed position (UEPO not active), the continuity should be less than 0.1 ohm. Is the continuity less than 1 ohm in the closed position?
   - Yes, the UEPO switch assembly is working. The PPS has a failure of the LED or the UEPO circuit. Set the UEPO switch to the normal position and attempt to power on. If the PPS powers on, the LED is failing. If the PPS does not power on, the PPS is failing and should be replaced.
   - No, the UEPO switch is failing and needs to be replaced.
8. Set the UEPO switch to active. Observe the UEPO Loop Complete LED on PPS-1 and PPS-2. Are both LEDs off?
   - Yes, the UEPO circuits are working properly. Go to step 9.
   - No, the UEPO switch is failing to open the UEPO loop circuit. Go to "MAP2180 Section-2" on page 589 to replace the UEPO switch assembly.
9. Set the UEPO switch back to the normal operational state. Start the power to the storage facility and when it is ready, return it to customer use.

MAP2190 Rack battery backup set charge low

The batteries in each rack are connected as N+1 (redundant). As soon as line cord AC is connected to the PPSs in a rack, both PPSs in that rack begin charging the batteries. When a battery low condition is reported, the maximum recharge time for the battery backup system has been exceeded so multiple independent failures are indicated.

A battery low condition can occur while the storage facility is operational or during the storage facility (SFI) IML.

- When the battery low condition occurs while the SFI is operational, microcode will log the failure and immediately initiate a forced power off.
- When the battery low is detected during the first SFI IML, microcode will pause the IML until the condition is resolved or will time out, log the condition, and boot to AIX.

  For either case, the SFI will not be operational and the normal methods of repair will not be possible.

MAP2190 Section-1

1. Determine which rack is failing. From the serviceable event, determine the last character of the SRC field. The last character is the failing rack, starting with "1" for the first rack.
2. At the failing rack, observe the status display on the front of both PPSs. Are any codes displayed?
   - Yes, go to step 3.
   - No, go to step 4 on page 592.
3. See "MAP2340 codes on the PPS status display" on page 620. Is the format of the codes U*x* (where *x* is any character)?
   - Yes, a battery backup unit is failing. Replace the three battery backup-up service modules in the battery backup service module chassis referenced in the status code definition.
   - No, go to the next step.

4. The battery backup service modules are charged by both PPSs, through separate PPS to battery cables.
   - The only single point of failure for low battery status are the battery service modules or the battery backup service module chassis.
   - It is possible for more than one failure to combine together and cause the low battery charge condition.

   Display and repair any related serviceable events for the PPS ad backup battery system. If there are none, contact your next level of support before you replace the following possible failing FRU:
   - PPS-1
   - PPS-2
   - PPS-1 (connector J7) to backup battery chassis (connector J3) cable
   - PPS-2 (connector J7) to backup battery chassis (connector J4) cable

MAP21A0 PPS fault isolation during install

The PPS is displaying an error code during the PPS power checks during an install. The install process is not yet far enough to use normal error analysis and repair procedures to repair the condition.

MAP21A0 Section-1

You can identify the failing FRU from the PPS error code and order it now instead of waiting until the actual repair is needed later during the installation process.

1. The PPS does not need to be repaired now, it will be repaired later during the install. The probable failing FRU can be identified from the PPS error code and ordered now instead of waiting until the actual repair is needed later during the install. Ensure the cables are properly plugged and seated.
2. Find the PPS error code in "MAP2340 codes on the PPS status display" on page 620. Before continuing, at the rear of the PPS, ensure the cables are properly plugged and seated. Ensure the little silver enable/disable switches on the rear PPS modules are in the on (up) position.

   If the error description is:
   - for a fan, order that fan;
   - for an optional module, order that module;
   - not for an optional module or fan, order the PPS FRU (which includes the five base modules).
3. Return to the install procedure and continue the install.

MAP21B0 RPC card reporting loss of +5V for force power off circuit

Each RPC card provides a +5v source voltage to the RPC card J204 connector that the optional customer remote force power off (FPO) switch cable connects to. If the RPC card detects that the +5V is not present, the failure can be in the RPC card itself, or the customer circuit (if connected).

MAP21B0 Section-1

1. The RPC card is detecting that it is not providing +5v to its connector J204.Locate the RPC card listed in the serviceable event FRU list. Is a cable connected to the RPC card J204 connector?
   - Yes, disconnect the cable and go to step 2.
   - No, return to the serviceable event and replace the RPC card.

2. Isolate if the loss of +5v is a failure within the RPC card, or if there is an external short to ground on the cable assembly provided by the customer.
   a. Disconnect the customer cable from connector J204.
   b. Return to the serviceable event and do a psuedo replace of the RPC card. A psuedo replace means you use the normal FRU replace procedure, but do not actually replace the RPC card with a new one. The FRU verify process will determine if the original failure is still occurring.
3. Does the original failure still occur?
   - Yes, the RPC card is failing, repeat the FRU replace process, but this time replace the RPC card.
   - No, the failure is external to the RPC card. Have the customer isolate the short circuit in their switch cable assembly.

MAP21C0 CEC complex 1 I/O backplane assembly

The serviceable event is not able to list the failing part in the FRU list. This MAP will guide the repair.

MAP21C0 Section-1

1. Determine the machine type/model/serial (MTMS) number of the top CEC enclosure in Rack 1. The MTMS is on the front of the CEC enclosure, at the far right, between the rack mounting screws (in a vertical orientation).
2. Use the Exchange FRU process to select and replace the CEC complex I/O backplane assembly.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Exchange Parts**. A window that displays a list of storage facilities appears.
   d. Select the storage facility, click **Selected** (on top tool bar), and then select the Exchange option listed that contains the FRU to be exchanged. A window appears displaying the Enclosures.
   e. Select the Enclosure Location Code, then click the **Show FRUs** button.
   f. Select the FRU Location Code, then click the **Exchange FRU** button.

MAP21C1 CEC complex 2 I/O backplane assembly

1. Determine the machine type/model/serial (MTMS) number of the top CEC enclosure in Rack 1.
2. Does this storage facility have a Rack 2?
   - Yes, go to step 3.
   - No, the controlling CEC enclosure for CEC complex 2 is the bottom CEC enclosure in Rack 1. Go to step 4.
3. Does Rack 2 have CEC enclosures?
   - Yes, the controlling CEC enclosure for CEC complex 2 is the top CEC enclosure in Rack 2. Go to step 4.
   - No, the controlling CEC enclosure for CEC complex 2 is the bottom CEC enclosure in Rack 1. Go to step 4.
4. The MTMS of the controlling CEC enclosure for CEC complex 2 is on the front of the CEC enclosure, at the far right, between the rack mounting screws (in a vertical orientation).

5. Use the Exchange FRU process to select and replace the CEC complex I/O backplane assembly.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications → Service Focal Point**.
   c. In the right content area, click **Exchange Parts**. A window that displays a list of storage facilities appears.
   d. Select the storage facility, click **Selected** (on top tool bar), and then select the Exchange option listed that contains the FRU to be exchanged. A window appears displaying the Enclosures.
   e. Select the Enclosure Location Code and then click the **Show FRUs** button.
   f. Select the FRU Location Code and then click the **Exchange FRU** button.

MAP21E0 UEPO Loop Good LED should be on

The primary power supply (PPS) UEPO Loop Good LED should be lit when the UEPO switch on the rack operator panel is in the on (normal) position.

The UEPO switch has two sets of contacts, one set of contacts for each PPS. Each set of contacts has a two wire cable that goes to the PPS sequencer module J4 connector. When the UEPO switch is on (normal operation), the circuit is closed and the LED should be lit. When the UEPO switch is tripped off, the circuit is open and the LED should be off.

MAP21E0 Section-1

1. Ensure the rack operator panel UEPO switch is in the on (normal) position.
2. At the front of both PPS, observe the UEPO LOOP GOOD LED. Find the condition that applies:
   - the LED is off for both PPSs, go to step 3.
   - the LED is off for one PPS and lit on the other PPS, go to step 4.
   - the LED is lit for both PPSs, go to step 5.
3. Each PPS has a separate UEPO loop so the only failure that would affect both PPS would be the UEPO switch not being fully on (normal). Do the following:
   a. Disassemble the operator panel as needed to fully inspect the mechanical operation of the switch
   b. Unplug the UEPO loop cable from the PPS sequencer module J4 connector cable. Use a volt/ohm meter to measure the continuity between the two pins of the cable. The cable should be closed (less than 1 ohm).
      - If the resistance is more then 1 ohm, replace the UEPO switch FRU while the storage facility power is off.
      - If the resistance is less than 1 ohm, the PPS UEPO LOOP GOOD LED should be lit. This indicates an internal PPS failure, but because both PPSs have the same failure, call the next level of support.
4. At the rear of the PPS with the UEPO LOOP GOOD LED that is off, unplug the UEPO loop cable from the PPS sequencer module J4 connector. Use a volt/ohm meter to measure the continuity between the two pins of the cable. The cable should be closed (less than 1 ohm).
   - If the resistance is *less* than 1 ohm, the PPS is failing and needs to be replaced.
   - If the resistance is *greater* than 1 ohm, the UEPO switch is failing and needs to be replaced. If the customer will allow the storage facility to be powered

off, replace the UEPO switch FRU with the power off. If the customer cannot allow the storage facility to be powered off, see “MAP2180 UEPO switch replacement, concurrent” on page 589.

5. The failure is no longer occurring, return to the procedure that sent you here.

MAP21F0 UEPO loop good LED should be off

The primary power supply (PPS) UEPO Loop Good LED should be off when the UEPO switch on the rack operator panel is in the off (tripped) position.

The UEPO switch has two sets of contacts, one set of contacts for each PPS. Each set of contacts has a two wire UEPO loop cable that goes to the PPS sequencer module J4 connector. When the UEPO switch is on (normal operation), the circuit is closed and the LED should be lit. When the UEPO switch is tripped off, the circuit is open and the LED should be off.

1. Ensure the rack operator panel UEPO switch is in the off (tripped) position.
2. At the front of both PPS, observe the UEPO LOOP GOOD LED. Find the condition that applies:
   - the LED is lit for both PPSs, go to step 3.
   - the LED is off for one PPS and lit on the other PPS, go to step 4.
   - the LED is off for both PPSs, go to step 5.
3. Each PPS has a separate UEPO loop so the only failure that would affect both PPS would be the UEPO switch not being fully off (tripped). Do one or more of the following:
   - disassemble the operator panel as needed to fully inspect the mechanical operation of the switch.
   - unplug the UEPO loop cable from the PPS sequencer module J4 connector cable. Observe the PPS UEPO LED, if it is off the UEPO switch needs to be replaced. If it is lit, the PPS needs to be replaced.
   - unplug the UEPO loop cable from the PPS sequencer module J4 connector cable. Use a volt/ohm meter to measure the continuity of between the two pins of the cable. The cable should be open (infinite resistance). If it is not, replace the UEPO switch assembly.
4. At the rear of the PPS with the UEPO LOOP GOOD LED that is lit, unplug the UEPO loop cable from the PPS sequencer module J4 connector. Is the UEPO LOOP GOOD LED off?
   - Yes, the UEPO switch assembly is failing and needs to be replaced. If the customer will allow the storage facility to be powered off, replace the UEPO switch FRU with the power off. If the customer cannot allow the storage facility to be powered off, see “MAP2180 UEPO switch replacement, concurrent” on page 589.
   - No, the PPS is failing to UEPO when the UEPO loop is open. Replace the PPS.
5. The failure is no longer occurring, return to the procedure that sent you here.

MAP2210 Power failure not isolated

Serviceable events for power system problems should present with a system reference code (SRC) of BE19*xxxx*. When the SRC is BE18*xxxx*, it means that problem analysis was not able to define a failure case from the content of the error logs.

MAP2210 Section-1

1. Does the serviceable event that sent you here contain SRC = BE188127?
   - Yes, go to step 2.
   - No, go to step 4.
2. Just before this serviceable event was created, did the storage facility power on after a power off state?
   - Yes, go to step 3.
   - No, go to step 4.
3. The error event BE188127 is common during a storage facility power on when the CEC enclosures start up before the management console (HMC). This is not an error condition, so exit this MAP and close this serviceable event. If the error was caused by something else, a new serviceable event will be created.
4. Call the next level of support.

   Note: The next level of support can use the last four characters of SRC BE18*xxxx*, which is the error symptom code (ESC) from the AIX error log, as a reference to determine the possible failure and recovery action.

MAP2211 Power resource fenced but not isolated to a FRU

The SRCs listed in this topic indicate that either an RPC, primary power supply (PPS), or battery backup unit (BBU) device has been detected to be in the fenced state.

MAP2211 Section-1

Use Table 174 to find the action for the SRC in the serviceable event that sent you here.

Table 174. BE19 SRCs

SRC	Go to
BE192500	"MAP2211 Section-2"
BE19251*x*	"MAP2211 Section-3"
BE19252*x*	"MAP2211 Section-4" on page 597

MAP2211 Section-2

1. SRC BE192500 indicates that a fenced RPC has been detected.
2. Display open serviceable events for the storage facility. Other than the serviceable event that sent you to this MAP, are there any other related open serviceable events (BE19*xxxx*) that list an RPC as one of the FRUs?
   - Yes, exit this MAP and repair the related serviceable event. If the repair is successful, remember to close the serviceable event that sent you here.
   - No, call the next level of support.

MAP2211 Section-3

1. SRC BE19251*x* indicates that a fenced PPS has been detected.
2. Display open serviceable events for this storage facility. Other than the serviceable event that sent you to this MAP, are there any other related open serviceable events (BE19*xxxx*) that list a PPS as one of the FRUs?
   - Yes, exit this MAP and repair the related serviceable event. Close the serviceable event that sent you here.
   - No, call the next level of support.

MAP2211 Section-4

1. SRC BE19252*x* indicates that a fenced battery enclosure has been detected.
2. Display open serviceable events for this storage facility. Other than the serviceable event that sent you to this MAP, are there any other related open serviceable events (BE19*xxxx*) that list a battery module chassis or battery module set as one of the FRUs?
   - Yes, exit this MAP and repair the related serviceable event. Close the serviceable event that sent you here.
   - No, call the next level of support.

MAP2220 CEC enclosure to RPC card communication failure

A view of the detail data for one of the RPCs interrupt registers is not available from one or both clusters.

Only the base LPAR in a CEC enclosure communicates with the RPC cards. The LPAR communicates with the service processor card through the RTAS interface. The service processor card communicates with both RPC cards through a shared I2C interface. The same I2C interface also communicates with the CEC enclosure control panel.

MAP2220 Section-1

Display open serviceable events. Find those with the SRCs listed in Table 175. Use Table 175 to prioritize the order of repair.

Table 175. SRC and associated actions

SRC order of repair	Go to
BE190010 or BE190011	"MAP2220 Section-2"
BE190012 or BE190013	"MAP2220 Section-3" on page 598
BE190014 to BE190017	"MAP2220 Section-6" on page 601

MAP2220 Section-2

One CEC enclosure has a communication failure through its service processor card to both RPC cards. The RPC cards are not reporting any communication failures to the processor complex.

1. Refer to Table 176 for an overall description of your failure. Then observe the FRU list in the serviceable event details that sent you here. It should include one or more the following FRUs:
   - CEC enclosure control panel
   - CEC enclosure service processor card
   - CEC enclosure I/O backplane assembly passthru card
   - CEC enclosure I/O backplane assembly
   - RPC card
   - Y-Cable, CEC enclosure to both RPC cards

Table 176. SRC communication failure resources

SRC	Communication failure resources
BE190010	Processor complex 1 failure to communicate with RPC1 card and RPC2 card
BE190011	Processor complex 2 failure to communicate with RPC1 card and RPC2 card

2. Display open serviceable events that need repair. Is there any other serviceable event with FRUs determined in step 1 on page 597 above?
   - Yes, exit this MAP and attempt to repair that serviceable event first. If that repair does not correct this problem, return here and continue with the next step. If that repair does correct this problem, remember to also close this serviceable event.
   - No, go to the next step.
3. Observe the CEC enclosure control panel. Does the control panel display a ball icon slowly moving clockwise around the display?
   - Yes, go to "MAP2220 Section-4"
   - No, go to "MAP2220 Section-5" on page 600

MAP2220 Section-3

Both processor complexes have a communication failure through their service processor cards to the same RPC card. The working RPC card is not reporting any problem with the suspect RPC card. There should be no single point of failure that can cause this failure condition.

1. Use the SRC in the serviceable event that sent you here to determine the type of failing communication interface. Refer to Table 177.

Table 177. SRC communication interface failure resources

SRC	Communication failure resources
BE190012	Both processor complex service processor cards, failure to communicate with RPC1 card
BE190013	Both processor complex service processor cards, failure to communicate with RPC2 card

2. Display the serviceable events that need repair. Is there any other serviceable event with FRUs in or between the resources determined in step 1 above?
   - Yes, exit this MAP and attempt to repair that serviceable event first. If that repair does not correct this problem also, return here and continue at the next step. If that repair does not correct this problem, remember to also close this serviceable event.
   - No, go to the next step.
3. At the suspect RPC card determined in step 1, ensure all the cables are properly connected before you continue. The possible failing FRU is the RPC card. To exchange the FRU, use the following management console navigation option: **Service applications → Service focal point → Exchange parts**.

MAP2220 Section-4

1. The CEC enclosure control panel will display this clockwise moving icon if:
   - The fuse on the CEC enclosure I/O planar assembly passthru card is blown, see step 2.
   - The control panel was installed into the CEC enclosure and the service processor firmware has not logically installed the control panel, see step 3 on page 600.
   - The control panel is failing and needs to be replaced.
2. If a CEC enclosure to RPC card ″Y″ cable that normally plugs into RPC card J210 or J214 (Figure 371 on page 599) was momentarily plugged into any of the odd numbered Cx connectors on the left side of the RPC card, the fuse can

blow. The CEC end of the cable plugs into the I2C (Figure 372 on page 600) connector beneath the blue handled VPD card to the right of the service processor card.

a. The fuse is soldered on the CEC enclosure I/O planar assembly passthru card. (The passthru card is at the rear of the CEC enclosure between the service processor card and left power supply. The VPD card with the blue handle plugs into the top of the passthru card.)

b. The FRU P/N of the passthru card is 39J0780. This FRU P/N is common with the eServer Model 570 and is in the process of being defined as a DS8000 FRU.

c. The passthru card is part of the CEC enclosure I/O backplane assembly. In this case, you will use the exchange part procedure for the CEC enclosure I/O backplane assembly using the management console navigation option: **Service applications → Service focal point → Exchange parts**. Once the assembly is on your work surface, replace the passthru card. Then continue the guided process to complete the parts exchange.

d. If the repair is successful, exit this MAP and close related serviceable events. If the repair is not successful, return to the beginning of this MAP.

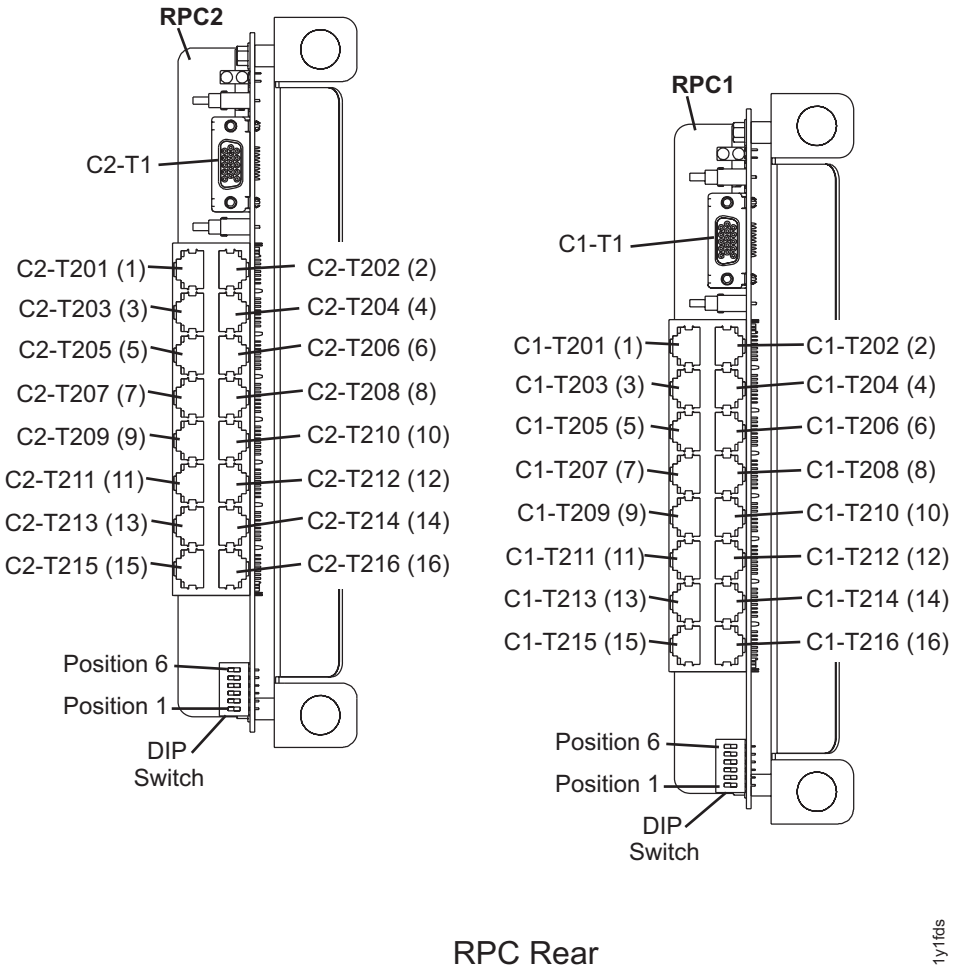


Figure 371. Location codes for the RPC card

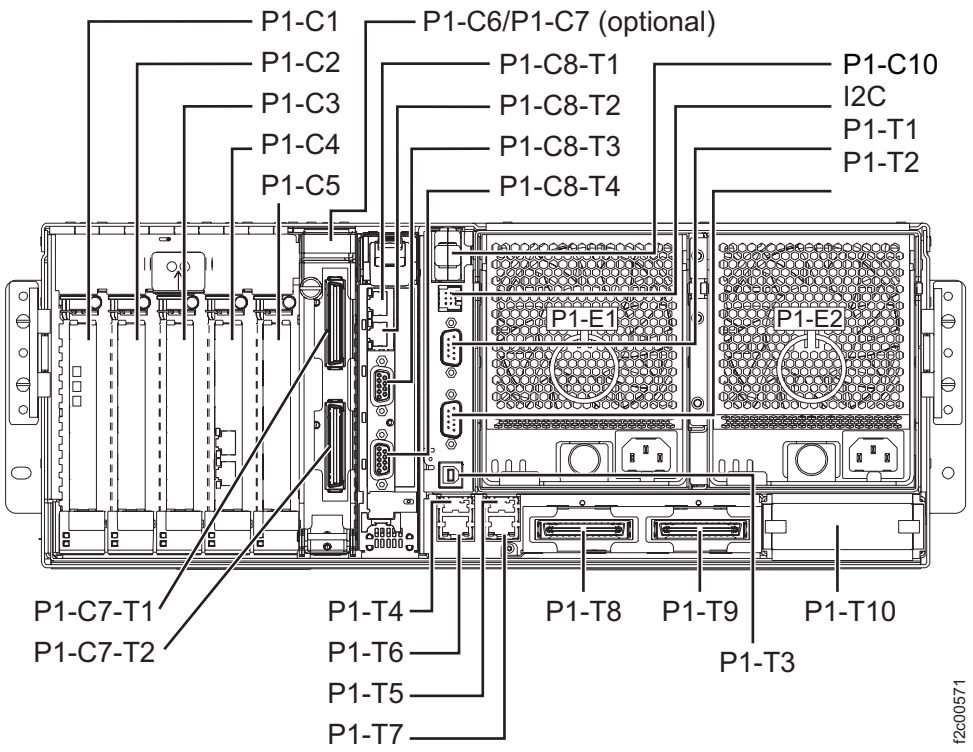


Figure 372. Location codes for the CEC enclosure (rear)

3. The default setting for the control panel is ″installed.″ If the setting is ″not installed″ and the control panel is installed in the CEC enclosure with CEC power on, the icon will move slowly clockwise around the display. Use the ASMI **Concurrent Maintenance** → **Control Panel** menu option to ensure the control panel is logically installed. Refer to the “MAP1221 ASMI menu structure” on page 498.
4. If the control panel itself is failing, replace the control panel. Refer to “MAP1215 Replace a FRU” on page 488.

MAP2220 Section-5:

1. Determine if the Y cable is causing the problem. Ensure the Y cable from the CEC enclosure to both RPC cards is fully seated by pressing on each connector. The cable plugs into RPC card connectors J210 or J214 (Figure 371 on page 599) and the CEC end plugs into the I2C (Figure 372) connector beneath the blue handled VPD card to the right of the service processor card.
2. Determine which RPC is fenced.
   - If an RPC card is listed in the serviceable event FRU list, then it is fenced.
   - If an RPC card is not listed in the serviceable event FRU list, use MAP1100 to display fenced resources and then use the details button to determine which RPC is fenced.
   - If no RPC shows as fenced, use RPC1 card for the next step.
3. Do a psuedo repair of the fenced RPC card. This will reset the existing RPC card without replacing it.
   - Refer to “MAP2600 Pseudo FRU exchange needed to reset existing FRU” on page 633.
4. Was the FRU verification successful?
   - Yes, go to step 5 on page 601.

- No, go to step 6.

5. Seating the cable corrected the problem. Exit this MAP and close related serviceable events.
6. Determine if the control panel is cauing the problem. Use the ASM interface to logically and then physically remove the CEC enclosure control panel. Refer to "MAP4110 Exchange the CEC enclosure control panel (concurrent)" on page 674.

   Important: The CEC enclosure must not be power cycled or rebooted while the control panel is removed. The load of the functional code will fail.
7. Do a psuedo repair of the fenced RPC card. This will reset the existing RPC card without replacing it.
   - Refer to "MAP2600 Pseudo FRU exchange needed to reset existing FRU" on page 633.
8. Was the FRU verification successful?
   - Yes, go to step 9.
   - No, go to step 6.
9. The control panel is causing the failure when it is installed. Replace the control panel.
   - Use "MAP4110 Exchange the CEC enclosure control panel (concurrent)" on page 674 to install the new control panel.
   - Ensure the machine type model serial/number label is moved to the new control panel.
   - Exit this MAP and close all related serviceable events.
10. The CEC enclosure control panel is not failing. Use "MAP4110 Exchange the CEC enclosure control panel (concurrent)" on page 674 to reinstall the existing control panel.
11. Replace the remaining FRUs in the serviceable event FRU list, if there are none, then the possible failing FRUs are listed below.
    - CEC enclosure service processor card
    - CEC enclosure I/O backplane
    - RPC1 card (only if it is fenced, use MAP1100 to display fenced resources.)
    - RPC2 card (only if it is fenced, use MAP1100 to display fenced resources.)
    - Y-Cable, CEC enclosure to both RPC cards (plugs to the J210 or J214 connectors on both RPC cards)

MAP2220 Section-6:
One processor complex has a communication failure through the service processor card to one RPC card. The RPC card is not reporting any communication failures to the service processor card.

1. Determine if an LPAR is fenced (not all resources running) using "MAP1100 Section-16, LPARs IMLed (CPSS)" on page 458.

   Note: One of the two RPC cards should already be fenced. Is an LPAR fenced?
   - Yes, go to "MAP2220 Section-2" on page 597 for SRC BE190010 and BE190011. Given more time, a serviceable event with either of these SRCs would be created.
   - No, go to the next step.
2. Use the SRC in the serviceable event that sent you here to determine the failing communication interface. Refer to Table 178 on page 602

Table 178. SRC communication interface failure resources

SRC	Communication failure resources
BE190014	Processor complex 1, failure to communicate with RPC1 card
BE190015	Processor complex 2, failure to communicate with RPC1 card
BE190016	Processor complex 1, failure to communicate with RPC2 card
BE190017	Processor complex 2, failure to communicate with RPC2 card

3. Display serviceable events that need repair. Is there any other serviceable event that contains a FRU listed for the SRC that sent you here (step 2 on page 601 above)?
   - Yes, exit this MAP and repair that serviceable event. If the repair is successful, close the serviceable event that sent you here. If the repair is not successful, go to step 4 to replace the remaining FRUs listed in step 2 on page 601.
   - No, go to the next step.
4. To exchange a FRU that is not listed in a serviceable event, use the following management console navigation option: **Service applications → Service focal point → Exchange parts**.

MAP2230 overcurrent on DDM power boundary for both PPSs

Both PPSs have reported an overcurrent condition for one or more of the 5/12 VDC device power boundaries in the affected rack. The affected storage enclosures (front or back) will not be powered and access to customer data could be lost.

Each DDM within a storage enclosure contains a self-healing fuse. In addition, the FCIC logic card has built in current limiting to provide overcurrent protection. The following is a list of the components in the voltage distribution path, all of which could introduce a short.

- Main DDM module in each PPS
- Optional DDM module in each PPS (if installed)
- Cable between the DDM power module(s) and the secondary device distribution bus bar
- Secondary device distribution bus bar mounted at the back center of the machine
- Primary device distribution bus bar which runs vertically between the device enclosures
- Bus bar jumpers between the primary and secondary device distribution bus bar
- Cable between each storage enclosure backplane and the primary device distribution bus bar
- Storage enclosure backplane
- FCIC logic cards
- DDMs

MAP2230 Section-1

1. Use the FRU list to determine the location of the 5/12V DDM modules reporting the failure. The FRU list should contain the 5/12V DDM module in both primary power supplies (PPS).

   Note: If the optional 5/12V DDM modules are installed, they also supply power to the same bus bars, so will see and may report the same overcurrent.
2. Display serviceable events that need repair. Is there any other serviceable event related to the power system for the DDMs?

- Yes, exit this MAP and attempt to repair the other serviceable event first. If that repair does not correct this problem also, return here and go to the next step.
- No, go to the next step.

3. Are the same LEDs on the 5/12V DDM modules on both PPSs lit amber?
   - Yes, go to the next step.
   - No, exit this MAP and call the next level of support.
4. Determine which output section of the 5/12V DDM module is reporting the error. Observe the amber LEDs.
   - The upper output section of the 5/12V DDM module (J1-A connector and nearby LEDs) supplies power for the front storage enclosures.
   - The lower output section of the 5/12V DDM module (J2-A connector and nearby LEDs) supplies power for the rear storage enclosures.

   Note: If the optional 5/12 DDM modules are installed (to the right of the base 5/12V DDM module), they also should have the same LED indication. The optional modules feed the same power buses.
5. Determine if the 5/12 V DDM module in PPS-1 is causing the failure.
   a. Disconnect the cable from PPS-1 5/12V DDM module next to the LED lit amber. If the optional 5/12V DDM module is installed, disconnect the cable next to the LED lit amber.
   b. Reset the 5/12V DDM modules by setting the enable/disable switch below the amber LED to disable (down) and then enable (up). Also do this on the optional module, if installed.

   Is the LED now lit green?
   - Yes, the module in PPS-1 is not failing. Reconnect the cable(s) and then go to the next step.
   - No, the 5/12V DDM module with the LED lit amber is failing and needs to be replaced. Return to the repair screen that sent you here to replace the FRU.
6. Determine if the 5/12V DDM module in PPS-2 is causing the failure.
   a. Disconnect the cable from PPS-1 5/12V DDM module next to the LED lit amber. If the optional 5/12V DDM module is installed, disconnect the cable next to the LED lit amber.
   b. Reset the 5/12V DDM modules by setting the enable/disable switch below the amber LED to disable (down) and then enable (up). Also do this on the optional module, if installed.

   Is the LED now lit green?
   - Yes, the module PPS-2 is not failing. Reconnect the cable(s) and then go to step 8 on page 604.
   - No, the 5/12V DDM module with the LED lit amber is failing and needs to be replaced. Go to step 7.
7. PPS-1 should be able to supply the needed power to the storage enclosures that do not currently have power.
   a. Reset the PPS-1 5/12V DDM module(s) by setting the enable/disable switch below the amber LED to disable (down) and then enable (up). Also do this on the optional module, if installed. The LEDs on the module should now be lit green.
   b. Return to the repair screen that sent you here to replace the FRU.

8. The overcurrent is not caused by a failure in either PPS. The failure is caused by one of the following:
   - Cable between the DDM power module(s) and the secondary device distribution bus bar.
   - Secondary device distribution bus bar mounted at the back center of the machine.
   - Primary device distribution bus bar which runs vertically between the device enclosures.
   - Bus bar jumpers between the primary and secondary device distribution bus bar.
   - Cable between each storage enclosure assembly and the primary device distribution bus bar.
   - Storage enclosure assembly.
   - FCIC logic cards (not likely as this has built in overcurrent protection).
   - DDMs (not likely as this has built in overcurrent protection).

MAP2240 Battery backup unit first charge date mismatch

This error should only occur if a battery module is being replaced using the "replace a FRU" option instead of a serviceable event log.

The first charge date of the battery modules in the battery backup unit (BBU) must not differ by more than 2 years. The battery modules are replaced in groups of three at a time. Each set of three battery modules is installed in a battery service module enclosure. There are three battery service module enclosures in the battery backup unit (BBU). There are always two battery service modules present, the third battery service module is an option. This error will not be surfaced if the BBU is being serviced when:

- all battery modules are being replaced at their end of life
- one or more battery modules are being replaced due to a failure

MAP2240 Section-1

1. One or more of the battery modules in the battery backup unit has a first charge date that is more than two years older than the battery module with the newest first charge date. The older battery modules must be replaced until the maximum first charge date difference is less than two years.

   Note: All three battery modules in a battery module chassis must be replaced as a set, even if only one battery module is failing. The battery first charge date is managed in the code at the chassis level, not the individual battery module level.
2. Observe the "first charge date" on the front of each battery module. Use the "replace a FRU" option to replace the batteries until the maximum difference is less than 2 years.

MAP2250 Local/remote switch setting is different between RPC cards

The management console has received an interrupt from an RPC card that shows the Local/Remote Switch setting has changed and the switch setting is now being reported as different between the two RPCs. The management console recovery will fence the RPC that is reporting the switch setting has changed.

The actual failure could be one of the following:

- Scenario 1: The switch setting has been changed, but one of the RPC cards is not reporting the change.
- Scenario 2: The switch setting has not been changed, but one of the RPC cards is falsely reporting a change.

If a Storage Facility Image (SFI) is active, a microcode request is made to fence the RPC that reported a switch setting change. If a Storage Facility Image (SFI) is not active then the management console writes the command register of the partner PPS to fence the RPC that reported a switch setting change.

For Scenario 1, the RPC card properly reporting the switch change will be fenced.

For Scenario 2, the RPC card falsely reporting a switch change will be fenced.

Note: When the code sees only one RPC card report a switch change, it does not know if it is real or false, so it fences the RPC card reporting the change, and lets this MAP determine if the switch change was real or false.

MAP2250 Section-1

1. Determine and record which RPC card is fenced. Observe the green LED near the top of the RPC card (at the rear of the rack). The RPC with the LED not lit is fenced.
2. Record the physical setting of the Local/Remote switch on the LR Switch card (or optional ZLR switch card). From now on these cards will be referred to as the LR/ZLR switch card.
3. Display and record the setting of the Local/Remote switch as reported by the management console.
4. Use the results from steps 1 to 3 and find the row in the table below that matches your condition. Then use the last column to continue the repair.

Fenced RPC card (Green LED off)	LR or ZLR card switch physically set to:	Management Console Reports	Problem is:	Go to:
RPC-0 card	Local	Local	RPC-0 is incorrectly reporting a switch setting change to Remote	"MAP2250 Section-2" on page 606
RPC-0 card	Remote	Local	RPC-1 is not reporting a switch setting change to Remote	"MAP2250 Section-3" on page 606
RPC-0 card	Local	Remote	RPC-1 is not reporting a switch setting change to Local	"MAP2250 Section-4" on page 606
RPC-0 card	Remote	Remote	RPC-0 is reporting a switch setting change to Local	"MAP2250 Section-5" on page 607
RPC-1 card	Local	Local	RPC-1 is reporting a switch setting change to Remote	"MAP2250 Section-6" on page 607
RPC-1 card	Remote	Local	RPC-0 is not reporting a switch setting change to Remote	"MAP2250 Section-7" on page 608

Fenced RPC card (Green LED off)	LR or ZLR card switch physically set to:	Management Console Reports	Problem is:	Go to:
RPC-1 card	Local	Remote	RPC-0 is not reporting a switch setting change to Local	"MAP2250 Section-8" on page 608
RPC-1 card	Remote	Remote	RPC-1 is reporting a switch setting change to Local	"MAP2250 Section-9" on page 609

MAP2250 Section-2

RPC-0 is incorrectly reporting the Local/Remote switch setting, and RPC-0 has been fenced. The switch setting is Local and the last setting the management console detected was Local so the failure has caused RPC-0 to incorrectly report the switch setting as Remote. Use the FRU replace option to replace the following FRUs in the order listed:

1. RPC-0 card (cpRPC0)
2. Cable between RPC-0 and LR/ZLR switch card cable (PSCBL0E)
3. LR/ZLR switch card (cpLRcard)

MAP2250 Section-3

1. RPC-1 is incorrectly reporting the switch state, but RPC-0 has been fenced. The switch setting has been changed to remote but RPC-1 is not reporting the switch change. Do the following:
   a. Change the Local/Remote switch to Local.
   b. Use the utility option to quiesce and then resume RPC-0.
   c. Use the FRU replace option to replace the following FRUs in the order listed. For each FRU being replaced, when fix verification has completed successfully, change the Local/Remote switch setting to Remote.
      1) RPC-1 card (cpRPC1)
      2) Cable between RPC-1 and the LR/ZLR switch card (PSCBL0E)
      3) LR/ZLR switch card (cpLRcard)
2. Observe the RPC-0 green LED. Is the green LED lit?
   - Yes, both RPCs are operational, the failure has been repaired. Exit this MAP and close the serviceable event.
   - No, the original failure has reoccurred. Go to "MAP2250 Section-5" on page 607 step 1 and replace the next FRU in the list.

MAP2250 Section-4

1. RPC-1 is incorrectly reporting the Local/Remote switch setting, but RPC-0 has been fenced. The management console is still reporting the switch setting is Remote but the actual switch setting is Local. That indicates the switch setting was changed from Remote to Local and RPC-1 is still reporting a Remote switch setting. Do the following actions to further isolate the cause of the failure:
   a. Change the Local/Remote switch to Remote. This will make the switch setting, as detected by the two RPCs, agree.
   b. Use the utilities to quiesce and then resume RPC-0 so that the fence is reset and it becomes operational (the green LED is lit).
   c. Use the utilities to quiesce RPC-1.

d. Change the Local/Remote switch setting back to Local.
e. Disconnect the cable at J204 on RPC-1. With the cable disconnected the signal from the switch will be reporting the switch is in the Local position.
f. Use the utilities to resume RPC-1.

2. Observe the RPC-1 green LED. Is the green LED lit?
   - Yes, go to the next step.
   - No, RPC-1 is failing and has been fenced again. Use the replace FRU option to replace RPC-1.
3. Do the following:
   a. Disconnect the cable at J2 on the LR/ZLR switch card.
   b. Reconnect the cable at J204 on RPC-1.
   c. Go to the next step.
4. Observe the RPC-1 green LED. Is the green LED lit?
   - Yes, RPC-1 is not fenced, the LR/ZLR card is failing. Use the replace FRU option to replace the LR/ZLR switch card (cpLRcard).
   - No, RPC-1 is fenced again and the cable between RPC-1 and the LR/ZLR switch card is failing. Use the replace FRU option to replace the cable PSCBL1F.

MAP2250 Section-5

1. RPC-0 is incorrectly reporting a switch setting change to Remote, and RPC-0 is fenced. The switch setting is Remote and the last setting the management console detected was Remote so the failure has caused RPC-0 to incorrectly report the switch setting as Local. The cable between RPC-0 card and the LR/ZLR switch card may be loose or disconnected. Do the following:
   a. Inspect and correct any problems for the cable connector J1 on the LR/ZLR switch card.
   b. Inspect and correct any problems for the cable at connector at J204 on the RPC-0 card. Was a cable problem found and corrected?
      - Yes, use the utilities to quiesce and resume the RPC-0 card (cpRPC0). If the resume is successful, the failure has been repaired. Exit this MAP and close the serviceable event. If the resume fails, go to the next step.
      - No, go to the next step.
2. Use the replace FRU option to replace RPC-0 card (cpRPC0). Was the FRU verification successful?
   - Yes, exit this MAP and close the original serviceable event.
   - No, go to the next step.
3. Use the replace FRU option to replace the cable between RPC-0 and the LR/ZLR switch card (PSCBL1E). Was the FRU verification successful?
   - Yes, exit this MAP and close the original serviceable event.
   - No, go to the next step.
4. Change the Local/Remote switch to the Local setting.
5. Use the replace FRU option to replace the LR/ZLR switch card (cpLRcard). When the LR/ZLR switch card replacement is complete, return the Local/Remote switch setting to the Remote setting. When the repair has been completed, exit this MAP and close the serviceable event.

MAP2250 Section-6

RPC-1 is incorrectly reporting the Local/Remote switch setting, and RPC-1 has been fenced. The switch setting is Local and the last setting the management

console detected was Local so the failure has caused RPC-1 to incorrectly report the switch setting as Remote. Use the FRU replace option to replace the following FRUs in the order listed until the failure is resolved:

1. RPC-1 card (cpRPC1)
2. Cable between RPC-1 and LR/ZLR switch card cable (PSCBL0F)
3. LR/ZLR switch card (cpLRcard)

MAP2250 Section-7

1. RPC-0 is incorrectly reporting the switch state, but RPC-1 has been fenced. The switch setting has been changed to remote but RPC-0 is not reporting the switch change. Do the following:
   a. Change the Local/Remote switch to Local
   b. Use the utility option to quiesce and then resume RPC-1
   c. Use the replace FRU option to replace each of the FRUs in the order listed. For each FRU being replaced, when fix verification has completed successful, change the Local/Remote switch setting to Remote.
      - RPC-0 card (cpRPC0)
      - Cable between RPC-0 and the LR/ZLR switch card (PSCBL0E)
      - LR/ZLR switch card (cpLRcard)
2. Observe the RPC-0 green LED. Is the green LED lit?
   - Yes, both RPCs are operational, the failure has been repaired. Exit this MAP and close the serviceable event.
   - No, the original failure has reoccurred. Return to "MAP2250 Section-5" on page 607 step 1 and replace the next FRU in the list.

MAP2250 Section-8

1. RPC-0 is incorrectly reporting the Local/Remote switch setting, but RPC-1 has been fenced. The management console is still reporting the switch setting is Remote but the actual switch setting is Local. That indicates the switch setting was changed from Remote to Local and RPC-0 is still reporting a Remote switch setting. Do the following action to further isolate the cause of the failure:
   a. Change the Local/Remote switch to Remote. This will make the switch setting, as detected by the two RPCs, agree.
   b. Use the utilities to quiesce and then resume RPC-1 so that the fence is reset and it becomes operational (the green LED is lit).
   c. Use the utilities to quiesce RPC-0.
   d. Change the Local/Remote switch setting back to Local.
   e. Disconnect the cable at J204 on RPC-0. With the cable disconnected, the signal from the switch will be reporting the switch is in the Local position.
   f. Use the utilities to resume RPC-0.
2. Observe the RPC-0 green LED. Is the green LED lit?
   - Yes, go to the next step.
   - No, RPC-0 is failing and has been fenced again. Use the replace FRU option to replace RPC-0.
3. Complete the following steps:
   a. Disconnect the cable at J2 on the LR/ZLR switch card.
   b. Reconnect the cable at J204 on RPC-0.
   c. Go to the next step.
4. Observe the RPC-1 green LED. Is the green LED lit?

- Yes, RPC-0 is not fenced, the LR/ZLR switch card is failing. Use the replace FRU option to replace the LR/ZLR switch card (cpLRcard).
- No, RPC-0 is fenced again and the cable between RPC-0 and the LR/ZLR switch card is failing. Use the replace FRU option to replace the cable PSCBL1E.

MAP2250 Section-9

RPC-1 is incorrectly reporting the Local/Remote switch setting, and RPC-1 has been fenced. The switch setting is Local and the last setting the management console detected was Local. Therefore, the failure has caused RPC-1 to incorrectly report the switch setting as Remote. Use the FRU replace option to replace the following FRUs in the order listed until the failure is resolved:

1. RPC-1 card (cpRPC1)
2. Cable between RPC-1 and LR/ZLR switch card cable (PSCBL1F)
3. LR/ZLR switch card (cpLRcard)

MAP22A0 Standby power overcurrent failure detected by PPS-1 and PPS-2

Both primary power supplies have reported a standby power overcurrent failure.

There are four separate standby power outputs from each PPS that provide power as soon as line cord AC is available. Each of the four standby power outputs is shared by both PPSs, so a short on any of the four outputs will create an overcurrent in both PPSs. A short on one output will not affect the other three outputs. The four outputs go to the following:

- RPC-1 card (also provides power to the rack identity card and local remote switch card)
- RPC-2 card (also provides power to the rack identity card and local remote switch card)
- Front fan sense card
- Rear fan sense card

Is the failing rack, Rack 1?

- Yes, continue with "MAP22A0 Section-1."
- No, go to "MAP22A1 Standby power overcurrent failure detected by PPS1 and PPS2 not rack 1" on page 613.

MAP22A0 Section-1

Determine which standby power output circuit has the overcurrent.

1. At the rear of the rack, observe the green LED near the top of both RPC cards.
2. At the front of the rack, observe the green LED on the front and rear fan sense cards. Do one of the following:

Green LED display	Action
RPC-1 card LED is off	Go to "MAP22A0 Section-2" on page 610
RPC-2 card LED is off	Go to "MAP22A0 Section-3" on page 611
Front fan sense card LED is off	Go to "MAP22A0 Section-4" on page 612
Rear fan sense card LED is off	Go to "MAP22A0 Section-5" on page 612

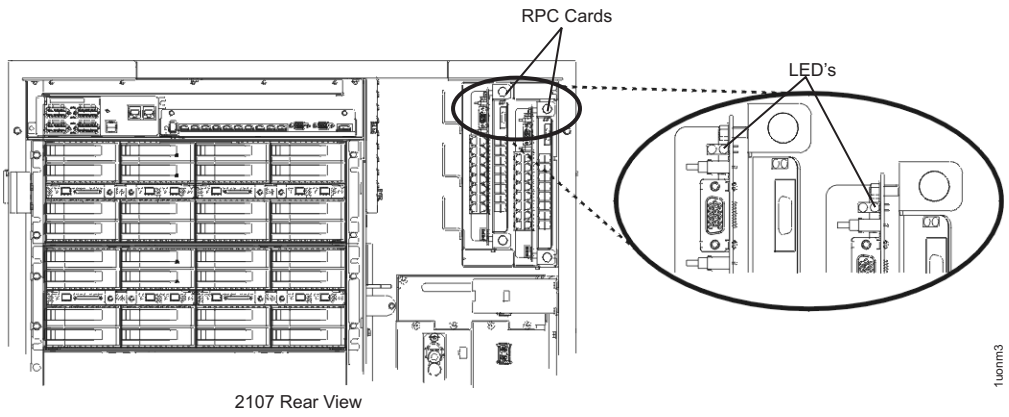


Figure 373. RPC cards and green LEDs

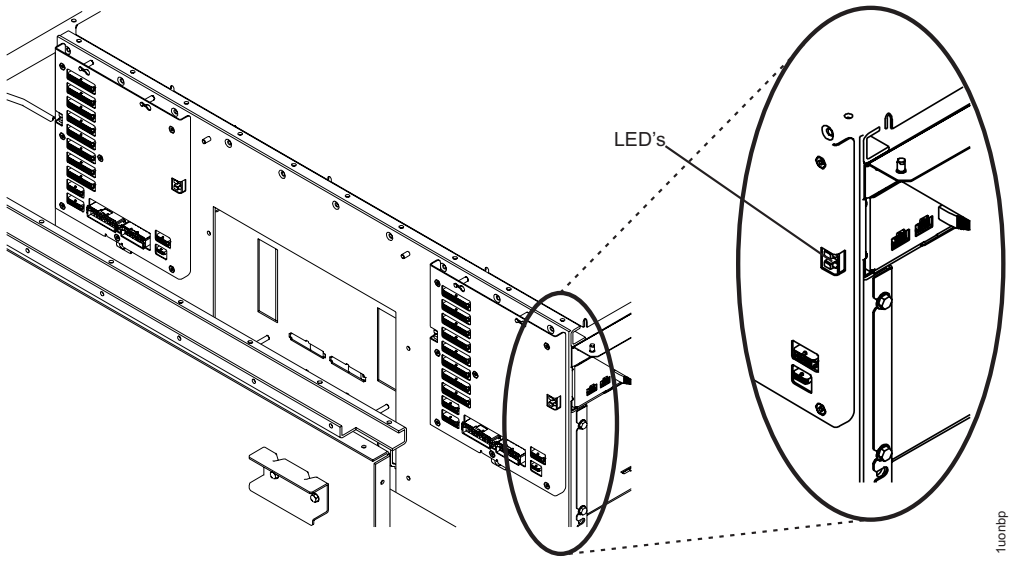


Figure 374. Fan sense cards and LEDs

MAP22A0 Section-2

The green LED located on RPC-1 card is off so that card does not have power and the failure is in the associated standby voltage distribution network.

1. At the front of the rack, observe and record the error code on the PPS status display. This will be considered "the original value". Both PPSs will be displaying the same value.
2. Disconnect the cable at J201 (location C1-T201) on the RPC-1 card. Observe the display on PPS-1. Has the display value changed from the original value?
   - Yes, plug in the cable at J201 and then go to step 3.
   - No, plug in the cable at J201 and go to step 5.
3. Disconnect the cable at J1 (location C1-T1) on the rack identity card. Observe the display on PPS-1. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Replace the FRU (cpRackId1). See "Remove the rack identity card" on page 1297.
   - No, plug in the J1 cable and then go to step 4.
4. Disconnect the cable at J1 (location C1-T1) on the RPC-1 card. Observe the display on PPS-1. Has the display value changed from the original value?

- Yes, the failure has been isolated. Use the replace FRU option to replace the cable from the RPC-1 card to the rack identity card (PSCBL0B).
- No, the failure has been isolated. Use the replace FRU option to replace the RPC-1 card (cpRPC0)

5. Disconnect the cable at J1 (location E1-T1) on PPS-1. Observe the display on PPS-1. Has the display value changed from the original value?
   - Yes, plug in the J1 cable and then go to step 6.
   - No, the failure has been isolated. Use the replace FRU option to replace PPS-1 (cpPPS-10).
6. Disconnect the cable at J1 (location E2-T1) on PPS-2. Observe the display on PPS-2. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Use the replace FRU option to replace the cable that connects the RPC-1 card and both PPSs (PSCBL0E).
   - No, the failure has been isolated. Use the replace FRU option to replace PPS-2 (cpPPS11).

MAP22A0 Section-3

The green LED located on RPC-1 card is off so that card does not have power and the failure is in the associated standby voltage distribution network.

1. At the front of the rack, observe and record the error code on the PPS status display. This will be considered "the original value". Both PPSs will be displaying the same value.
2. Disconnect the cable at J201 (location C1-T201) on the RPC-2 card. Observe the display on PPS-1. Has the display value changed from the original value?
   - Yes, plug in the cable at J201 and then go to step 3.
   - No, plug in the cable at J201 and go to step 5.
3. Disconnect the cable at J2 (location C1-T2) on the rack identity card. Observe the display on PPS-1. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Replace the FRU (cpRackId1). See "Remove the rack identity card" on page 1297.
   - No, plug in the J1 cable and then go to the next step.
4. Disconnect the cable at J1 (location C2-T1) on the RPC-2 card. Observe the display on PPS-1. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Use the replace FRU option to replace the cable from the RPC-2 card to the rack identity card (PSCBL0C).
   - No, the failure has been isolated. Use the replace FRU option to replace the RPC-2 card (cpRPC1).
5. Disconnect the cable at J2 (location E1-T2) on PPS-1. Observe the display on PPS-1. Has the display value changed from the original value?
   - Yes, plug in the J1 cable and then go to step 6.
   - No, the failure has been isolated. Use the replace FRU option to replace PPS-1 (cpPPS10).
6. Disconnect the cable at J2 (location E2-T2) on PPS-2. Observe the display on PPS-2. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Use the replace FRU option to replace the cable that connects the RPC-2 card and both PPSs (PSCBL0F).
   - No, the failure has been isolated. Use the replace FRU option to replace PPS-2 (cpPPS11).

MAP22A0 Section-4

The green LED located on the front fan sense card is off so that card does not have power and the failure is in the associated standby voltage distribution network.

1. At the front of the rack, observe and record the error code on the PPS status display. This will be considered "the original value". Both PPSs will be displaying the same value.
2. Disconnect the cable at J11 (location C3-T11) on the front fan sense card. Observe the display on PPS-1. Has the display value changed from the original value?
   - Yes, plug in the cable at J11 and then go to step 3.
   - No, plug in the cable at J11 and then go to step 4.
3. Disconnect the cable at J12 (location C3-T12) on the front fan sense card. Observe the display on PPS-2. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Use the replace FRU option to replace the front fan sense card (cpFanSns10)
   - No, plug in the J12 cable and then go to step 5.
4. Disconnect the cable at J11 (location E1-T11) on PPS-1. Observe the display on PPS-1. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Use the replace FRU option to replace the cable between PPS-1 and the front fan sense card (PSCBL04).
   - No, the failure has been isolated. Use the replace FRU option to replace PPS-1 (cpPPS10).
5. Disconnect the cable at J12 (location E2-T12) on PPS-2. Observe the display on PPS-2. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Use the replace FRU option to replace the cable between PPS-2 and the front fan sense card (PSCBL04).
   - No, the failure has been isolated. Use the replace FRU option to replace PPS-2 (cpPPS11).

MAP22A0 Section-5

The green LED located on the rear fan sense card is off so that card does not have power and the failure is in the associated standby voltage distribution network.

1. At the front of the rack, observe and record the error code on the PPS status display. This will be considered "the original value". Both PPSs will be displaying the same value.
2. Disconnect the cable at J12 (location C3-T12) on the rear fan sense card. Observe the display on PPS-1. Has the display value changed from the original value?
   - Yes, plug in the cable at J12 and then go to step 3.
   - No, plug in the cable at J12 and then go to step 4.
3. Disconnect the cable at J11 (location C3-T11) on the rear fan sense card. Observe the display on PPS-2. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Use the replace FRU option to replace the rear sense card (cpFanSns11).
   - No, plug in the J11 cable and then go to step 5 on page 613.
4. Disconnect the cable at J12 (location E1-T12) on PPS-1. Observe the display on PPS-1. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Use the replace FRU option to replace the cable between PPS-1 and the rear fan sense card (PSCBL02).

- No, the failure has been isolated. Use the replace FRU option to replace PPS-1 (cpPPS10).

5. Disconnect the cable at J11 (location E2-T11) on PPS-2. Observe the display on PPS-2. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Use the replace FRU option to replace the cable between PPS-2 and the rear fan sense card (PSCBL02).
   - No, the failure has been isolated. Use the replace FRU option to replace PPS-2 (cpPPS11).

MAP22A1 Standby power overcurrent failure detected by PPS1 and PPS2 not rack 1

Both primary power supplies have reported a standby power overcurrent failure.

There are two separate standby power outputs from each PPS that provide power as soon as line cord AC is available. Each of the two standby power outputs is shared by both PPSs, so a short on any of the two outputs will create an overcurrent in both PPSs. A short on one output will not affect the other output. The two outputs go to the following:

- Front fan sense card
- Rear fan sense card

MAP22A1 Section-1

Determine which standby power output circuit has the overcurrent.

1. At the front of the rack, observe the green LED on the front and rear fan sense cards. Do one of the following:
   - Front fan sense card LED is off, go to "MAP22A1 Section-2" on page 614.
   - Rear fan sense card LED is off, go to "MAP22A1 Section-3" on page 615.

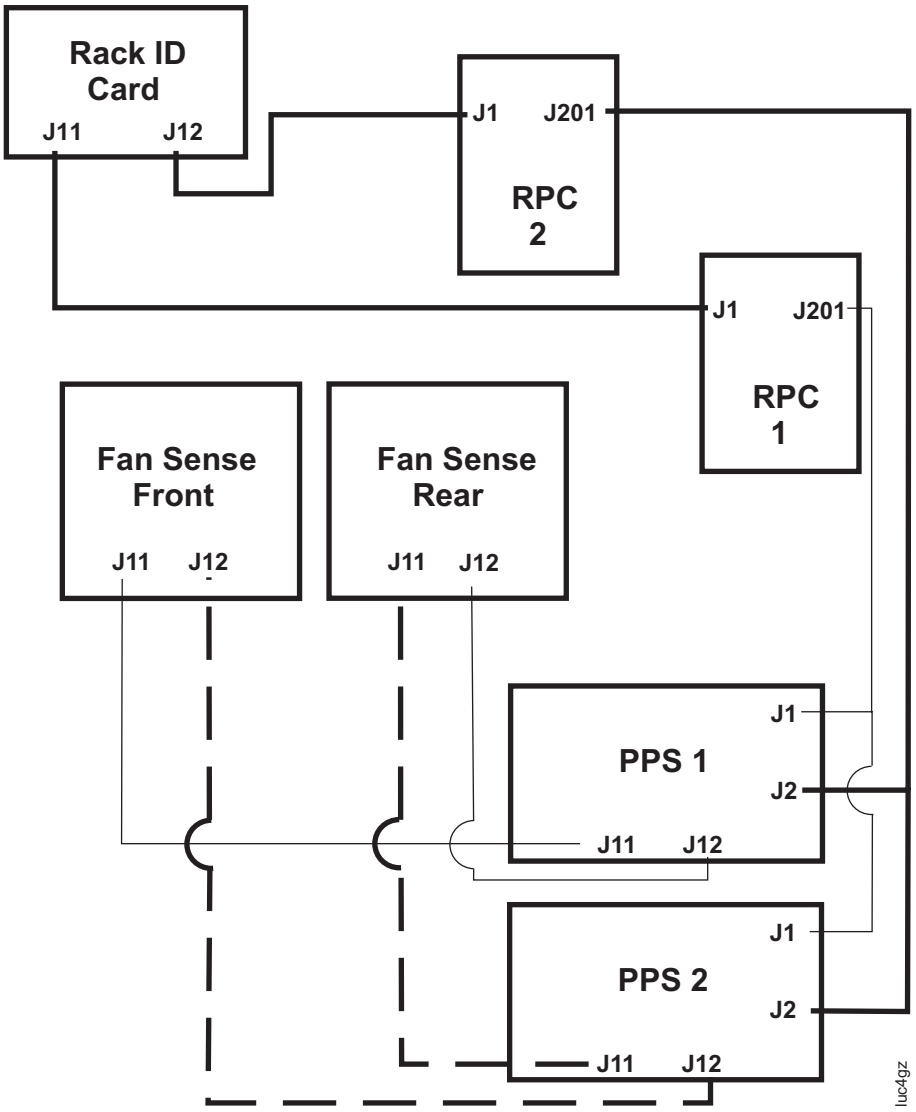


Figure 375. Cables for Rack ID Card, PPS, and fan sense cards

Table 179. Cable references

Reference Name or Letter	Code Resource Name
PPS-1	cpPPS10
PPS-2	cpPPS11
Front Fan Sense Card	cpFanSns10
Rear Fan Sense Card	cpFanSns11
E	PSCBL04
F	PSCBL02
G	PSCBL0? (tbd)
H	PSCBL0? (tbd)

MAP22A1 Section-2

The green LED located on the front fan sense card is off so that card does not have power and the failure is in the associated standby voltage distribution network.

1. At the front of the rack, observe and record the error code on the PPS status display. This will be considered “the original value”. Both PPSs will be displaying the same value.
2. Disconnect the cable at J11 (location C3-T11) on the front fan sense card. Observe the display on PPS-1. Has the display value changed from the original value?
   - Yes, plug in the cable at J11 and then go to step 3.
   - No, plug in the cable at J11 and then go to step 4.
3. Disconnect the cable at J12 (location C3-T12) on the front fan sense card. Observe the display on PPS-2. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Use the replace FRU option to replace the front fan sense card (cpFanSns10).
   - No, plug in the J12 cable and then go to step 5.
4. Disconnect the cable at J11 (location E1-T11) on PPS-1. Observe the display on PPS-1. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Use the replace FRU option to replace the cable between PPS-1 and the front fan sense card (PSCBL04).
   - No, the failure has been isolated. Use the replace FRU option to replace PPS-1 (cpPPS10).
5. Disconnect the cable at J12 (location E2-T12) on PPS-2. Observe the display on PPS-2. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Use the replace FRU option to replace the cable between PPS-2 and the front fan sense card (PSCBL04).
   - No, the failure has been isolated. Use the replace FRU option to replace PPS-2 (cpPPS11).

MAP22A1 Section-3

The green LED located on the rear fan sense card is off so that card does not have power and the failure is in the associated standby voltage distribution network.

1. At the front of the rack observe and record the error code on the PPS status display. This will be considered “the original value”. Both PPSs will be displaying the same value.
2. Disconnect the cable at J12 (location C3-T12) on the rear fan sense card. Observe the display on PPS-1. Has the display value changed from the original value?
   - Yes, plug in the cable at J12 and then go to step 3.
   - No, plug in the cable at J12 and then go to step 4.
3. Disconnect the cable at J11 (location C3-T11) on the rear fan sense card. Observe the display on PPS-2. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Use the replace FRU option to replace the rear sense card (cpFanSns11).
   - No, plug in the J11 cable and then go to step 5.
4. Disconnect the cable at J12 (location E1-T12) on PPS-1. Observe the display on PPS-1. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Use the replace FRU option to replace the cable between PPS-1 and the rear fan sense card (PSCBL02).
   - No, the failure has been isolated. Use the replace FRU option to replace PPS-1 (cpPPS10).

5. Disconnect the cable at J11 (location E2-T11) on PPS-2. Observe the display on PPS-2. Has the display value changed from the original value?
   - Yes, the failure has been isolated. Use the replace FRU option to replace the cable between PPS-2 and the rear fan sense card (PSCBL02).
   - No, the failure has been isolated. Use the replace FRU option to replace PPS-2 (cpPPS11)

MAP22B0 Customer remote UEPO control

The storage facility supports a feature that allows a customer to remotely initiate a unit emergency power off (UEPO).

Each RPC card supports a remote Unit Emergency Power Off (UEPO) switch feature, which when activated, causes a force power off (FPO) sequence to be initiated on the storage facility. For the location of the RPC cards, see Figure 376. For a schematic diagram of the remote UEPO control circuit, see Figure 377 on page 617. This will cause the storage facility to save volatile customer data and then shutdown the CEC enclosures properly before the storage facility powers off. If the CEC enclosures cannot complete the shutdown within the normal 5 minutes period, the RPC card will force the storage facility to power off.

Note: The UEPO red switch on the rack operator panel will force an immediate power off of both primary power supplies in that rack, with possible loss of customer data. The UEPO red switch does not control the power system in other racks that may be part of the same storage facility. The remote UEPO does a delayed power off to protect customer data.

The remote FPO function will occur if one or both RPC cards receive the FPO signal. Allowing one RPC card to force power off guarantees that in the event of a single RPC card failure, or a single customer FPO cable/switch failure, the remaining RPC card and dedicated customer FPO cable/switch circuit will be able to force power off.

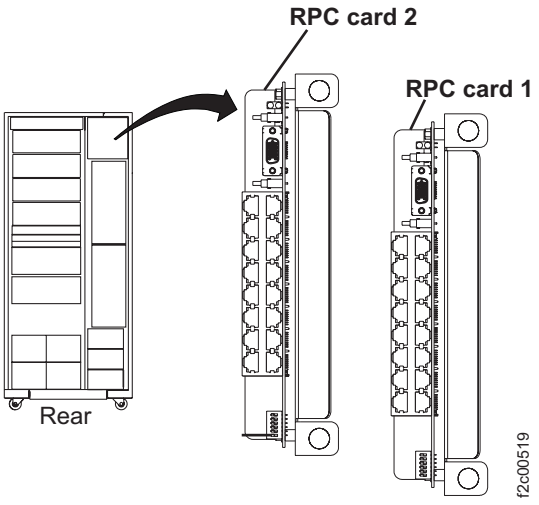


Figure 376. Locations of the RPC cards

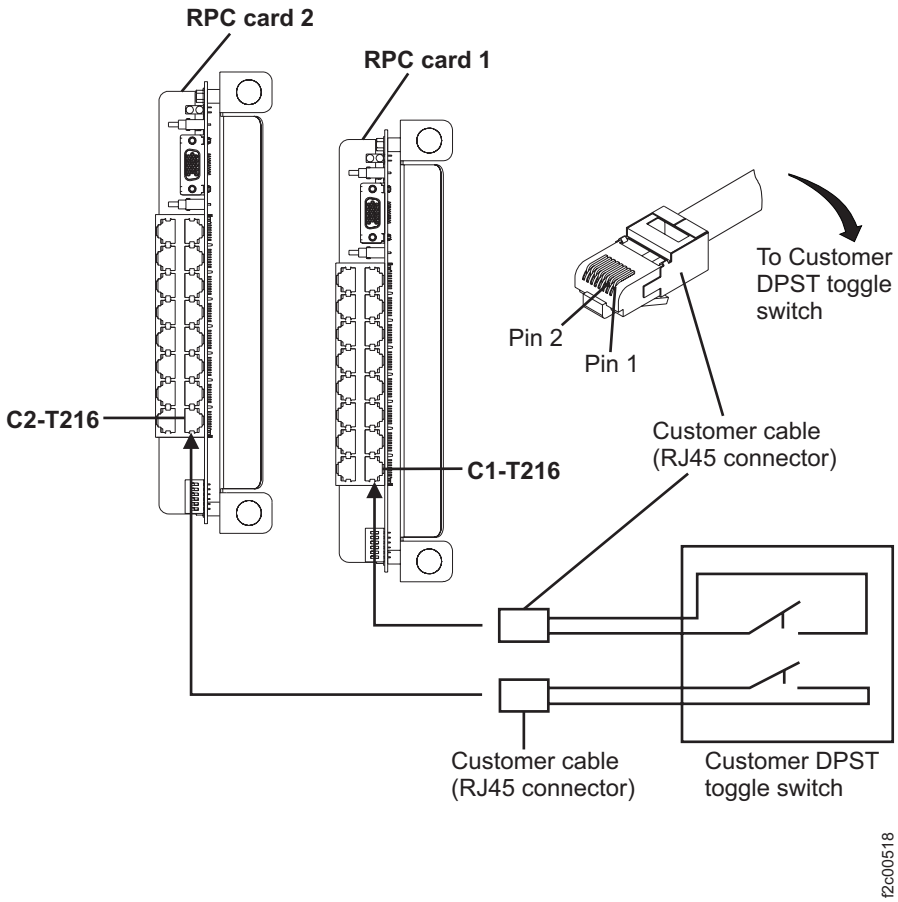


Figure 377. Schematic of the customer remote UEPO control circuit

In the absence of AC line cord voltage, the storage facility and the RPC will remain completely off. If AC line cord is present, the RPC will power up but the storage facility will remain completely off until the remote FPO switch becomes inactive.

The customer is required to provide two cables. The RPC card cable end of each cable connects to RPC card connector J2 port 16 (Cx-T216) through an RJ-45 male connector. The other end of each cable connects to a double pole single throw (DPST) switch. Each cable uses a seperate set of switch contacts. Each RPC will send a protected +5V signal to one side of its dedicated switch contact and sense the return voltage from the other side of its dedicated contact. If return voltage is present, then the RPC's will initiate a FPO sequence. (Open circuit is normal operation, closed circuit is "force power off".)

Pin 1 = Send (+5V)

Pin 2 = Return (+5V)

The cable must be shielded with the shield tied to facility ground at the customer connection. The total permissible resistance of the customer's cable, connections, and contacts must not exceed 5 Ohms Maximum (~200' of #24 AWG). The cables are plugged into the RPC card connector J2 port 16.

MAP2320 One RPC card reports communication failure to one processor complex

The RPC card is reporting a communication failure to the service processor in the processor complex.

There should also be a communication failure reported by the processor complex partition through the service processor to the RPC card. Each failure will create a separate serviceable event. The communication cable from the processor complex to the RPC card is a "Y" cable that also connects to the other RPC card.

MAP2320 Section-1

1. Use the SRC in the serviceable event that sent you here to determine the failure communication interface.

Table 180. MAP2320 system reference codes and resources

SRC	Communication Failure Resources
BE19-0009	RPC1 card to processor complex 1
BE19-000A	RPC1 card to processor complex 2
BE19-000B	RPC2 card to processor complex 1
BE19-000C	RPC2 card to processor complex 2

2. Display serviceable events that need repair. Is there any other serviceable event with FRUs in or between the resources determined in step 1 above?
   - Yes, exit this MAP and attempt to repair that serviceable event first. If that repair does not correct this problem also, return here and continue at the next step. If that repair does correct this problem, remember to also close this serviceable event.
   - No, go to the next step.
3. Return to the serviceable event that sent you here and replace the listed FRUs until the failure is repaired.

MAP2330 Repair rack ground continuity

The previous procedure measured more than 0.1 ohm resistance between the ground pin or ground wire of the mainline power cable and the primary power supply enclosure. Follow these steps to check and repair the ground continuity problem.

MAP2330 Section-1

1. Disconnect the failing mainline power cable **(1)** or **(2)** from the PPS.

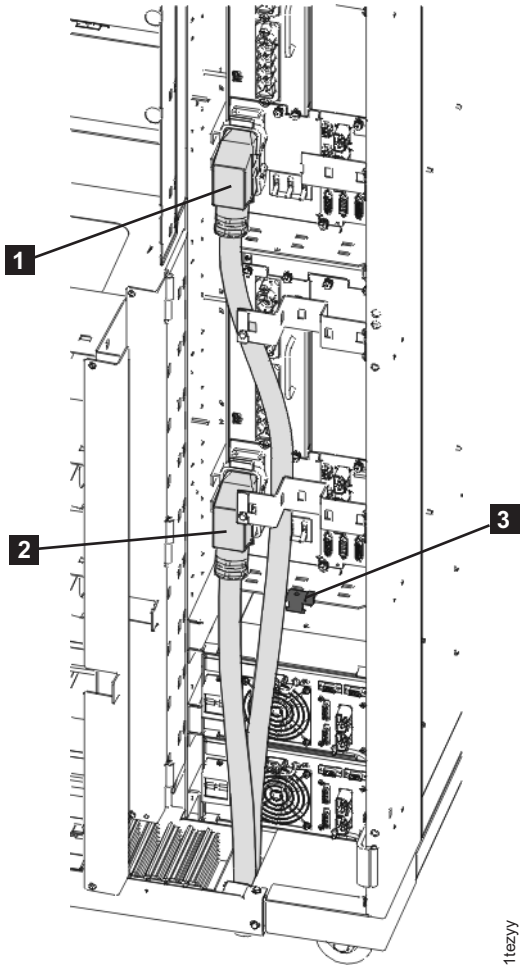


Figure 378. AC line cord

2. Prepare the multimeter to measure 0.1 ohm or less resistance. For connector information, refer to the following figure.

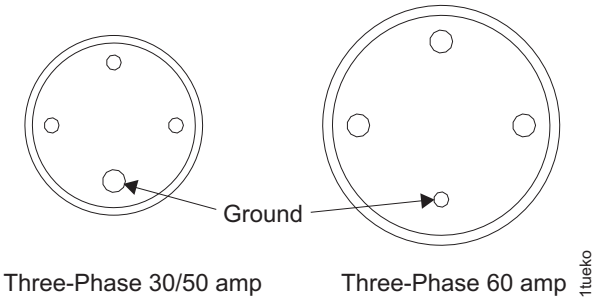


Figure 379. Three-phase amp

- For the mainline power cable (plug in): Place one lead of the multimeter on the ground pin of the male plug on the mainline power cable.
- For the mainline power cable (wired): Place one lead of the multimeter on the green and yellow wire at the customer end of the mainline power cable.

3. Place the other lead on the ground pin of the female connector on the mainline power cable.

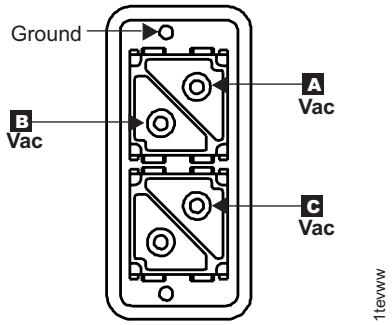


Figure 380. Mainline power cable connector

Is there 0.1 ohm or less resistance?

- Yes, the mainline power cable is good but the primary power supply enclosure is not grounded. Go to step 5.
- No, the mainline power cable ground lead is open or has resistance, continue with the next step.

4. Perform the following steps if, the ground lead on the Mainline Power Cable is open or has resistance.
   a. Replace the mainline power cable.
   b. Return to "Preparing to check DS8000 and customer power" on page 52. Verify that the ground continuity now measures 0.1 ohm or less resistance.
5. The primary power supply enclosure is not grounded. Replace the primary power supply.
   a. Go to "Exchange the primary power supply (PPS)" on page 1281 in the Chapter 34, "Exchanging parts," on page 991 section of this Information Center.
   b. Return to "Preparing to check DS8000 and customer power" on page 52. Verify that the ground continuity now measures 0.1 ohm or less resistance.

MAP2340 codes on the PPS status display

The PPS status display on the front of the PPS is used to indicate status and error conditions. Error conditions that are displayed will create serviceable events. Use the serviceable events to guide the repair.

MAP2340 Section-1

1. The PPS is displaying an error code, which is defined in Table 181 on page 621. A serviceable event will be created unless the PPS is in a rack that is not yet fully installed.
2. During PPS power on, the PPS status display shows the PPS firmware level and PPS identification. The PPS firmware level is also available through the management console utilities to display the installed code levels. The following sequence of characters is displayed: `XX > yy > zz > Tu`

XX	Beginning of display sequence
yy	Software revision level, first two characters
zz	Software revision level, last two characters
Tu	T1 for PPS1 (upper PPS) or T2 for PPS2 (lower PPS)

3. After PPS power on, the status display is normally blank. If an error code is displayed, the PPS Fault LED indicator below the status display will also be lit

and a serviceable event should have been created. If a serviceable event was not created, call the next level of support.

Table 181. PPS error codes and descriptions

Error code	Description
b0	Optional booster power module over-voltage while line cord power is present (hot standby)
b1	Optional booster power module over-voltage while the system is on battery and the booster module is providing input to the DDM modules
b2	Optional booster power module under-voltage while line cord power is present (hot standby)
b3	Optional booster power module under-voltage while the system is on battery and the booster module is providing power to the DDM modules
b4	Optional booster power module over-current while line cord power is present (hot standby)
b5	Optional booster power module over-temperature while the system is on battery and the booster module is providing power to the DDM modules
b6	Optional booster power module test failed (provides power during battery test)
b7	Optional booster power module over-current while the system is on battery and the booster module is providing power to the DDM modules
b8	Optional booster power module over-temperature while line cord power is present (hot standby)
D0	Base 5/12V DDM power module +5V power boundary A under-voltage or over-voltage
D1	Base 5/12V DDM power module +5V power boundary A over-current
D2	Base 5/12V DDM power module power boundary A over-temperature
D3	Base 5/12V DDM power module +12V power boundary A under-voltage or over-voltage
D4	Base 5/12V DDM power module +12V power boundary A over-current
D6	Base 5/12V DDM power module +5V power boundary B under-voltage or over-voltage
D7	Base 5/12V DDM power module +5V power boundary B over-current
D8	Base 5/12V DDM power module power boundary B over-temperature
D9	Base 5/12V DDM power module +12V power boundary B under-voltage or over-voltage
DA	Base 5/12V DDM power module +12V power boundary B over-current
DC	Base 5/12V DDM power module +5V power boundary A current sharing fault
DE	Base 5/12V DDM power module +12V power boundary A current sharing fault
DF	Base 5/12V DDM power module +5V power boundary A current sharing fault
DG	Base 5/12V DDM power module +12V power boundary B current sharing fault
F0	PPS fan 1 (top) fault
F1	PPS fan 2 (middle) fault
F2	PPS fan 3 (bottom) fault

Table 181. PPS error codes and descriptions (continued)

Error code	Description
I0	AC input power module line cord power is missing
I1	AC input power module AC is single phase
I2	AC input power module input circuit breaker is tripped
I4	AC input power module input circuit breaker is off, partner PPS is operational
I5	AC input power module Power on self test (POST) failed.
M0	208VDC base module under-voltage or over-voltage
M1	208VDC base module over-current
M2	208VDC base module over-temperature
M3	208VDC base module protected output 0 under-voltage
M4	208VDC base module protected output 1 under-voltage
M5	208VDC base module current sharing fault
N0	Optional 208VDC power module under-voltage or over-voltage
N1	Optional 208VDC power module over-current
N2	Optional 208VDC power module over-temperature
N3	Optional 208VDC power module current sharing fault.
o0	Optional DDM module +5V power boundary A under-voltage or over-voltage
o1	Optional DDM module +5V power boundary A over-current
o2	Optional DDM module power boundary A over-temperature
o3	Optional DDM module +12V power boundary A under-voltage or over-voltage
o4	Optional DDM module +12V power boundary A over-current
o6	Optional DDM module +5V power boundary B under-voltage or over-voltage
o7	Optional DDM module +5V power boundary B over-current
o8	Optional DDM module power boundary B over-temperature
o9	Optional DDM module +12V power boundary B under-voltage or over-voltage
oA	Optional DDM module +12V power boundary B over-current
oC	Optional DDM module +5V power boundary A current sharing fault
oE	Optional DDM module +12V power boundary A current sharing fault
oF	Optional DDM module +5V power boundary B current sharing fault
oG	Optional DDM module +12V power boundary B current sharing fault
P0	Power Factor Control (PFC) module over-voltage
P2	PFC module over-temperature
P3	PFC module over-current
P4	PFC module UEPO contactor off

Table 181. PPS error codes and descriptions (continued)

Error code	Description
T1	PPS reporting as PPS-1 (top)
T2	PPS reporting as PPS-2 (bottom)
U0	Battery Module Enclosure E10 (top) is not present
U1	Battery Module Enclosure E10 (top) I2C communication failure
U2	Battery Module Enclosure E10 (top) fan failure
U3	Battery Module Enclosure E10 (top) is deep discharged
U4	Battery Module Enclosure E10 (top) is approaching the end of its usable life
U5	Battery Module Enclosure E11 (middle) is not present
U6	Battery Module ages within rack differ by more than 6 months
U7	Battery Module ages within rack differ by more than 24 months
U8	Battery Module Enclosure E11 (middle) is deep discharged
U9	Battery Module Enclosure E11 (middle) is approaching the end of its usable life
UA	Battery Module Enclosure E12 (bottom) is not present
UC	Battery Module Enclosure E12 (bottom) I2C communication failure
UE	Battery Module Enclosure E12 (bottom) fan failure
UF	Battery Module Enclosure E12 (bottom) is deep discharged
UG	Battery Module Enclosure E12 (bottom) is approaching the end of its usable life
UH	Battery Module Enclosure E11 (middle) I2C communication failure
UI	Battery Module Enclosure E11 (middle) fan failure
X0	Sequencer module standby converter 7.5V fault
X1	Sequencer module to PFC module I2C communication failure
X2	Sequencer module to 208VDC Base Module I2C communication failure
X3	Sequencer module to 5/12V DDM power module I2C communication failure
X6	Sequencer module to Optional 5/12V DDM power module I2C communication failure
X8	Sequencer module to Optional 208VDC power module I2C communication failure
X9	Sequencer module to Optional booster power module I2C communication failure
XA	PPS to PPS communication failure
XC	PPS to fan sense card communication failure
XD	Communication fault between PPS and DASD fan tray assembly
XE	PPS to RPC1 communication failure
XF	PPS to RPC2 communication failure

MAP2350 Ethernet switch power problem

The Ethernet switch power LED is off. The Ethernet switch power input connector receives power from both primary power supplies (PPSs) through a "Y" cable that is connected to both PPSs.

This same power cable also provides power to the other Ethernet switch and the management console server and keyboard display.

MAP2350 Section-1

1. Locate the Ethernet switch that is failing. Ensure the Ethernet switch power LED is still off before you go to the next step.

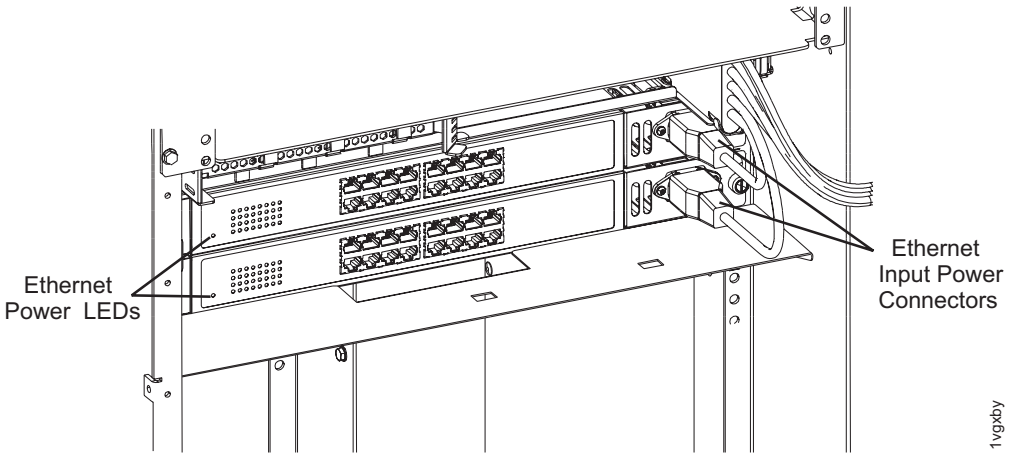


Figure 381. Ethernet power LEDs and input power connectors

2. Observe the input power cable is properly plugged into the failing Ethernet switch. Is it properly plugged?
   - Yes, go to the next step.
   - No, plug the input power cable. Ensure the power LED is now lit, then exit this MAP.
3. At the other Ethernet switch, observe the power LED. Is it lit?
   - Yes, go to the next step.
   - No, both Ethernet switches are not receiving power. Both Ethernet switches, and the management console server, and keyboard and display receive power from a common multi-drop power cable that is connected to both PPSs. Display and repair any related serviceable events for the power system or call the next level of support.
4. At the failing Ethernet switch, unplug the input power cable. Then remove the Ethernet switch assembly from the rack by removing the two screws at each end of the sheet metal brackets. With the Ethernet switch assembly removed, observe the short power cable that goes from the sheet metal bracket to the power connector on the rear of the Ethernet switch. Is it properly plugged?
   - Yes, replace the Ethernet switch FRU.
   - No, securely plug the short power cable into the power connector on the rear of the Ethernet switch. Reinstall the Ethernet switch. Replug the input power cable, and ensure the power LED is lit. Then, exit this MAP.

MAP2460 Configuring and overview of the DS8000 Power Control Mode

This MAP provides guidance on theDS8000 Power Control Mode selections and how to configure them.

MAP 2460 Section-1 Overview of Power Control Panel Fields

This section provides an overview of the Power Control Panel and the various Power Control Modes.

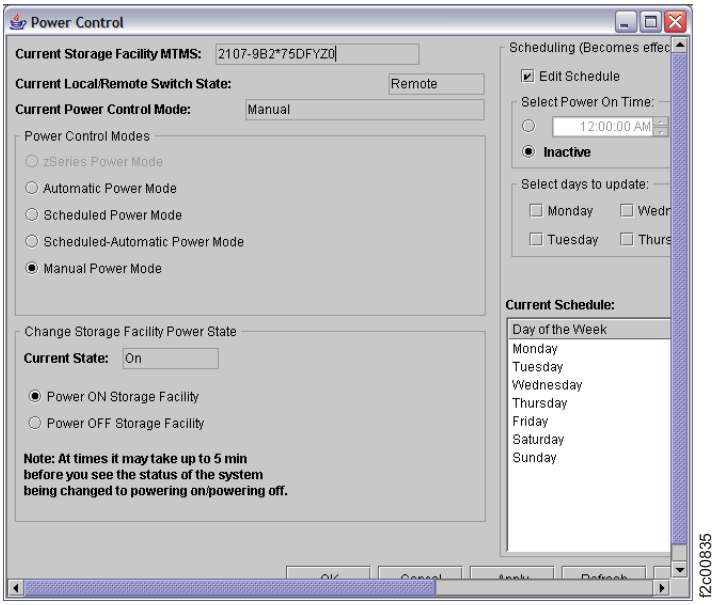


Figure 382. Power Control

Current Storage Facility MTMS
This displays the Machine Type Model and Serial number of the currently targeted Storage Facility.

Local/Remote Switch
This displays the current position of the Local/Remote switch. This is located on the local remote or zSeries local remote switch card.

Note: The switch must be in the 'Remote' state for any features on this panel to work.

Current Power Control Mode
This displays the active Power Control mode setting. Changes to the Power Control Mode will not take effect until **Apply** or **OK** is clicked.

Power Control Modes

Zseries Power Mode
This mode is only available if the Z-series Power Control Feature is installed. If the feature is installed then a zSeries local remote switch card will be present in the DS8000-rack 1. The zSeries local remote switch card can be distinguished from the local remote switch card in that it has four large connectors which allow

Z-series power control cables to be plugged. If this option is selected, then Power On and Off of the Storage Facility is controlled by the Z-series host.

Automatic Power Mode
Automatic power mode causes the Storage Facility to power up automatically if AC power is restored following an unscheduled AC input loss. This setting can be used in combination with Z-series Power Mode.

Scheduled Power Mode
This power mode allows the customer to specify (using the panel on the right) when the Storage Facility should power on and power off. The Schedule on the right can be edited when this button is selected and 'Edit schedule' is enabled. The schedule does not become active until the **Apply** button is clicked. Transitions will not occur until the next scheduled power off on power on time.

Scheduled Automatic Power Mode
This power mode provides the same function as Scheduled Power Mode except that additionally it will cause the Storage Facility to power up automatically if AC power is restored following an unscheduled AC input loss. That will occur if the AC power is restored inside a Power On window.

Manual Power Mode
Selecting this option will enable the Change Storage Facility Power State panel.

Change Storage Facility State Panel
This panel is enabled when Manual Power Mode is selected.

Clicking **Power On** or **Power Off** followed by **Apply** or **OK** will cause the Storage Facility to 'Power On' or 'Power Off'. If either the **Apply** or the **OK** button is pushed, a separate panel will pop up asking the user to confirm the user's selection.

Scheduling panel
This becomes active if Scheduled or Scheduled Automatic Power Mode is selected and 'Edit Schedule' is enabled.

The panel allows the Power On and Off Schedule to be updated and shows a summary of the current choices. Multiple days can be updated simultaneously by selecting them. The selections become active when **Apply** or **OK** is selected.

Actions

OK Clicking the **OK** button will perform the selected tasks and exit the panel as well. A separate panel will pop up asking the user to confirm the user's selection.

Apply
Clicking the **Apply** button will perform the selected tasks without exiting the panel. A separate panel will pop up asking the user to confirm his/her selection.

Refresh
Clicking the **Refresh** button will update the information on the panel to reflect changes in the storage facility, but will not change anything on the

storage facility. For example, if the Local/Remote switch position is changed then pressing Refresh will change the State as displayed on the panel.

Cancel

Clicking the **Cancel** button will exit the panel without committing any changes made since the last Apply.

MAP 2460 Section-2 How to Select the Power Control Utility

To select the Power Control Utility:

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
2. Open **Service Applications** → **Service Focal Point**.
3. In the right content area, select **Service Utilities**, a window appears displaying a list of Storage Facilities.
4. Select the SF that is being installed from the list. Click **Selected** (on top tool bar), and then select **Manage Power Control**.

MAP 2460 Section-3 How to Manually Power On or Off a Storage Facility

1. Ensure that the Local/Remote Switch is in the 'Remote' position.
2. Follow "MAP 2460 Section-2 How to Select the Power Control Utility" to select the Storage Facility and navigate to the Power Control Panel.
3. Click on **Manual Power Mode**.
4. On the Change Storage Facility State panel, click on **Power ON Storage Facility** or **Power OFF Storage Facility** as desired.
5. Click on **OK** or **Apply** and confirm the selection.
6. The Power On or Power Off transition will begin.

MAP 2460 Section-4 How to set up a Power On and Off Schedule

1. Follow "MAP 2460 Section-2 How to Select the Power Control Utility" to select the Storage Facility and navigate to the panel.
2. Select **Scheduled Power Mode** or **Scheduled Automatic Power Mode**.
3. Click on **Edit Schedule** to enable the Scheduling Panel.
4. Enter the Power On and Power Off times for the day or days you wish to update. If you do not require a Power transition to occur on a particular day or days then click on the Inactive button as appropriate. For example, if you wish to power on on Monday at 7:00 AM and remain powered on until 7:00 PM on Friday, then click Inactive for Power off on Monday, Inactive for Power On and Power Off for Tuesday through Thursday and Inactive for Power On on Friday.
5. Select the day or days for which you wish to set the Power On and Power Off times.
6. Click on **Update Schedule**.
7. When you are satisfied that the schedule is correct, then click on the **Apply** or **OK** buttons and confirm the selection.

MAP2470 Powering off and on the storage facility from the management console

Use this MAP for instructions on how to power off and power on a storage facility using the management console.

MAP2470 Section-1 Power off the storage facility

1. Ensure that the Local/Remote switch on the local remote or zSeries local remote switch card is set to Remote. See Figure 383.

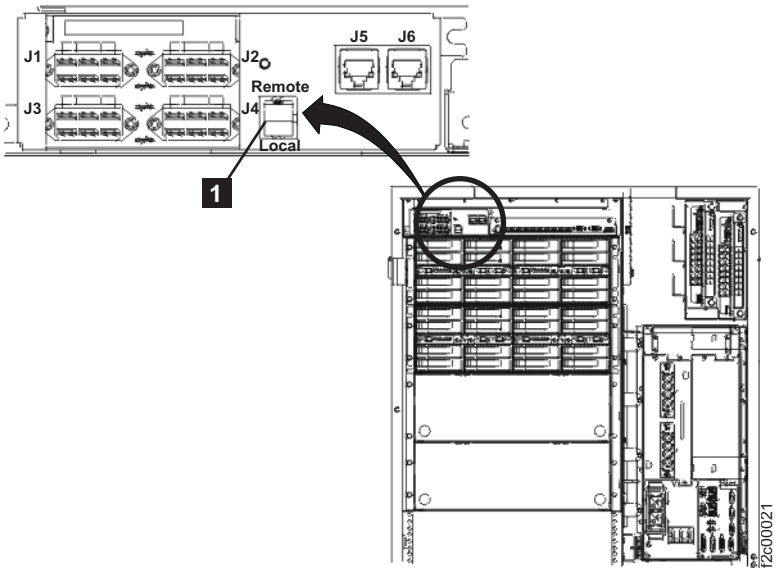


Figure 383. LR, ZLR card location

2. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
3. Click **Service Applications** → **Service Focal Point**.
4. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
5. Select the storage facility.
6. On the main menu, click **Selected** → **Manage Power Control**. The power control screen is displayed.

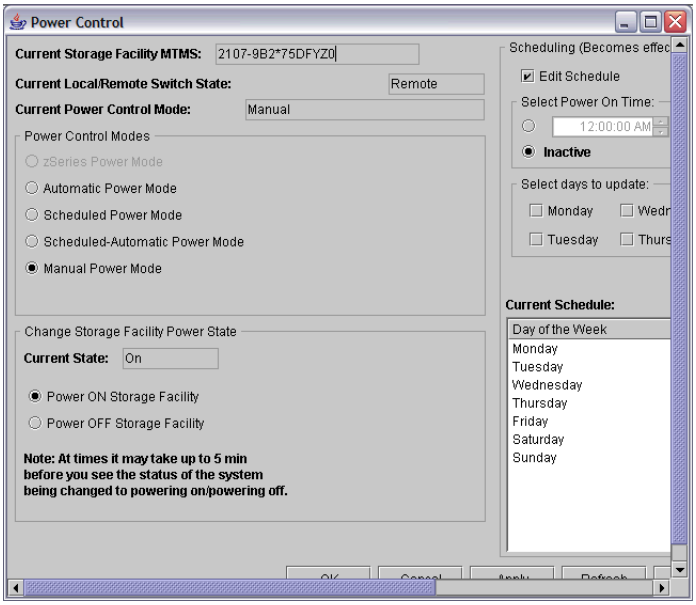


Figure 384. Power Control

7. At the top of the screen, ensure that the Current Power Control Mode is set to **Manual**.

   Note: If the mode is not set to **Manual**, use the Power Control Modes radio buttons immediately below to select **Manual Power Mode**.
8. In the Change Storage Facility Power State section of the screen, click the **Power Off Storage Facility** button, and then click **OK**.
9. Click **OK** to confirm the update for the Power Control Settings.
10. The storage facility will now begin the power off sequence.
11. Allow up to 10 minutes for the storage facility to power off.

MAP2470 Section-2 Power on the storage facility

1. Perform the procedure in "MAP2470 Section-1 Power off the storage facility" on page 628, but in step 8, click the **Power On Storage Facility** button instead. The power on can take up to 30 minutes for the LPARs to be ready for customer use.
2. Remember to use the Power Control Modes buttons to restore the mode back to its original setting.

MAP2512 PPS 5/12V DDM power module cable crimp verification procedure for machine type 2107

The following information is a copy of TIP512 from the DS8000 - 2107 Engineering Web site. Read all the information before taking any action.

MAP2512 Section-1

1. Select one of the following:
   - You are repairing a machine type 2107 rack, go to step 2.
   - You are repairing a machine type 242x rack, this procedure does not apply. Exit this MAP and return to the procedure that sent you here.
2. A problem has been found on a small number of 5/12V power cables connected between the 5/12V bus bars and the PPS 5/12V DDM power

modules for machine type 2107. Machine type 242x is not affected. Some of the contact/conductor terminations inserted in the 4-position PPS connectors on some cables were not crimped.

3. Before ANY service actions are started in the power area, an inspection will need to be performed to ensure every contact in every connector position of every power cable has been crimped. This inspection will need to be performed:
   - Prior to any service action where a PPS 5/12V DDM power module will have cables disconnected from it, most PPS repairs require that all PPS cables be disconnected.
   - When the storage facility is powered down for relocation.
4. The inspection will require a non-conductive flashlight and the removal of all conductive material; that is, rings and watches.
   - Inspect all cables connected to all 5/12V DDM power modules before any service actions are performed. If a cable is found missing a crimp, the cable must be replaced before replacing any other power FRUs. The replacement of these cables must be done with complete power off to the machine. The cables are replaced as an assembly.
5. If you are here because the machine posted, or is posting, one of the SRCs that is in the list below:
   - if you find one or more of the cables has pulled out of the connector, the cable must be replaced but NOT the 5/12V DDM power module.
   - if you find that one or more of the cables are NOT crimped, but remain connected, the cable and the FRU(s) called out must be replaced.
   - if you find no cable crimp problems, the FRU(s) called out must be replaced.

   SRCs that result in working near possible uncrimped cables:

   BE191B8x PPS1, rack x main DDM +5 VDC A current sharing fault
   BE191B9x PPS2, rack x main DDM +5 VDC A current sharing fault
   BE191BCx PPS1, rack x main DDM +12 VDC A current sharing fault
   BE191BDx PPS2, rack x main DDM +12 VDC A current sharing fault
   BE191BAx PPS1, rack x main DDM +5 VDC B current sharing fault
   BE191BBx PPS2, rack x main DDM +5 VDC B current sharing fault
   BE191BEx PPS1, rack x main DDM +12 VDC B current sharing fault
   BE191BFx PPS2, rack x main DDM +12 VDC B current sharing fault
   BE191C0x PPS1, rack x optional DDM +5 VDC A current sharing fault
   BE191C1x PPS2, rack x optional DDM +5 VDC A current sharing fault
   BE191C4x PPS1, rack x optional DDM +12 VDC A current sharing fault
   BE191C5x PPS2, rack x optional DDM +12 VDC A current sharing fault
   BE191C2x PPS1, rack x optional DDM +5 VDC B current sharing fault
   BE191C3x PPS2, rack x optional DDM +5 VDC B current sharing fault
   BE191C6x PPS1, rack x optional DDM +12 VDC B current sharing fault
   BE191C7x PPS2, rack x optional DDM +12 VDC B current sharing fault

   Check the cable connections **1** shown in Figure 385 on page 631 through Figure 387 on page 632 to ensure the cables are crimped.

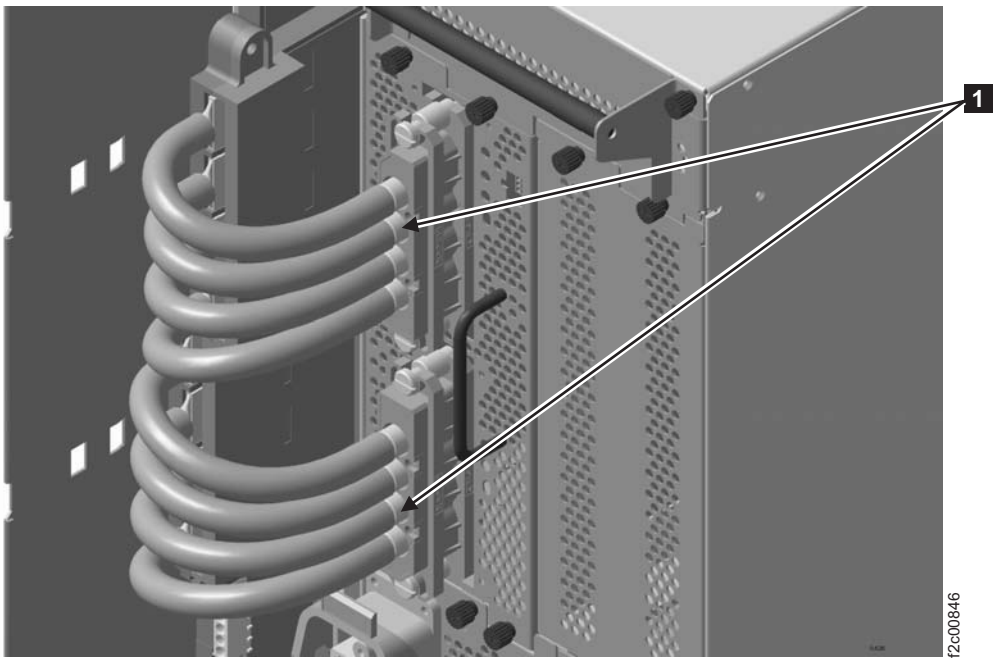


Figure 385. Cable P/N 22R6106 for Rack 1, connected to top or bottom connector on 5/12V DDM power module

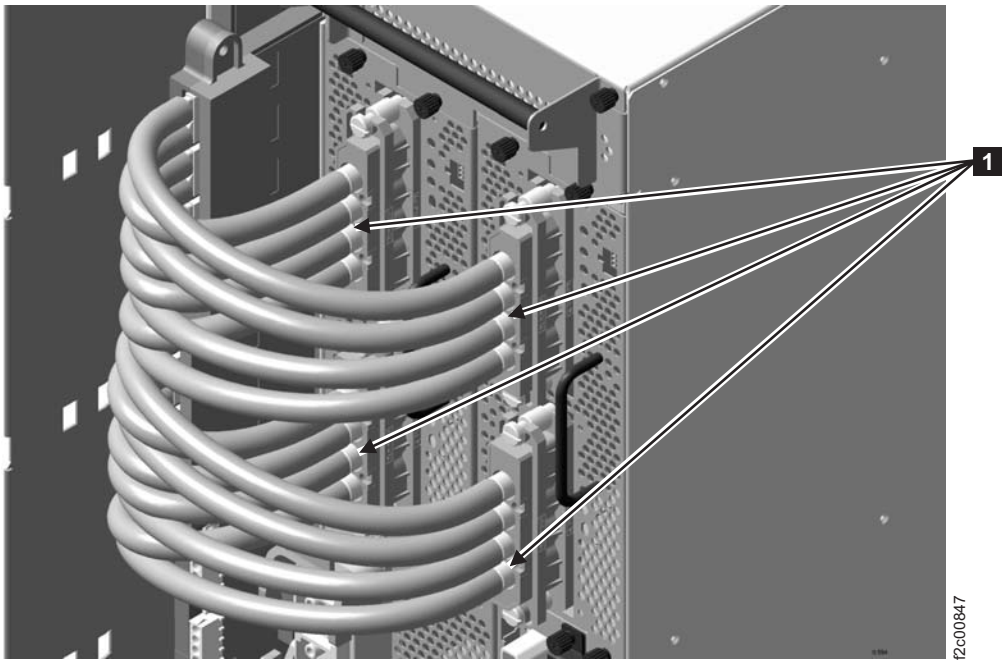


Figure 386. Cable P/N 22R6107 for expansion racks, connected to top connector on 5/12V DDM power module

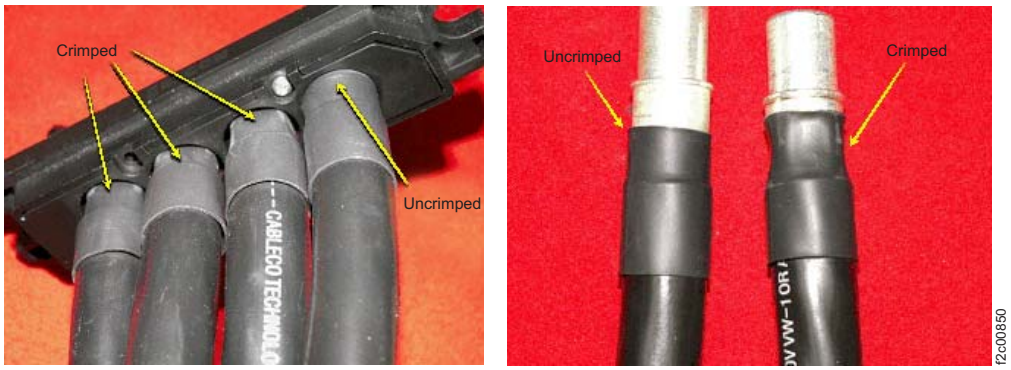


Figure 387. Cable P/N 22R6108 for expansion racks, connected to bottom connector on 5/12V DDM power module

MAP2530 Power repair stopped with SFI incomplete status

A repair of a rack power system serviceable event could not successfully start because the power repair process in the HMC received storage facility image (SFI) incomplete status from the power controlling SFI. The HMC power repair process uses the power controlling SFI to access the RPC cards to control and test the rack power system. In special repair cases, if the SFI is in standby mode (both CEC complexes are in service processor/FSP standby power mode), the HMC power repair process can bypass the SFI and directly access the RPC cards to control and test the rack power system.

MAP2530 Section-1

1. Choose the description that applies:
   - Attempting a power system repair on a storage facility that is fully installed, go to step 2.
   - Attempting a power system repair on a storage facility that is being installed, go to step 3.
2. The power-controlling storage facility image (SFI) is giving incomplete status to the HMC power repair process. The SFI must be brought back to normal operation. There should be one or more serviceable events for the CEC enclosures or I/O enclosures related to the SFI problem.

   Are there related serviceable events for the SFI?
   - Yes, exit this MAP and repair those serviceable events first. After the SFI is back to normal operation, repair the original rack power system serviceable event that sent you here.
   - No, call the next level of support.
3. Select the type of installation that is in progress:
   - Non-concurrent installation (the entire storage facility was in a powered off state and then powered on prior to the error occuring that sent you to this MAP), go to step 4.
   - Concurrent installation (the storage facility remained powered on during the installation), go to step 2.
4. The storage facility must be powered off so both CEC complexes are in service processor/FSP standby power mode. This will allow the HMC power repair process to bypass the SFI and directly access the RPC cards to control and test the rack power system.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).

b. Open **Service Applications → Service Focal Point**.
c. In the right content area, click **Service Utilities**. A window that contains a list of Machine Type/Machine Serials is displayed.
d. Select a Machine Type/Machine Serial from the list.
e. Click **Selected** (on the top tool bar) and then click **Manage Power Control**.
f. Ensure that the Power Control Mode is set to **Manual Power Mode**.
g. Change the Storage Facility Power State to **Power Off Storage Facility**. Click **OK**. A confirmation dialog box is displayed.
h. Click **Yes** to power off the storage facility.

5. Return to the serviceable event that sent you here and attempt the repair again.

   Was the repair successful?

   - Yes, go to step 6.
   - No, call the next level of support.

6. The non-concurrent installation needs to be completed. Call the next level of support who needs to check the installed state of the storage facility to determine how to continue the installation.

MAP2600 Pseudo FRU exchange needed to reset existing FRU

The FRU(s) that are listed in the serviceable event FRU list after this isolation MAP have a condition that does not require replacement of the FRU. However, the FRU must be logically reset. Use this MAP to perform a pseudo repair of the FRU.

1. Understand this special case repair action:
   - The serviceable event FRU list contained MAP2600 followed by one or more rack power system FRUs (for example, the RPC card, primary power supply, fan sense card, or battery module set).
   - One or more of the listed FRUs do not need to be replaced, but they must be logically reset.
   - A FRU will be logically reset when you perform a pseudo FRU exchange.
2. Do a pseudo exchange of the FRU(s):
   a. Return to the HMC repair screen that sent you here.
   b. One or more HMC repair screens might ask the results of the service procedure in the MAP. Select the options that indicate that the problem has not yet been fixed.
   c. You are then asked if you exchanged any parts, click **No**.
   d. You are then asked if you isolated the problem, click **Yes**.
   e. Select the next FRU in the list. The HMC should then begin the FRU exchange process for the selected FRU.
   f. Once the FRU has been prepared for replacement, the HMC will automatically launch the Service Information Center page for the parts exchange information. You will do a pseudo exchange of the FRU by doing the following:
      - Do not physically replace the FRU.
      - Do not touch the FRU or any attached cables.
      - Close the Service Information Center procedure and then return to the HMC repair screen to continue the repair.
   g. The FRU verification process will logically reset the FRU. Exit this MAP and complete the repair action at the HMC.

MAP2610 SRC BE19390x for rack battery module error

The FRU(s) that are listed in the serviceable event FRU list after this isolation MAP have a condition that does not require replacement of the FRU. However, the FRU must be logically reset. Use this MAP to perform a pseudo repair of the FRU.

MAP2610 Section-1

1. Understand this special case repair action:
   - The serviceable event FRU list that contained MAP2610 is followed by one or more rack battery module FRUs.
   - The listed FRUs do not need to be replaced, but they must be logically reset.
   - A FRU will be logically reset when you perform a pseudo FRU replace. During a pseudo FRU replace, use the standard FRU replace procedure, but do not touch the FRU. That is, do not disconnect the cables or physically remove the FRU.
2. Return to the HMC repair screen that sent you here and then select the next FRU to be repaired. Do a pseudo FRU repair. When the service Information Center (IC) parts replacement procedure is launched, do not touch the FRU or any attached cables. Scroll to the bottom of the IC procedure and then return to the repair screen that launched the IC screen. Complete the repair normally.
3. After all serviceable events with SRC BE19390*x* have been successfully repaired, run CDA preVerify again to verify that all rack battery backup (BBU) problems are now resolved.
   - If running CDA preVerify causes more BE19390*x* serviceable events to be opened, call the next level of support.

MAP3xxx range

Use this section for storage enclosure isolation procedures

MAP3010 DDM reset due to invalid protocol

One or more DDMs have been reset due to an invalid protocol.

MAP3010 Section-1

Display serviceable events that need repair. Does more than one DDM on this loop have SRC=BE316004?

- Yes, return to the repair screen and replace the Fibre Channel Device adapter.
- No, return to the repair screen and replace the DDM.

MAP3020 DDM reset by the Fibre Channel device adapter

A DDM has been reset by a Fibre Channel device adapter.

MAP3020 Section-1

Call the next level of support.

MAP3030 DDM I/O queue too long

The DDM queueing length is too long.

MAP3030 Section-1

Call the next level of support.

MAP3040 DDM seen by only one loop of a dual loop

MAP3040 Section-1

Call the next level of support.

MAP3050 Array in offline state

An array is in the offline state because there are insufficient DDMs in the array to maintain data availability. This may have been caused by incorrect cabling or multiple DDM failures.

MAP3050 Section-1

Display and repair any serviceable events related to DDM or loop failures. If there are no related serviceable events, call the next level of support.

MAP3060 Array member missing and opening adapter is not available

A RAID 5 array has at least one DDM missing and it is not currently connected to the Fibre Channel device adapter that opened it.

This may have been caused by a Fibre Channel device adapter and a DDM failing, or it may have been caused by a change to the system configuration while a RAID array was still open.

MAP3060 Section-1

Call the next level of support.

Notes: The next level of support may need to do the following:

1. If the missing DDM is still operational, reconnect it to the FC loop.
2. If the original Fibre Channel device adapter is operational, reconnect the offline array to that adapter.
3. If both the Fibre Channel device adapter and the DDM have failed, replace the adapter and the DDM.
4. Delete the array and then recreate the array.

MAP3070 Array data problem

A problem with the data exists in the array.

The problem may have been caused by one of the following:

- An unreadable data sector existed on a disk drive when an array was created.
- An unreadable data sector was detected during an array rebuild operation.
- The Fibre Channel device adapter was reset during an attempt to recover a failed disk drive.

MAP3070 Section-1

Call the next level of support.

MAP3080 Invalid loop configuration detected by Fibre Channel device adapter

The Fibre Channel device adapter has detected an invalid loop configuration.

MAP3080 Section-1

1. Display and repair any serviceable events related to loop failures. Verify the FCIC loop cables are plugged correctly. If no problems are found, return to the repair action that sent you here and replace the Fibre Channel device adapter card.
2. If the problem still occurs, call the next level of support. If there are no related serviceable events, call the next level of support.

MAP30A0 RAID-10 array offline

A RAID-10 array if offline because the primary or secondary half of the array is not present.

MAP30A0 Section-1

Display and repair any serviceable events related to power or loop failures. If there are no related serviceable events, call the next level of support.

MAP30B0 A RAID-10 array is offline

A RAID-10 array is in the offline state because only one half of the array is present and that half contains an out-of-date copy of the data.

MAP30B0 Section-1

Display and repair any serviceable events related to power or loop failures. If there are no related serviceable events, call the next level of support.

MAP30C0 Array not available, multiple devices failing

An array is not available, multiple devices fail during array create.

MAP30C0 Section-1

Display an repair any serviceable events related to power or loop failures. If there are no related serviceable events, call the next level of support. The array needs to be created.

MAP30D0 Array not available, DDM failure during array rebuild

A DDM has failed during an array parity build. Because the failure occurred before the initial build completed, a hot spare DDM will not have replaced the failed DDM.

MAP30D0 Section-1

Display and repair any serviceable events related to power or loop failures. If there are no related serviceable events, call the next level of support. The array needs to be created.

MAP30E0 Array in exposed state

One DDM is not available to an array.

The DDM may not be available for one of the following reasons:

- The DDM has failed.
- The fibre channel device loop is broken.
- A power failure has affected the storage enclosure

MAP30E0 Section-1

Display and repair any serviceable events related to power or loop failures. If there are no related serviceable events, call the next level of support. The array needs to be recreated.

MAP30F0 Unused loop

The fibre channel device adapter has stopped using a FC loop because of excessive errors.

MAP30F0 Section-1

Display and repair any serviceable events related to loop failures. If there are no related serviceable events, call the next level of support.

MAP3100 Fibre Channel device adapter microcode not responding

The Fibre Channel device adapter microcode is not responding.

MAP3100 Section-1

Display and repair any serviceable events related to power or loop failures. If there are no related serviceable events, replace the FRUs listed in the serviceable event that sent you here.

MAP3110 Duplicate node number

A duplicate node number has been detected.

MAP3110 Section-1

Call the next level of support.

Note: The next level of support may need to use the command line utility issvfynn to determine which node has the duplicate node number. Then, they may need to undefine and then redefine the duplicate node.

MAP3120 No data in error incident report

An undefined error has been detected.

MAP3120 Section-1

An undefined error has been detected. Call the next level of support.

MAP3130 Undefined Fibre Channel device adapter error

An undefined Fibre Channel device adapter error has been detected.

MAP3130 Section-1

An undefined error has been detected. Call the next level of support.

MAP3140 Undefined rank layout error

An undefined rank layout error has been detected.

MAP3140 Section-1

An undefined error has been detected. Call the next level of support.

MAP3150 Logical disk failure

A logical disk failure has been detected.

MAP3150 Section-1

An undefined error has been detected. Call the next level of support.

MAP3160 Unexpected storage enclosure error code detected

An unexpected storage enclosure error code has been detected. Next level of support will work with engineering to determine the recovery or repair that is needed.

MAP3160 Section-1

An undefined error code has been detected, call the next level of support.

MAP3170 SRC BE3040B4, Device adapter card unknown to array

All primary or all secondary disks of a RAID-10 array are present but the device adapter card is unknown to the array.

MAP3170 Section-1

There should not be any related open serviceable events for this error. Please call the next level of support.

MAP3180 SRC BE305010, Error log attempt to unavailable pdisk

An attempt was made to log an error against a pdisk that is not available to the using system.

MAP3180 Section-1

There should not be any related open serviceable events for this error. Please call the next level of support.

MAP3190 SRC BE305D00, Device adapter card dump available

A device adapter card error caused the dump information to be offloaded to a DDM it controls. The dump information is available for next level of support.

MAP3190 Section-1

There should not be any related open serviceable events for this error. Please call the next level of support.

MAP31A0 SRC BE30600E FC-AL Interface Error

The device adapter card has presented reason code 600E. There may be more than one serviceable event related to this condition.

MAP31A0 Section-1

Display open serviceable events, looking for any that are related to the FC-AL cable loops. This includes the following FRUs:

- Device adapter card (in I/O enclosure)
- FCIC card (in storage enclosure)
- FC-AL cables (blue cables connected to device adapter cards and/or FCIC cards)

Are there any open serviceable events that are related to the FC-AL cable loops?

- Yes, exit this MAP, and repair the related serviceable events. If the repair is successful, close the serviceable event that sent you here. If the repair is not successful, replace the DDM FRU listed in this serviceable event FRU list.

- No, use this serviceable event to replace the DDM in the FRU list.

MAP31B0 SRC BE34002B No available spares for DDM repair

A DDM that has failed cannot be repaired until other failed DDMs on this same loop are repaired first.

Use the information below to repair this serviceable event.

- Both DDM spare drives on this loop have already been used by two DDMs that have failed.
- A third DDM drive on the same loop has failed, but has no available spare drive to use.
- All the failing DDM drives for this loop are listed in the serviceable event FRU list.
- You must repair the DDM drives in the order that they are listed in the FRU list starting at the top.
- The last DDM drive in the FRU list can only be repaired after at least one DDM spare has been made available by repairing a prior DDM drive in the FRU list.

MAP31C0 SRC BE34002B Array rebuild in progress

The replacement of the DDM will need to wait until after the array it is active on has completed the array rebuild process.

Use the following information to repair this serviceable event.

- The DDM to be replaced is still active in an array.
- The array is currently being rebuilt due to a prior service action.
- The repair of this DDM will have to wait until the array build is complete.
- An array rebuild can take from 90 minutes to several hours depending on the capacity of the DDMs and the level of system activity.
- Retry the DDM replacement later.

MAP4xxx range

Use this section for CEC, I/O, and SCSI DASD enclosure isolation procedures

MAP4020 Hard disk drive build process for both boot drives in a storage facility image LPAR

This procedures loads AIX and 2107 functional code on both the hard disk drives of one storage facility image LPAR.

The code will first be loaded on one of the hard disk drives then it will be automatically mirrored to the other hard disk drive. This is a concurrent process. The other LPAR in the storage facility image (SFI) will remain available for customer use throughout the process.

Note: This procedure is not used if only one hard disk drive is being replaced. In that case the repair process will automatically mirror the data to the new drive.

For a list of media (CDs/DVDs) that you need for this procedure, see Table 182 on page 640.

Table 182. 2107 CDs/DVDs that you need

For LPAR with AIX 5.2.*x.xxx*	**For LPAR with AIX 5.3.*x.xxx***
Customization/Configuration DVD-RAM, blank disc	Customization/Configuration DVD-RAM, blank disc
2107 Operating System Volume 1 CD	Type: AIX_BASE Version 5.3.0.xx DVD: #1
2107 Operating System Volume 2 CD	
2107 Operating System Volume 3 CD	
2107 Operating System Volume 4 CD	
AIX PTF	AIX PTF
SEA	SEA

MAP4020 Section-1

1. Were you sent here from another MAP to do the hard disk drive build process?
   - Yes, go to the next step.
   - No, return to the procedure that sent you here. Replacing a single hard disk drive can be done concurrently with customer operation on the partition.
2. Observe the AIX operating system. Which AIX version are you installing?
   - Version: 52H (AIX 5.2), go to "MAP4020 Section-2 (AIX 5.2)."
   - Version: AIX 5.3.*x.xxx*, go to "MAP4020 Section-3 (AIX 5.3)" on page 646.

MAP4020 Section-2 (AIX 5.2)

1. Ensure that you can identify the failing SFI Partition name and the Storage Facility System on which it runs. For example, SFI Partition = SF1303240ESS11, SF System = 9117-570*13AADF0.

   Note: If you are unsure how to find this information, contact your next level of support.
2. Ensure you have the CD/DVD discs to load the correct level of code. Refer to Table 183 on page 644.
3. Select the SFI LPAR on which you want to perform the hard disk drive build process.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
   b. Click **Service Applications** → **Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   d. Select the storage facility that contains the failing LPAR (partition).
   e. On the main menu (top tool bar), click **Selected** → **Get ESS LPARs**.
   f. Select the failing partition.
   g. On the main menu, click **Selected** → **Rebuild Hard Drive**.
4. You will now be guided by a series of on-screen message panels. After several actions, you will be asked to return to this MAP for further instructions. The following steps will be performed before you return to this MAP.
   a. You will be asked to insert a DVD-RAM disk into the DVD-RAM drive on the working SF System.

b. The LPAR configuration and customization data will then be copied to the DVD-RAM media.
c. You will be asked to remove the DVD-RAM disk and save it for later use.
d. You will then be asked to open a Terminal Window on the failing LPAR. To open a Terminal Window:
   - In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
   - Click **Server and Partition** → **Server Management**.
   - In the right content area, click the + to expand the failing server and partition.
   - Right-click the failing partition and click **Open Terminal Window**.
   - Return to the message box and click **OK** to continue.
e. You will be asked to insert the 2107 Operating System Volume 1 CD into the DVD-RAM drive on the failing system.
f. A message box will ask you to return to this MAP. It will also ask you to confirm that the hard disk drive build completed successfully. **Do not click on OK until directed to do so by on-screen messages through the Terminal window**.
g. Go to the next step

5. Wait for the SMS menu to appear on the Virtual Terminal as shown below. At this point, it is required to set the boot device to the DVD/CD-ROM. Select option 5 and press **Enter**.

```
PowerPC Firmware
Version SF220_001
SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
Main Menu
 1.  Select Language
 2.  Setup Remote IPL (Initial Program Load)
 3.  Change SCSI Settings
 4.  Select Console
 5.  Select Boot Options



-------------------------------------------------------------------------------
Navigation Keys:

                                          X = eXit System Management Services
-------------------------------------------------------------------------------
```

6. The following menu will now be displayed. Type 1 (Select Install or Boot a Device) and press **Enter**.

```
Version SF220_001
SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
 1.  Select Install or Boot a Device
 2.  Select Boot Devices
 3.  Multiboot Startup <OFF>


-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
```

7. The following menu will now be displayed. Type 4 (IDE) and press **Enter**.

```
Version SF220_001
SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
Select Device Type
 1.  Diskette
 2.  Tape
 3.  CD/DVD
 4.  IDE
 5.  Hard Drive
 6.  Network
 7.  List all Devices



-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
```

8. The following menu will now be displayed. The DVD/CD-ROM device should be shown. Type 1 and press **Enter**.

```
Version SF220_001
SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
Select Device
Device  Current  Device
Number  Position  Name
 1.        1      IDE CD-ROM
                  ( loc=U7879.001.10002CA-P3-D2 )




-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
```

9. The following menu will now be displayed. Type 2 and press **Enter**.

```
Version SF220_001 SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
Select Task

IDE CD-ROM
    ( loc=U7879.001.10002CA-P3-D2 )

 1.  Information
 2.  Normal Mode Boot
 3.  Service Mode Boot



-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
```

10. A confirmation screen will appear asking you to verify that you want to exit the SMS. Type 1 and press **Enter**.

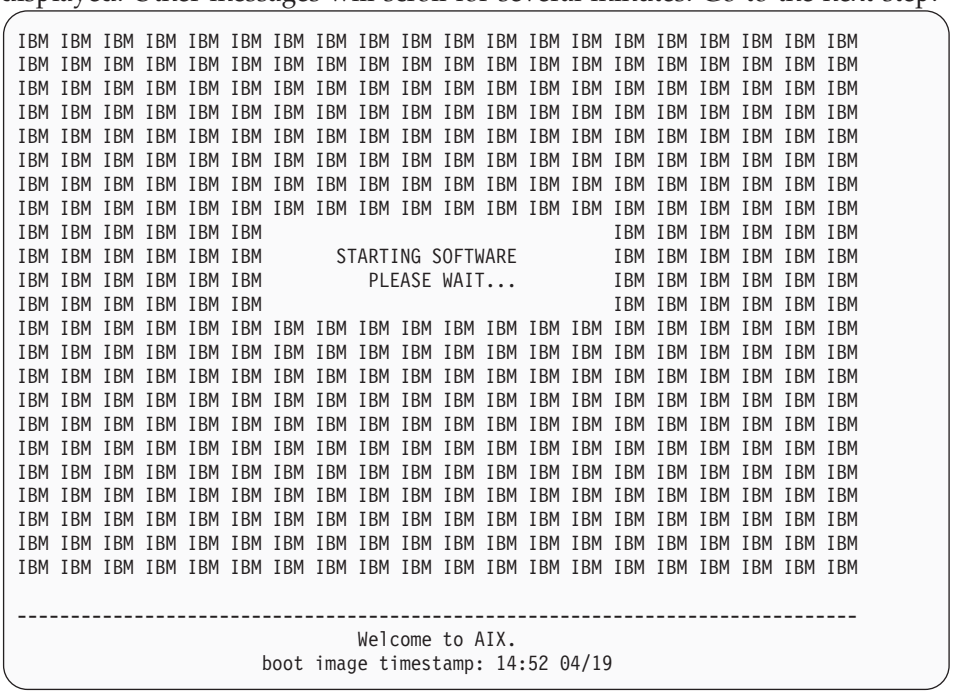
```
Version SF220_001
SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
Are you sure you want to exit System Management Services?
 1.  Yes
 2.  No



-------------------------------------------------------------------------------
Navigation Keys:

                                          X = eXit System Management Services
-------------------------------------------------------------------------------
```

11. The system will now boot from the CD. The "Welcome To AIX" screen is displayed. Other messages will scroll for several minutes. Go to the next step.


IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM

```
 HARDWARE SYSTEM MICROCODE
Licensed Internal Code - Property of IBM
(C) Copyright IBM Corp. 1990, 1994.
All rights reserved.

US Government Users Restricted Rights -
Use, duplication or disclosure restricted
by GSA ADP Schedule Contract with IBM Corp.



>>>  1 Type 1 and press Enter to have English during install.
     2 Entreu 2 i premeu Intro per veure la installacion en catalan.
     3 Entrez 3 pour effectuer l'installation en français.
     4 Fur Installation in deutscher Sprache 4 eingeben
       und die Eingabetaste druecken.
     5 Immettere 5 e premere Invio per l'installazione in Italiano.
     6 Digite 6 e pressione Enter para usar Portugues na instalacio.
     7 Escriba 7 y pulse Intro para la instalacion en español.


    88  Help ?


>>> Choice [1]: 1
```

14. The following menu will now be displayed. Type 311 (hidden option) and press **Enter**.

    Note: This is a hidden option that causes the customization DVD to be used to automate the installation process.

```
Welcome to Base Operating System
            Installation and Maintenance

Type the number of your choice and press Choice is indicated by >>>.

>>> 1 Start Install Now with Default Settings

        2 Change/Show Installation Settings and Install

        3 Start Maintenance Mode for System Recovery


      88 Help ?
      99 Previous Menu
>>> Choice (1): 311
```

15. In the following steps you will be requested by on-screen messages to insert and remove CDs/DVDs. For an overview of the prompts and CDs/DVDs, see Table 183.

Table 183. 2107 CDs/DVDs for AIX 5.2.x.xxx

on-screen message	**2107 CD/DVD to use**
Product media or system backup CD/DVD	
Customized/Configuration Data DVD	Customization/Configuration DVD-RAM media (created earlier)
2107 Operating System, Volume 1 CD	Type: AIX_BASE Version 5.2.0.xx DVD: #1
2107 Operating System, Volume 2 CD	2107 Operating System, Volume 2 CD
2107 Operating System, Volume 3 CD	2107 Operating System, Volume 3 CD
2107 Operating System, Volume 4 CD	2107 Operating System, Volume 4 CD

Table 183. 2107 CDs/DVDs for AIX 5.2.x.xxx (continued)

on-screen message	2107 CD/DVD to use
2107 Operating System Update CD	AIX PTF
2107 Licensed Machine Code (LMC) CD	SEA

16. The following message will now be displayed. Type 1 and press **Enter**.

```
Type 1 and press Enter for data files on CD/DVD,
or type 2 and press Enter to continue the installation.
>>> 1
```

17. The following message will now be displayed.

```
Please remove the product or system backup CD/DVD, insert
the customized data CD/DVD, and press Enter.
```

    Perform the following steps:

    a. Remove the 2107 Operating System Volume 1 CD.
    b. Insert the Customized/Configuration Data DVD-RAM media (created earlier).
    c. Wait for the Green LED to stop flashing.
    d. Press **Enter**.

18. After approximately 2 minutes, the following message will appear:

```
cp: /cust_cddata/config is a directory (not copied).
Please insert the product media or system backup CD/DVD,
and press the Enter key.
```

    a. Remove the Customization/Configuration Data DVD media.
    b. Insert the 2107 Operating System Volume 1 CD.
    c. Wait for the Green LED to stop flashing.
    d. Press **Enter**.

19. You will see a message from the AIX install process that refers to missing files. This is normal. Continue at the next step.
20. Follow the on-screen message to reboot the partition by typing 1 and pressing **Enter**.
21. Follow the on-screen messages to insert the 2107 Operating System, Volume 2.
22. Follow the on-screen messages to insert the 2107 Operating System, Volume 3.
23. Follow the on-screen messages to insert the 2107 Operating System, Volume 4.
24. Follow the on-screen messages to insert the AIX PTF CD.
25. Follow the on-screen messages to insert the 2107 Licensed Machine Code (LMC) CD.
26. The boot drive will be mirrored automatically (this will take approximately 15 minutes).
27. Successful completion will be indicated by this message in the Terminal Window. Follow the instructions to start the reboot, close the Terminal Window and indicate success by clicking **OK** in the message box.

```
*****************************************************
*   The Hard Drive Rebuild has now completed.       *
*                                                   *
*  Read and Note the following instructions BEFORE  *
*  the partition is rebooted.                       *
*                                                   *
*  a).As soon as the selection is entered, the      *
*     partition is rebooted on its own.             *
*                                                   *
*  b).Please select YES option of the Hard Drive    *
*     Rebuild dialog box on the HMC to indicate     *
*     that rebuilding the failing LPAR has          *
*     completed successfully.                       *
*                                                   *
*  c).Close the virtual terminal to indicate that   *
*     the rebuild process has completed.            *
*                                                   *
*  d).Follow the 4020 MAP for further guidance.     *
*                                                   *
*  e).To continue, type your selection from the     *
*      list below and press Enter.                  *
*                                                   *
*                                                   *
*  1 = Continue                                     *
*                                                   *
*****************************************************
```

28. The LPAR will now reboot. The reboot will be monitored and when the IML completes a message box will ask you to check if any new problems were logged. Use **Service Applications → Service Focal Point → Manage Serviceable Events**.
29. Were any new problems opened? **READ THIS CAREFULLY**.
    - Yes, perform the following:
      - Click on **No** to indicate that you do not want to continue with the Hard Drive Rebuild Process.
      - Confirm your selection.
      - Repair the problems.
      - If necessary, resume the LPAR using **Service Utilities → Get ESS LPARs → Resume an LPAR**.
    - No, click on **Yes** to indicate that you want to continue with the Hard Drive Rebuild Process. Go to the next step.
30. A message box will appear that asks you to confirm that the LPAR should be Resumed. Click on **OK**. Successful resume of the LPAR will be indicated by a message box. Was the resume of the LPAR successful?
    - Yes, this completes the procedure.
    - No, repair the new problem. Use **Service Applications → Service Focal Point → Repair Serviceable Event**.

MAP4020 Section-3 (AIX 5.3)

1. Ensure that you can identify the failing SFI Partition name and the Storage Facility System on which it runs. For example, SFI Partition = SF1303240ESS11, SF System = 9117-570*13AADF0.

   Note: If you are unsure how to find this information, contact your next level of support.
2. Ensure you have the needed CD/DVD discs to load the correct level of code. Refer to Table 184 on page 651.

3. Select the SFI LPAR on which you wish to perform the hard disk drive build process.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
   b. Click **Service Applications** → **Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   d. Select the storage facility that contains the failing LPAR (partition).
   e. On the main menu (top tool bar), click **Selected** → **Get ESS LPARs**.
   f. Select the failing partition.
   g. On the main menu, click **Selected** → **Rebuild Hard Drive**.
4. You will now be guided by a series of on-screen message panels. After several actions you will be asked to return to this MAP for further instructions. The on-screen instructions will have you do the following steps before you return to this MAP.
   a. You will be asked to insert a DVD-RAM disk into the DVD-RAM drive on the working SF System.
   b. The LPAR configuration and customization data will then be copied to the DVD-RAM media. This will become the Customized/Configuration Data DVD used later in this procedure.
   c. You will be asked to remove the DVD-RAM disk and save it for later use.
   d. You will then be asked to open a Terminal Window on the failing LPAR. To open a Terminal Window:
      - In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
      - Click **Server and Partition** → **Server Management**.
      - In the right content area, click the + to expand the failing server and partition.
      - Right-click the failing partition and choose **Open Terminal Window**.
      - Return to the message box and click **OK** to continue.
   e. You will be asked to insert the 2107 Operating System Volume 1 CD into the DVD-RAM drive on the failing system. Instead, insert the AIX_BASE Version 5.3.0.xx DVD #1.
   f. A message box will ask you to return to this MAP. It will also ask you to confirm that the hard disk drive build completed successfully. **Do not click on OK until directed to do so by on-screen messages through the Terminal window**.
   g. Go to the next step
5. Wait for the SMS menu to appear on the Virtual Terminal as shown below. At this point it is required to set the boot device to the DVD/CD-ROM. Select option 5 and press **Enter**.

```
PowerPC Firmware
Version SF220_001
SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
Main Menu
 1.  Select Language
 2.  Setup Remote IPL (Initial Program Load)
 3.  Change SCSI Settings
 4.  Select Console
 5.  Select Boot Options



-------------------------------------------------------------------------------
Navigation Keys:

                                          X = eXit System Management Services
-------------------------------------------------------------------------------
```

6. The following menu will now be displayed. Type 1 (Select Install or Boot a Device) and press **Enter**.

```
Version SF220_001
SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
 1.  Select Install or Boot a Device
 2.  Select Boot Devices
 3.  Multiboot Startup <OFF>


-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
```

7. The following menu will now be displayed. Type 4 (IDE) and press **Enter**.

```
Version SF220_001
SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
Select Device Type
 1.  Diskette
 2.  Tape
 3.  CD/DVD
 4.  IDE
 5.  Hard Drive
 6.  Network
 7.  List all Devices



-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
```

8. The following menu will now be displayed. The DVD/CD-ROM device should be shown. Type 1 and press **Enter**.

```
Version SF220_001
SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
Select Device
Device  Current  Device
Number  Position  Name
 1.        1      IDE CD-ROM
                  ( loc=U7879.001.10002CA-P3-D2 )




-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
```

9. The following menu will now be displayed. Type 2 and press **Enter**.

```
Version SF220_001 SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
Select Task

IDE CD-ROM
    ( loc=U7879.001.10002CA-P3-D2 )

 1.  Information
 2.  Normal Mode Boot
 3.  Service Mode Boot



-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
```

10. A confirmation screen will appear asking you to verify that you want to exit the SMS. Type 1 and press **Enter**.

```
Version SF220_001
SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
Are you sure you want to exit System Management Services?
 1.  Yes
 2.  No



-------------------------------------------------------------------------------
Navigation Keys:

                                          X = eXit System Management Services
-------------------------------------------------------------------------------
```

11. The system will now boot from the CD. The “Welcome To AIX” screen is displayed. Other messages will scroll for several minutes. Go to the next step.

```
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
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IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM                                 IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM       STARTING SOFTWARE         IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM          PLEASE WAIT...         IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM                                 IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
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IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM

--------------------------------------------------------------------------------
                                Welcome to AIX.
                        boot image timestamp: 14:52 04/19
```

12. The following menu will now be displayed. Type 1 and press **Enter**.

    Note: The '1' is not displayed when typed.

```
******* Please define the System Console. *******
Type a 1 and press Enter to use this terminal as the
 system console.
Pour definir ce terminal comme console systeme, appuyez
 sur 1 puis sur Entree.
Taste 1 und anschliessend die Eingabetaste druecken, um
 diese Datenstation als Systemkonsole zu verwenden.
Premere il tasto 1 ed Invio per usare questo terminal
 come console.
Escriba 1 y pulse Intro para utilizar esta terminal como
 consola del sistema.
Escriviu 1 1 i premeu Intro per utilitzar aquest
 terminal com a consola del sistema.
Digite um 1 e pressione Enter para utilizar este
 terminal como console do sistema.
```

13. The following menu will now be displayed. Type 1 and press **Enter**.

```
 HARDWARE SYSTEM MICROCODE
Licensed Internal Code - Property of IBM
(C) Copyright IBM Corp. 1990, 1994.
All rights reserved.

US Government Users Restricted Rights -
Use, duplication or disclosure restricted
by GSA ADP Schedule Contract with IBM Corp.



>>>  1 Type 1 and press Enter to have English during install.
     2 Entreu 2 i premeu Intro per veure la installacion en catalan.
     3 Entrez 3 pour effectuer l'installation en français.
     4 Fur Installation in deutscher Sprache 4 eingeben
       und die Eingabetaste druecken.
     5 Immettere 5 e premere Invio per l'installazione in Italiano.
     6 Digite 6 e pressione Enter para usar Portugues na instalacio.
     7 Escriba 7 y pulse Intro para la instalacion en español.


    88  Help ?


>>> Choice [1]: 1
```

14. The following menu will now be displayed. Type 311 (hidden option) and press **Enter**.

    Note: This is a hidden option that causes the customization DVD to be used to automate the installation process.

```
Welcome to Base Operating System
            Installation and Maintenance

Type the number of your choice and press Choice is indicated by >>>.

>>> 1 Start Install Now with Default Settings

        2 Change/Show Installation Settings and Install

        3 Start Maintenance Mode for System Recovery


      88 Help ?
      99 Previous Menu
>>> Choice (1): 311
```

15. In the following steps you will be requested by on-screen messages to insert and remove CDs/DVDs. For an overview of the prompts and CDs/DVDs, see Table 184.

Table 184. 2107 CDs/DVDs for AIX 5.3.xxx

On-screen message	2107 CD/DVD to use
Product media or system backup CD/DVD	Type: AIX_BASE Version 5.3.0.xx DVD: #1 **Note:** The screen will prompt you to insert the Product media or system backup CD/DVD. Instead, insert the AIX_BASE Version 5.3.0.xx DVD #1.
Customized/Configuration Data DVD	Customization/Configuration DVD-RAM media (created in step 4 on page 647 above)

Table 184. 2107 CDs/DVDs for AIX 5.3.xxx (continued)

On-screen message	2107 CD/DVD to use
2107 Operating System DVD	Type: AIX_BASE Version 5.3.0.xx DVD: #1 **Note:** The screen will prompt you to insert the 2107 Operating System Volume 1 CD. Instead, insert the AIX_BASE Version 5.3.0.xx DVD #1.
2107 Operating System Update CD	AIX PTF **Note:** The screen will prompt you to insert the 2107 Operating System Update CD. Instead insert the AIX PTF CD.
2107 Licensed Machine Code (LMC) CD	SEA

16. The following message will now be displayed. Type 1 and press **Enter**.

```
Type 1 and press Enter for data files on CD/DVD,
or type 2 and press Enter to continue the installation.
>>> 1
```

17. The following message will now be displayed.

```
Please remove the product or system backup CD/DVD, insert
the customized data CD/DVD, and press Enter.
```

    Perform the following steps:

    a. Remove the Type: 2107 AIX_BASE Version 5.3.0.xx DVD: #1
    b. Insert the Customized/Configuration Data DVD-RAM media (created in step 4 on page 647 above).
    c. Wait for the Green LED to stop flashing.
    d. Press **Enter**.

18. After approximately 2 minutes, the following message will appear:

```
cp: /cust_cddata/config is a directory (not copied).
Please insert the product media or system backup CD/DVD,
and press the Enter key.
```

    a. Remove the Customization/Configuration Data DVD media.
    b. The on-screen message will prompt you to insert the 2107 Operating System CD, which is the AIX version 5.2 label text. Instead, insert the AIX_BASE Version 5.3.0.xx DVD: #1, which is the label text for the AIX 5.3 media set.
    c. Wait for the Green LED to stop flashing.
    d. Press **Enter**.

19. You will see a message from the AIX install process that refers to missing files. This is normal. Continue at the next step.
20. Follow the on-screen message to reboot the partition by typing 1 and pressing **Enter**.
21. The on-screen messages will prompt you to insert the Operating System Update CD, which is the label text for the AIX version 5.2 media set. Instead, insert the AIX PTF CD, which is the label text for the AIX 5.3 media set.
22. Follow the on-screen messages to insert the 2107 Licensed Machine Code (LMC) CD.

23. Follow the on-screen messages to insert the Configuration/Customization DVD RAM media.
24. The boot drive will be mirrored automatically (this will take approximately 15 minutes).
25. Do the following:
    a. Successful completion will be indicated by this message in the Terminal Window.
    b. Follow the displayed instructions to start the reboot.
    c. Close the Terminal Window.
    d. At the HMC Hard Drive Rebuild screen, indicate successful completion of the Rebuild Process for the partition by clicking **Yes** in the message box.

```
**************************************************
     *   The Hard Drive Rebuild has now completed.       *
     *                                                   *
     *  Read and Note the following instructions BEFORE  *
     *  the partition is rebooted.                       *
     *                                                   *
     *  a).As soon as the selection is entered, the      *
     *     partition is rebooted on its own.             *
     *                                                   *
     *  b).Please select YES option of the Hard Drive    *
     *     Rebuild dialog box on the HMC to indicate     *
     *     that rebuilding the failing LPAR has          *
     *     completed successfully.                       *
     *                                                   *
     *  c).Close the virtual terminal to indicate that   *
     *     the rebuild process has completed.            *
     *                                                   *
     *  d).Follow the 4020 MAP for further guidance.     *
     *                                                   *
     *  e).To continue, type your selection from the     *
     *      list below and press Enter.                  *
     *                                                   *
     *                                                   *
     *  1 = Continue                                     *
     *                                                   *
     **************************************************
```

26. The LPAR will now reboot. The reboot will be monitored and when the IML completes a message box will ask you to check if any new problems were logged. Use **Service Applications** → **Service Focal Point** → **Manage Serviceable Events**.
27. Were any new problems opened? **READ THIS CAREFULLY**.
    - Yes, perform the following:
      - Click on **No** to indicate that you do not want to continue with the Hard Drive Rebuild Process.
      - Confirm your selection.
      - Repair the problems.
      - If necessary, resume the LPAR using **Service Utilities** → **Get ESS LPARs** → **Resume an LPAR**.
    - No, click on **Yes** to indicate that you want to continue with the Hard Drive Rebuild Process. Go to the next step.
28. A message box will appear that asks you to confirm that the LPAR should be Resumed. Click on **OK**. Successful resume of the LPAR will be indicated by a message box. Was the resume of the LPAR successful?
    - Yes, this completes the procedure.

- No, repair the new problem. Use **Service Applications → Service Focal Point → Repair Serviceable Event**.

MAP4040 Isolating LPAR operating system boot problems

A checkpoint may be displayed on the operator panel for a period of time while the boot image is retrieved from the device. If the checkpoint is displayed for an extended period of time and the hard drive LED is not indicating any activity, there might be a problem loading the boot image from the device.

MAP4040 Section-1

Look at the service action event error log in the HMC Service Focal Point. Perform the actions necessary to resolve any open entries that affect devices in the boot path of the partition. Then, try to reboot the partition. Does the partition reboot successfully?

- Yes, **this ends the procedure.**
- No, go to "MAP4040 Section-2."

MAP4040 Section-2

This section shows you how to use the SMS menus to display the status of the partition boot devices (hard drives).

1. Logon to the Management Console (HMC) with the CE userid and password (default serv1cece).
2. Use the Service Utilities to quiesce and shut down the failing partition:
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
   b. Click **Service Applications → Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   d. Select the appropriate storage facility. On the main menu (top tool bar), choose **Selected → Get ESS LPARs**. A list of LPARs is displayed.
   e. Select the failing LPAR.
   f. On the main menu, choose **Selected → Change/Show SFI LPAR State**. The Server Control window is displayed.
   g. Click the **Quiesce LPAR** button. Click the **Yes** button to confirm.
   h. Wait a few minutes until the Quiesce started! window is displayed. Click the **OK** button.
   i. On the Server Control window, click the **Refresh** button to see the current status.
   j. When the quiesce is complete, click the **Shutdown LPAR** button. Click the **Yes** button to confirm.
   k. Wait a few minutes until the Shutdown started window is displayed. Click the **OK** button.
   l. On the Server Control window, click the **Refresh** button to see the current status.
   m. Wait until the Operational State is **Deactivated**.
   n. Leave the Server Control window open.
3. Use Server and Partition management to open a Terminal Window:
   a. Click **Server and Partition → Server Management**.

b. In the right content area, click the "+" sign to expand the failing partition (the state of the failing partition is **Not Activated**).

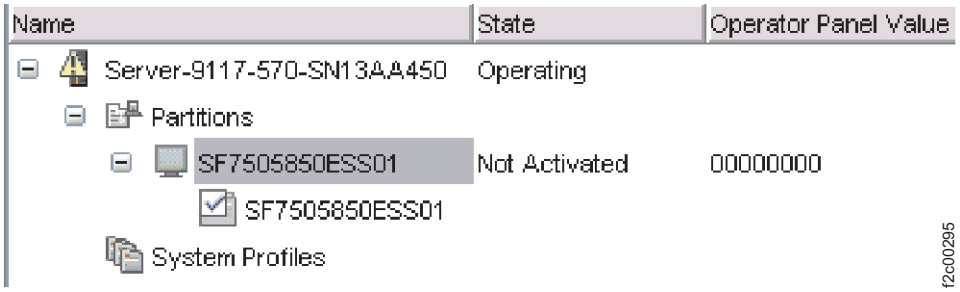


Figure 388. Remove I/O fan thumbscrew

c. Right-click the failing partition and choose **Open Terminal Window**.

d. Leave the Terminal Window open.

4. Activate the partition and interrupt access the SMS menus.

a. On the Server Control window, click the **Activate LPAR** button. Click the **Yes** button to confirm.

b. Quickly return to the Terminal Window. When the following screen is displayed, type 1 and press Enter.

```
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
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IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM

          1 = SMS Menu                          5 = Default Boot List
          8 = Open Firmware Prompt              6 = Stored Boot List


     memory      keyboard     network     scsi
```

c. The SMS menu is displayed. Type 1 to choose English. The SMS Main Menu is displayed.

5. Use the SMS menus to display the list of available boot devices:

a. On the SMS Main Menu, type 5 and press return to choose Boot Options.

b. On the next menu, type 1 and press return to choose Select Install/Boot Device

c. On the next menu, type 7 and press return to choose List all Devices.

6. Review the list of devices that are found. See the example screen shown below. Also see Figure 389 on page 656 and Table 185 on page 656, which show the hard drive location codes for the different DS8000 models.

```
PowerPC Firmware
Version SF222_075
SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
Select Device
Device  Current  Device
Number  Position  Name
 1.        -      Virtual Ethernet
                  ( loc=U9117.570.13AA450-V1-C2-T1 )
 2.        -      Ethernet
                  ( loc=U7879.001.DQD0A8Z-P1-T6 )
 3.        -      Ethernet
                  ( loc=U7879.001.DQD0A8Z-P1-T7 )
 4.        -      IDE CD-ROM
                  ( loc=U7879.001.DQD0A8Z-P4-D1 )
 5.       1      SCSI 73407 MB Harddisk
                  ( loc=U7879.001.DQD0A8Z-P1-T14-L3-L0 )
 6.       2      SCSI 73407 MB Harddisk
                ( loc=U7879.001.DQD0A8Z-P1-T12-L3-L0 )
-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
Type the number of the menu item and press Enter or select Navigation Key:
```

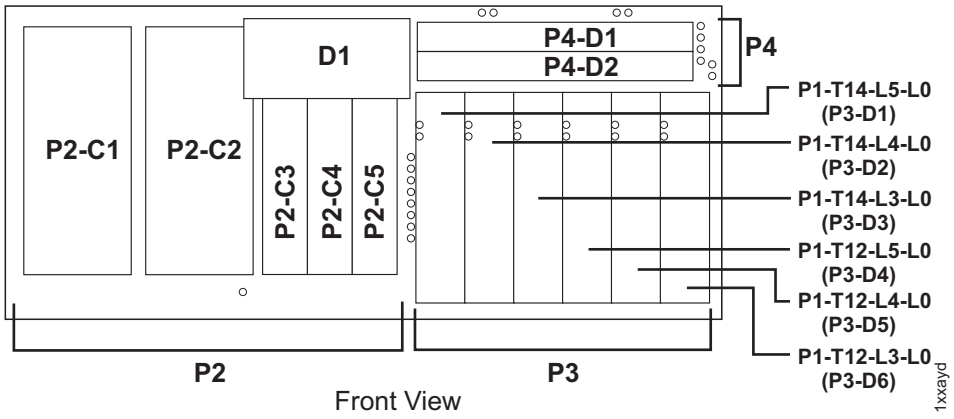


Figure 389. CEC enclosure locations (front overview)

Table 185. Hard drive locations

Model	Storage Facility Image (SFI)	Partition name	Location code	
			Primary boot drive[1]	Secondary boot drive[1]
921/922 931/932	first[2]	SFxxxxxxx01	U7879.001.xxxxxxx-P1-T14-L3-L0 Slot P3-D3	U7879.001.xxxxxxx-P1-T12-L3-L0 Slot P3-D6
		SFxxxxxxx11	U7879.001.xxxxxxx-P1-T14-L3-L0 Slot P3-D3	U7879.001.xxxxxxx-P1-T12-L3-L0 Slot P3-D6

Table 185. Hard drive locations (continued)

Model	Storage Facility Image (SFI)	Partition name	Location code	
			Primary boot drive[1]	Secondary boot drive[1]
9A2/ 9B2[3]	first	SFxxxxxxx01	U7879.001.xxxxxxx-P1-T12-L3-L0 Slot P3-D6	U7879.001.xxxxxxx-P1-T12-L4-L0 Slot P3-D5
		SFxxxxxxx11	U7879.001.xxxxxxx-P1-T14-L3-L0 Slot P3-D3	U7879.001.xxxxxxx-P1-T14-L4-L0 Slot P3-D2
	second	SFxxxxxxx02	U7879.001.xxxxxxx-P1-T14-L3-L0 Slot P3-D3	U7879.001.xxxxxxx-P1-T14-L4-L0 Slot P3-D2
		SFxxxxxxx12	U7879.001.xxxxxxx-P1-T12-L3-L0 Slot P3-D6	U7879.001.xxxxxxx-P1-T12-L4-L0 Slot P3-D5

Notes:

1. Location codes ″T12″ and ″T14″ represent individual SCSI busses.
2. On Model 921/922 or 931/932, each partition has two boot drives, one on the ″T12″ SCSI bus and the other on the ″T14″ SCSI bus.
3. On Model 9A2/9B2, both boot drives for the partition are either on the ″T12″ SCSI bus only or the ″T14″ SCSI bus only.

7. Are two hard drives listed for the failing partition?
   - Yes, go to “MAP4040 Section-3”
   - No, go to “MAP4040 Section-4” on page 658.

MAP4040 Section-3:
This section isolates a boot problem where both hard drives are listed on the boot list.

1. Unplug the hard drive that is in position 1 on the boot list and retry the operation. See “Exchange the CEC disk drive” on page 1079 to unplug the hard drive in position 1 on the boot list. Do not install a new drive at this time.
   a. Type x and press enter to exit the SMS menus and begin loading the 2107/242x Operating system.
2. Did the boot problem occur again?
   - Yes, go to the next step.
   - No, it appears that the unplugged hard drive was faulty. A serviceable event should be created, that lists the remove hard drive as a FRU. Repair the serviceable event to replace the faulty hard drive.
3. Reinstall the removed hard drive. See “Exchange the CEC disk drive” on page 1079.
4. Remove the hard drive in position 2 on the boot list.
5. Shutdown and activate the partition to retest it.
   a. Return to the Server Control window. Click the **Shutdown** button. Click the **Yes** button to confirm.
   b. Wait a few minutes until the Shutdown started window is displayed. Click the **OK** button.
   c. On the Server Control window, click the **Refresh** button to view the current status.

d. Wait until the Operational State is **Deactivated**.
e. Click the **Activate LPAR** button. Click the **Yes** button to confirm.

6. Did the boot problem occur again?
   - Yes, go to the next step.
   - No, it appears that the unplugged hard drive was faulty. A serviceable event should be created that lists the removed hard drive as a FRU. Repair the serviceable event to replace the faulty hard drive.
7. There are two likely causes of this problem. Call your next level of support for guidance to either:
   - Reload both hard drives (see "MAP4020 Hard disk drive build process for both boot drives in a storage facility image LPAR" on page 639).
   - Replace the disk drive backplane assembly (**Service Applications → Service Focal Point → Exchange a FRU**).

MAP4040 Section-4:
This section isolates a boot problem where only one hard drive is listed on the boot list.

1. Use Table 185 on page 656 to identify the location for the hard drive that is not listed.
2. Unplug the hard drive that was identified in step 1 and retry the operation.
   a. See "Exchange the CEC disk drive" on page 1079 to unplug the hard drive identified in step 1. Do not install a new drive at this time
   b. Type x and press Enter to exit the SMS menus and begin loading the 2107/242x Operating system.
3. Did the boot problem occur again?
   - Yes, go to the next step.
   - No, it appears that the unplugged hard drive was faulty. A serviceable event should be created that lists the removed hard drive as a FRU. Repair the serviceable event to replace the faulty hard drive.
4. Reinstall the removed hard drive. See "Exchange the CEC disk drive" on page 1079.
5. Remove the hard drive that **was** listed on the boot list.
6. Shutdown and activate the partition to retest it.
   a. Return to the Server Control window. Click the **Shutdown** button. Click the **Yes** button to confirm.
   b. Wait a few minutes until the Shutdown started window is displayed. Click the **OK** button.
   c. On the Server Control window, click the **Refresh** button to view the current status.
   d. Wait until the Operational State is Deactivated.
   e. Click the **Activate LPAR** button. Click the **Yes** button to confirm.
7. Did the boot problem occur again?
   - Yes, go to the next step.
   - No, it appears that the unplugged hard drive was faulty. A serviceable event should be created that lists the removed hard drive as a FRU. Repair the serviceable event to replace the faulty hard drive.
8. Replace the disk drive backplane assembly (**Service Applications → Service Focal Point → Exchange a FRU**). Then use step 6 to retest. Did the boot problem occur again?

- Yes, call your next level of support.
- No, it appears that the disk drive backplane assembly was faulty.

MAP4050 Switching off the CEC enclosure system attention indicator (lit solid)

If the system attention indicator (LED) that is on the CEC enclosure is lit solid, use this procedure to manually switch it off. This is the same indicator that identifies the CEC enclosure for a FRU replace when it is flashing.

MAP4050 Section-1

1. Observe the system attention indicator (LED) **1** on the front of the CEC enclosure. See Figure 390. Find the condition that applies:
   - On (lit solid), go to the next step.
   - Flashing, this is normal during a CEC enclosure FRU replace.
   - Off, the condition does not exist at this time. Return to the procedure that sent you here.

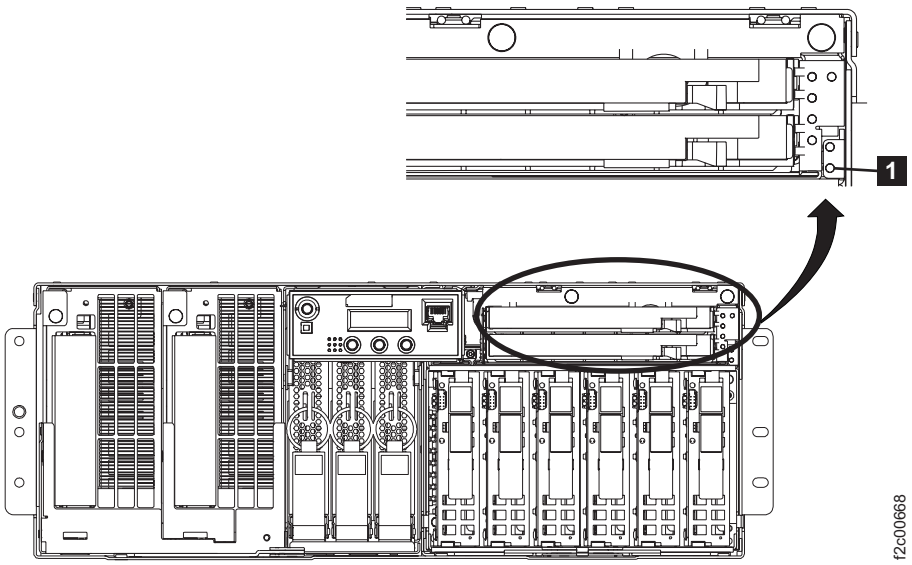


Figure 390. CEC enclosure system attention LED indicator

2. Turn off all of the attention LEDs (which will turn off the CEC enclosure system attention LED).
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Service Utilities**. A window displays a list of storage facilities.
   d. Select a storage facility.
   e. On the main menu (top tool bar), click **Selected** → **View/Reset Attention Indicators**. The Attention LEDs Status window is displayed. See Figure 391 on page 660. Notice that the status for both of the managed systems (CEC enclosures) is displayed.
   f. Click the **Turn Off All Attention LEDs** button.

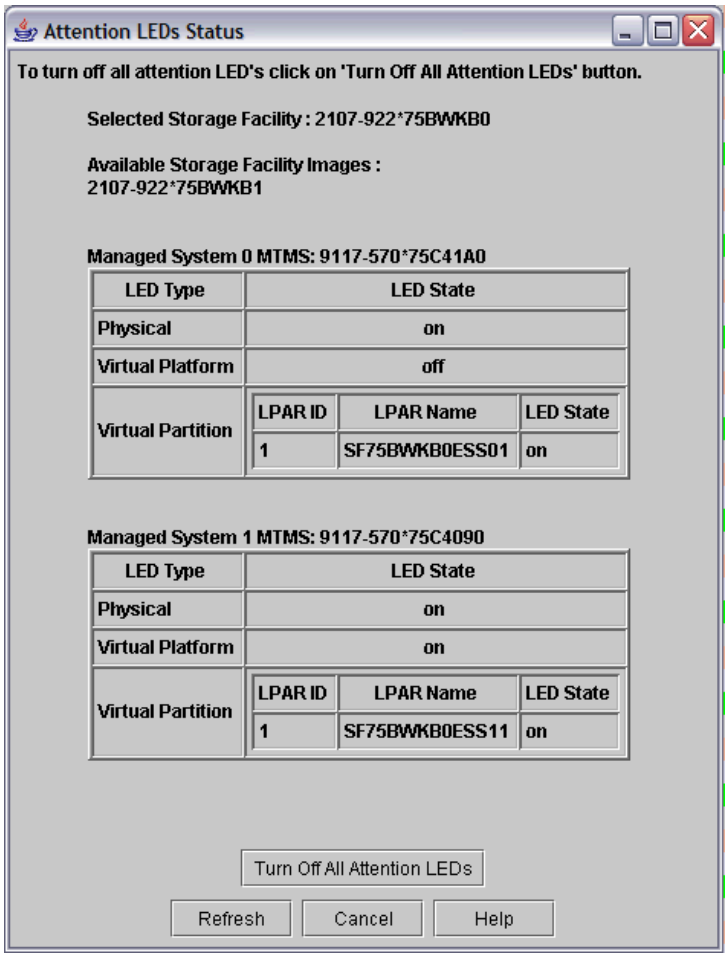


Figure 391. The Attention LEDs Status window

MAP4060 Restoring VPD after replacing the VPD card

If you replace the VPD card in the CEC enclosure, you must manually restore the vital product data (VPD) settings. Use this MAP to restore the settings.

MAP4060 Section-1

1. Ensure you are already logged into the HMC and the CEC enclosure is powered off. The black power input cable to both CEC enclosure power supplies remain connected so the service processor card has power.
2. Login to the service processor card ASM interface from the HMC as user `admin` and password `admin2107`.
   - For login help reference "MAP6F10 Accessing the ASMI using the management console" on page 852.
   - For help with the ASM menu structure reference "MAP1221 ASMI menu structure" on page 498.
3. You must manually restore/verify the VPD card settings using the following steps. This will ensure there are no undetected functional problems after the repair action is complete. Invalid or incorrect VPD settings can prevent the CEC enclosure from powering up or can cause functional problems. Not all invalid or incorrect VPD settings can be detected by the repair verify process.

4. From the ASMI navigation, select **System Configuration → Program Vital Product Data**. Then select the menu option listed in the first column of Table 186.
   - The second column gives an example of a setting, this will not be your specific setting.
   - The third column directs you where to get your setting.

Table 186. Program Vital Product Data menu option

Menu option	Example settings	Source of setting information
System Brand	D0	Set to "D0"

5. From the ASMI navigation, select **System Configuration → Program Vital Product Data → System Key Words**. Then select the menu option listed in the first column of Table 187.

Table 187. System Key Words menu options

Menu option	Example settings	Source of setting information
Storage facility system type-model	9117-570	The label on the front of the CEC enclosure, on the operator panel.
Storage facility system serial number	10002FA	The label on the front of the CEC enclosure, on the operator panel.
Storage facility machine type-model	2107-922	The label on the rack operator panel, below the UEPO red switch cover.
Storage facility serial number	1300310	The label on the rack operator panel, below the UEPO red switch cover.
System ID	01	Set to "00" for SF System 0 (This will be the upper CEC on a 921, 922, 9A2, or 931, 932, 9B2) Set to "01" for SF System 1 (This will be the lower CEC on 921, 922, 9A2, or 931, 932, 9B2)
Storage facility system unique ID	0004AC08196E	Set to the default value that indicates the VPD card has been replaced: 0004AC0AFFF8
Storage facility manufacturing ID	3302004	Set to current day number and year, for example: dddyyyy.
Node ID	5005076303FFF81C	The node ID is on the WWID label. The WWID label is inside the front of rack-1, to the left of the middle cooling fan of the upper primary power supply (PPS-1). (The label is in a vertical orientation.)
Reserved	Blank	Leave blank.

6. Click **Save Settings** and then click **Continue**.
7. From the ASMI navigation, select **System Configuration → Program Vital Product Data → System Enclosures**. Then select the menu option listed in the first column of Table 188 on page 662.

Table 188. System Configuration menu options

Menu option	Example settings	Source of setting information
Enclosure location	• Feature Code/Sequence Number = U7879-001 • Enclosure serial number = 00002FA	The label on the front of the CEC enclosure, at the far right in between the rack mounting screws. (In a vertical orientation.)
Feature Code/Sequence Number	7879-001	The label on the front of the CEC enclosure, at the far right in between the rack mounting screws. (In a vertical orientation.)
Enclosure serial number	10002FA **Note:** The label shows 9 characters total. Use the last 7 characters.	The label on the front of the CEC enclosure, at the far right in between the rack mounting screws. (In a vertical orientation.)
Reserved	Leave blank	

8. Click on **Save Settings**. The Service Processor might reboot at this point. Wait until the Service Processor returns to Standby state and log onto ASM again.
9. From the ASMI navigation, select **System Configuration**. Then select the menu option listed in the first column of Table 189.

Table 189. System Enclosures menu options

Menu option	Example settings	Source of setting information
System name	Server-9117-570-10002FA	The label on the front of the CEC enclosure, on the operator panel.
Processing Unit Identifier	B6 (alterable only in CEC enclosure power standby mode)	Set to “B6”. **Note:** Click on ’Save Settings’ even if the value is already set to ″B6″.

10. From the ASMI navigation, select **Performance Setup**. Then select the menu option listed in the first column of Table 190.

Table 190. Performance Setup Menu options

Menu option	Example settings	Source of setting information
Logical Memory Block Size	16	Must be set to ″16″ for the DS8000.

11. Click on **Save Settings**. The Service Processor might reboot at this point. Wait until the Service Processor returns to Standby state before continuing with the next step.
12. Return to the HMC repair process screen that sent you here and press the **Next** button to continue.

    Note: When the CEC enclosure is powering on, you might be presented with screens that prompt you for Capacity on Demand (CoD) codes. The DS8000 does not use CoD, so just click **Done** to bypass these prompts.

MAP4065 Restoring VPD after replacing the service processor card

If you replace the service processor card in the CEC enclosure, you must manually restore the vital product data (VPD) settings. Use this MAP to restore the settings.

MAP4065 Section-1

1. Login to the service processor card ASM interface from the HMC using the user ID `admin` and the password `admin2107`.
   - For login help, see "MAP6F10 Accessing the ASMI using the management console" on page 852.
   - For help with the ASM menu structure, see "MAP1221 ASMI menu structure" on page 498.
2. You must manually restore/verify the VPD card settings using the following steps. This will ensure there are no undetected functional problems after the repair action is complete. Invalid or incorrect VPD settings can prevent the CEC enclosure from powering up or can cause functional problems. Not all invalid or incorrect VPD settings can be detected by the repair verify process.
3. From the ASMI navigation, select **System Configuration**, then select the menu option listed in the first column of Table 1.

Table 191. System Configuration menu options

Menu option	Example settings	Source of setting information
Processing Unit Identifier	B6 (alter in CEC enclosure power standby only)	Set to ″B6″. **Notes:** 1. Click on **Save Settings** even if the value is already set to ″B6″. Normally a brand new FRU will have the default value of ″B2″ from the factory. 2. The service processor might reboot at this point. Wait until the service processor returns to the Standby state before you continue with the next menu option.
Time of Day	Date and Time (UMT)	Ensure that the date and time match.

4. From the ASMI navigation, select **Performance Setup**, then select the menu option listed in the first column of Table 192.

Table 192. Performance Setup menu options

Menu option	Example settings	Source of setting information
Logical Memory Block Size	16	Must be set to ″16″ for DS8000.

5. Click on **Save Settings**. The Service Processor might reboot at this point. Wait until the Service Processor returns to Standby state before continuing with the next step.
6. Return to the HMC repair process screen that sent you here and press the **Next** button to continue.

MAP4070 CEC memory problem

CEC memory has been detected as not being fully available.

MAP4070 Section-1

1. Are you in the middle of an MES that changes the amount of memory in the CEC enclosures?

- Yes, a memory mismatch error is normal during the MES. Exit this MAP and close the serviceable event that sent you here. Display and repair any other CEC enclosure errors and then continue the MES.
- No, go to step 2.

2. Determine the CEC enclosure that is reporting memory DIMMs as not being fully available.
   a. Use the CEC location information in the serviceable event to determine the MTMS (machine type model serial number) of the CEC enclosure with the problem. The MTMS is listed on the label that is on the front of the CEC enclosure operator panel.
3. Display open serviceable events for the CEC enclosure. Other than the serviceable event that sent you to this MAP, is there any other related open serviceable event that lists the memory DIMMs or system processor cards as FRUs?
   - Yes, exit this MAP and repair the related serviceable event. If the repair is successful, remember to close the serviceable event that sent you here.
   - No, go to the next step 4.
4. Does the serviceable event FRU list that sent you here include one or more memory DIMM locations to be replaced?
   - Yes, exit this MAP and return to the FRU list. Replace the listed memory DIMMs. If it still fails, return here and continue to step 5.
   - No, go to step 5.
5. Log in to the ASM menu for the failing CEC enclosure. Type `admin` in the **User ID** field and `admin2107` in the **Password** field. See "MAP6F10 Accessing the ASMI using the management console" on page 852.
6. Display the error and event logs to determine any related problems.
   a. Select **System Service Aids → Error/Event logs**.
   b. Display the log details and look for information that is related to memory DIMM errors or locations.
   c. Are there any logs that identify a failing memory DIMM or system processor card?
   - Yes, if you can determine the failing DIMMs, exit this MAP and use **Service Focal Point → Exchange a FRU** to replace the DIMMs.
   - No, go to step 7.
7. Display the memory deconfiguration status.
   a. Select **System Configuration → Hardware Deconfigiration → Memory Deconfiguration**. The total memory, configured memory, and deconfigured memory is displayed.
   b. Is there any deconfigured memory?
   - Yes, go to step 9 on page 665.
   - No, it is possible to have no deconfigured memory and not have missing memory capacity. For example, if one or more memory DIMMs were left unplugged and the CEC was powered on, there might not be configured memory, but the total memory and configured memory capacities would be less than normal. The CEC does not know how much memory capacity it should have and only displays what it finds during power on. Go to step 8.
8. Compare the total memory and configured memory capacities for the failing CEC enclosure to the working CEC enclosure.
   a. Are there any differences between the capacities of the CEC enclosures?
   - Yes, go to step 9 on page 665.

- No, exit this MAP and call the next level of support. The serviceable event that sent you here indicates if a memory problem was detected, yet all memory appears to be available.

9. Display the details.
   a. Click the radio button of the Processing Unit with the deconfigured memory.
   b. Click **Continue**. The status for each memory bank is displayed.
10. See Table 193 and Table 194 for examples of the two versions of the deconfigured memory details screen. Does your details display screen include the location code column?
    - Yes, you have LIC bundle 6.2xxx.x or higher, go to "MAP4070 Section-3" on page 666.
    - No, you have LIC bundle 6.1.xxx.x or less, go to "MAP4070 Section-2."

    a. Depending on the LIC bundle level that is installed on your DS8000, see Table 193 or Table 194.
    b. Go to step 11.

Table 193. LIC Bundle 6.1.xxx.x or less

Memory bank	Size	State	Error type	Change settings
0	2048 MB	Configured	0	Configured

Table 194. LIC Bundle 6.2.xxx.x or higher

Memory bank	Location code	Size	State	Error type	Change settings
0	U7879.001.000096A-P2-C1-C1	2048 MB	Configured	None (0)	Configured

11. Are any memory banks deconfigured?
    - Yes go to step 12.
    - No, exit this MAP and call the next level of support. The serviceable event that sent you here indicates that a memory problem was detected, yet all memory appears to be available.
12. Find the level of the LIC bundle for the DS8000.
    a. For 6.1.xxx.x or less (ASM details does not have a Location Code column), go to "MAP4070 Section-2."
    b. For 6.2.xxx.x or higher (ASM details has a Location Code column), go to "MAP4070 Section-3" on page 666.

MAP4070 Section-2

The ASM details on this level of firmware are not able to map the memory bank to a location code. Even if the PFE dials in, this is not possible. The memory banks that are displayed by the ASM only show the total quantity and the status of each memory bank. This firmware limitation is corrected in bundle 6.2.xxx.x or higher, which now includes the location code. The possible failing FRUs are the memory DIMM(s) or the system processor card. Use the management console to replace the FRUs. Click **Service Applications → Service Focal Point**. In the right content area, click **Exchange Parts**. A list of Machine Type/Machine Serials is displayed.

Note: It is not recommended to set the memory back to configured or to attempt a pseudo repair. For example, do not leave the original failing FRU installed. If you choose to do this to further isolate the failure, you must move the

memory DIMM in the slots that are deconfigured to a different slot. On power up, the firmware checks the serial number of the DIMM in each slot and does not configure it if the serial number has not changed. See Figure 392 and Figure 393 for the CEC enclosure memory DIMM locations.

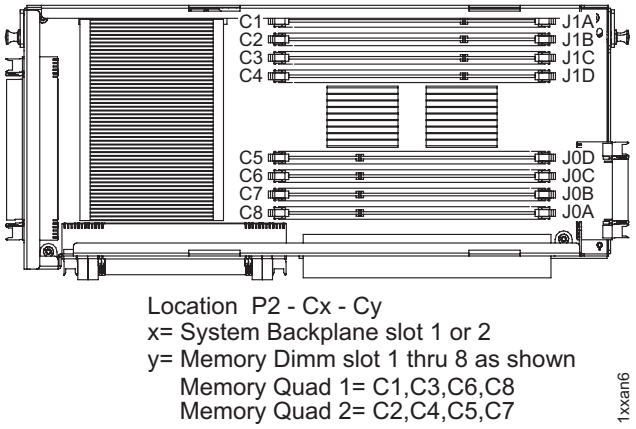


Figure 392. CEC memory DIMM card locations

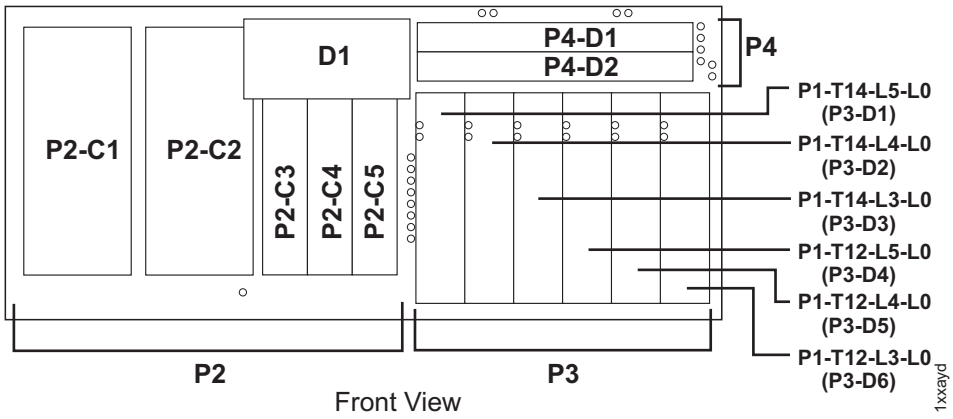


Figure 393. CEC enclosure locations (front overview)

MAP4070 Section-3

1. Replace the memory DIMM FRUs for the location code(s) that are listed for the deconfigured memory bank(s). See Figure 392 and Figure 393.
2. The possible failing FRUs are the memory DIMM(s) or the system processor card. Use the management console to replace the FRUs. Click **Service Applications → Service Focal Point**. In the right content area, click **Exchange Parts**. A list of Machine Type/Machine Serials is displayed.

   Note: It is not recommended to set the memory back to configured or to attempt a pseudo repair. For example, do not leave the original failing FRU installed. If you choose to do this to further isolate the failure, you must move the memory DIMM in the slots that are deconfigured to a different slot. On power up, the firmware checks the serial number of the DIMM in each slot and does not configure it if the serial number has not changed.

MAP4075 Restoring VPD after replacing the CEC enclosure I/O backplane assembly

If you replace the I/O backplane assembly in the CEC enclosure, you must manually restore the vital product data (VPD) settings. Use this MAP to restore the settings.

MAP4075 Section-1

1. Login to the service processor card ASM interface from the HMC using the user ID `admin` and password `admin2107`.
   - For login help, see "MAP6F10 Accessing the ASMI using the management console" on page 852.
   - For help with the ASM menu structure, see "MAP1221 ASMI menu structure" on page 498.
2. From the ASMI navigation, select **System Configuration → Program Vital Product Data → System Enclosures**, then select the menu option that is listed in the first column of Table 1.

Table 195.

Menu option	Example setting	Source of setting information
Enclosure location	• Feature Code/Sequence Number = U7879-001 • Enclosure serial number = 00002FA	The label on the front of the CEC enclosure (at the far right end, between the rack mounting screws, in a vertical orientation)

3. Click on **Save Settings**. The service processor may reboot at this point. Wait until the service processor returns to Standby state before continuing with the next step.
4. Return to the HMC repair process screen that sent you here and press the **Next** button to continue.

MAP4080 SRC BE11D05A heartbeat failure

There is a heartbeat failure between the functional code (CPSS) kernel and the fire house dump (FHD) kernel. One of the two storage facility partitions (also called an LPAR) in the storage facility image (SFI) is failing. The working LPAR has reported the serviceable event. The failing LPAR must be repaired first and then the next level of support will force a crash dump recover.

MAP4080 Section-1

1. The serviceable event that sent you here is reported by the storage facility image (SFI) LPAR (partition) that is working. The other LPAR of this SFI is not responding to the working LPAR and must be repaired first. Display serviceable events that need to be repaired.

   Is there a serviceable event for the LPAR or CEC enclosure that is failing?
   - Yes, repair the serviceable event. When the LPAR or CEC enclosure is working normally, go step 3.
   - No, go to step 2.
2. Using MAP1100, determine the states of the server and the partition.

   The normal state of the server is "Operating". The normal state of the partition is "Running". Are the states of the server and partition normal for the failing CEC enclosure?
   - Yes, go to step 3.

- No, attempt to begin the repair using the visual symptom of the displayed state or call the next level of support. When the state of the LPAR is normal, go to step 3.

3. To recover the heartbeat failure for the serviceable event that sent you here, call the next level of support who must issue the getdebug crashremote command at the storage facility partition that *did not report* the BE11D05A. Issuing this command will cause the remote storage facility partition (the one that *did report* the D05A) to force an AIX dump and reboot, which will cause a failover/failback sequence and bring the SFI back to the "dual-cluster" mode of operation.

MAP4090 PCI bus isolation from the HMC

Use this procedure if you are isolating a PCI bus problem from the HMC.

MAP4090 Section-1

1. Did the serviceable event view provide the location(s) for the failing FRU(s)?
   - Yes, use those locations to exchange the given FRUs one at a time until the problem is resolved. **This ends the procedure**.
   - No, call the next level of support before you continue with the next step. This procedure from the eServer service Information Center assumes knowledge of the HMC options that the storage facility service representative is not trained with.
2. Go to "MAP4090 Section-2 (DSA translation)" to determine the Direct Select Address (DSA) in decimal value and then return here and go to the next step.
3. Record the `Cc` value from the DSA.

   Is the `Cc` value greater than 00?
   - Yes, go to the next step.
   - No, the multi-adapter bridge number and the multi-adapter function number have not been identified, so the card slot cannot be identified using the DSA. Look in the HMC partition resources for non-reporting or non-operational hardware. That will indicate which cards in which positions need to be replaced. If replacing the PCI card does not fix the problem, replace the backplane that the card is plugged into. **This ends the procedure**.
4. Is the right-most character (the `c` character) F?
   - No, go to the next step.
   - Yes, only the multi-adapter bridge number has been identified. Record the multi-adapter bridge number (left-most character of `Cc`) for later use. Since the card slot cannot be identified with the DSA, see Table 380 on page 1419. Consider all of the card slots that are controlled by the multi-adapter bridge to be FRUs. **This ends the procedure**.
5. Refer to "MAP4090 Section-3 (Card positions)" on page 671 and use the `BBBB` and `Cc` values that you recorded to identify the card position. Then return to the procedure that sent you here. **This ends the procedure**.

MAP4090 Section-2 (DSA translation)

1. The Direct Select Address (DSA) might be coded in word 7 of the system reference code (SRC). To determine the value of word 7, see "MAP1216 Displaying primary system reference code (SRC) extension words" on page 488.
2. This is either a PCI system bus number or a RIO loop number, depending on the type of error. You should be able to isolate a failing PCI bus or RIO loop using the information obtained here and the information in either Table 196 on page 669

page 669 (for PCI bus numbers) or Table 197 (for RIO loop numbers, or "loop number-to-NIC ports"). Follow the instructions below to translate the DSA.

a. Break down the DSA into the bus number, multi-adapter bridge number, and multi-adapter bridge function number as shown in the tables below. The DSA is of the form BBBB Ccxx, and breaks down into the following parts:

   BBBB = bus number

   C = multi-adapter bridge number

   c = multi-adapter bridge function number

   xx = not used

b. Is the bus number (BBBB) less than 0684?
   - Yes, the bus number is a PCI bus number. See Table 196 to convert the number to decimal and then go to the next step.
   - No, the bus number is a RIO loop number. See Table 197 to convert the number to decimal and then go to the next step.

c. Using the HMC, view the properties of the managed system in order to determine if the bus is located in the system unit or expansion unit.

d. Perform one of the following tasks:
   - Refer to "MAP4090 Section-3 (Card positions)" on page 671 to search for the bus number, the multi-adapter bridge number, and the multi-adapter bridge function number that matches the system unit or I/O tower type where the bus is located. **This ends the procedure**.
   - Use the HMC RIO topology menu option to determine the state of the RIO nodes (the leading node and the trailing node). See "MAP4E20 RIO Topology tool" on page 742.

Table 196. PCI bus numbers

Bus number in hexadecimal (BBBB)	Bus number in decimal	Multi-adapter bridge number (C)	Multi-adapter bridge function number (c)
0001	1	1	0 through 7
0001	1	2	0 through 7
0001	1	7	0
0002 through 0007	2 through 7	1	0 through 7
0002 through 0007	2 through 7	2	0 through 7
0008 and 0009	8 and 9 (not used)	(not used)	(not used)
0016 through 03FF	16 through 1023	1	0 through 7
0016 through 03FFF	16 through 1023	2	0 through 7

Table 197. RIO loop numbers

Bus number in hexadecimal (BBBB)	RIO loop number in decimal
0684 through 0689	1668 through 1673
068A through 068F	1674 through 1679
0690 through 0699	1680 through 1689
069A through 069F	1690 through 1695
06A0 through 06A9	1696 through 1705

Table 197. RIO loop numbers (continued)

Bus number in hexadecimal (BBBB)	RIO loop number in decimal
06AA through 06AF	1706 through 1711
06B0 through 06B9	1712 through 1721
06BA through 06BF	1722 through 1727
06C0 through 06C9	1728 through 1737
06CA through 06CF	1738 through 1743
06D0 through 06D9	1744 through 1753
06DA through 06DF	1754 through 1759
06E0 through 06E9	1760 through 1769
06EA through 06EF	1770 through 1775
06F0 through 06F9	1776 through 1785
06FA through 06FF	1786 through 1791
0700 through 0709	1792 through 1801
070A through 070F	1802 through 1807
0710 through 0719	1808 through 1817
071A through 071F	1818 through 1823
0720 through 0729	1824 through 1833
072A through 072F	1834 through 1839
0730 through 0739	1840 through 1849
073A through 073F	1850 through 1855
0740 through 0749	1856 through 1865
074A through 074F	1866 through 1871
0750 through 0759	1872 through 1881
075A through 075F	1882 through 1887
0760 through 0769	1888 through 1897
076A through 076F	1898 through 1903
0770 through 0779	1904 through 1913
077A through 077F	1914 through 1919
0780 through 0789	1920 through 1929
078A through 078F	1930 through 1935
0790 through 0799	1936 through 1945
079A through 079F	1946 through 1951
07A0 through 07A9	1952 through 1961
07AA through 07AF	1962 through 1967
07B0 through 07B9	1968 through 1977
07BA through 07BF	1978 through 1983
07C0 through 07C9	1984 through 1993
07CA through 07CF	1994 through 1999
07D0 through 07D9	2000 through 2009
07DA through 07DF	2010 through 2015
07E0 through 07E9	2016 through 2025

Table 197. RIO loop numbers (continued)

Bus number in hexadecimal (BBBB)	RIO loop number in decimal
07EA through 07EF	2026 through 2031
07F0 through 07F9	2032 through 2041
07FA through 07FE	2042 through 2046

MAP4090 Section-3 (Card positions)

Table 198. Card positions for the Model 570 CEC enclosure

Bus number in DSA (hexadecimal)	Multi-adapter bridge number in DSA	Multi-adapter bridge function number in DSA	Item that the DSA points to	Position label (PCI data width)
0001	7	0	Service processor card	-P1-C8
	2	0	Embedded SCSI controller on I/O backplane	-P1 (64-bit)
	2	1		
	2	2	Embedded USB controller on I/O backplane	-P1 (32-bit)
	2	3	Embedded serial adapter on I/O backplane	-P1 (32-bit)
	2	4	Embedded Ethernet controller on I/O backplane	-P1 (64-bit)
	2	5		
	2	6	(not used)	-P1-T10 (64-bit)
	2	7		
	2	F	Multi-adapter bridge on I/O backplane	-P1
0002	2	0	PCI IOP or IOA card in PCI slot C*x* on I/O backplane	-P1-C3 (64-bit)
	2	1		
	2	2		-P1-C4 (64-bit)
	2	3		
	2	4		-P1-C5 (64-bit)
	2	5		
	2	6	PCI IOA card in PCI slot C*x* on I/O backplane	-P1-C6 (64-bit)
	2	7		
	2	F	Multi-adapter bridge on I/O backplane	-P1

Table 198. Card positions for the Model 570 CEC enclosure (continued)

Bus number in DSA (hexadecimal)	Multi-adapter bridge number in DSA	Multi-adapter bridge function number in DSA	Item that the DSA points to	Position label (PCI data width)
0003	2	0	PCI IOP or IOA card in PCI slot C*x* on I/O backplane	-P1-C1 (64-bit)
	2	1		
	2	2	Embedded SCSI controller on I/O backplane	-P1 (64-bit)
	2	3		
	2	4	Embedded IDE controller on I/O backplane	-P1 (32-bit)
	2	5	(not used)	-P1 (32-bit)
	2	6	PCI IOA card in PCI slot C*x* on I/O backplane	-P1-C2 (64-bit)
	2	7		
	2	F	Multi-adapter bridge on I/O backplane	-P1

MAP4100 Repairing a service processor card (FSP) problem

This is not a standalone procedure. It must only be used if you were sent here from elsewhere in maintenance package. This MAP will assist you to diagnose and repair a service processor card problem.

MAP4100 Section-1

1. Use **Service Application → Service Focal Point → Repair Serviceable Event** to check if you have a serviceable event to repair for the failing storage facility. Did you find a service processor card to repair?
   - Yes, repair the problem using the serviceable event. Return to this MAP if you still have a service processor card problem following the repair.
   - No, continue with the next step.
2. Observe the CEC enclosure control panel. Is there a system reference code (SRC) displayed on the panel.
   - Yes, go to "List of system reference codes and firmware codes" on page 1849.
   - No, continue with the next step.
3. Verify that the CEC enclosures which contain the failing service processor card have power available. Check the LEDs on the rear of the CEC enclosure power supplies. Check that the AC good LED **1** is on solid.

   Note: The DC good LED might be on or flashing. This does not affect service processor card power. See Figure 394 on page 673.

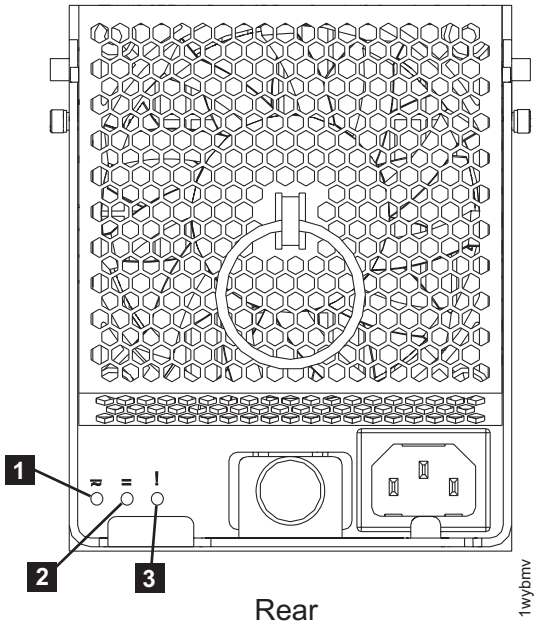


Figure 394. CEC Enclosure Power Supply LEDs

Is AC good indicated on at least one of the CEC enclosure power supplies?

- Yes, continue with the next step.
- No, this problem should not normally occur on a single CEC enclosure. Do the following:
  - Check that all power distribution cables are plugged.
  - Check that the rack operator panel UEPO switch assembly is enabled.
  - Check that customer AC input is available - look for 'AC Input Good' LED on the rear of the primary power supplies.
  - If no problem is found, then contact your next level of support.

4. Verify that the service processor card power LED is lit on the service processor card (P1-C8).

   Note: There are four LEDs towards the bottom of the service processor card. The top LED on the left should be green.

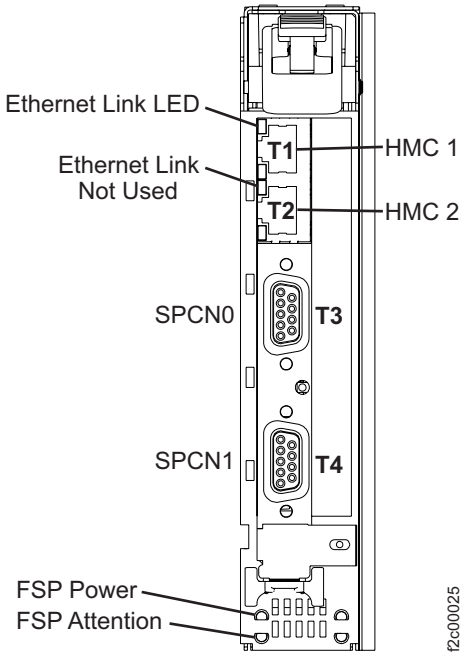


Figure 395. FSP card indicators

Is the service processor card power LED lit?

- Yes, continue with the next step.
- No, use **Service Focal Point → Exchange a FRU** to replace the following in sequence until the problem is resolved:
  - Service processor card in location U7879.001.*xxxxxxx*-P1-C8
  - CEC enclosure I/O backplane in location U7879.001.*xxxxxxx*-P1

5. Perform a service processor reset. Go to "MAP4810 Resetting the service processor card (FSP)" on page 700. Return here when the reset has been done.
6. Return to the MAP or procedure that sent you here to verify if the problem is now resolved. Return here if the service processor card is still failing.
7. Replace the service processor card in location U7879.001.*xxxxxxx*-P1-C8. Use **Service Focal Point → Exchange a FRU**. If the problem remains, then contact your next level of support.

MAP4110 Exchange the CEC enclosure control panel (concurrent)

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

MAP4110 Section-1 Remove the control panel

1. The CEC enclosure control panel can be replaced with the CEC power on and in use by the customer ***only if*** the CEC is not rebooted during the procedure.

Important: The CEC will not boot the functional code properly if the control panel is not physically and logically installed prior to CEC power on.

2. Logically remove the control panel. Access the Advanced System Management Interface (ASMI). Refer to "MAP6F10 Accessing the ASMI using the management console" on page 852.

   Attention: Do not reset the service processor, or remove and then reapply power to the CEC or storage facility during this procedure.
3. In the navigation area of the ASMI, select **Concurrent maintenance** and then **Control panel**.
4. At the Preparing the control panel window, select **Remove** and click **Continue**.
5. Choose the control panel's location and then click **Save Settings**.

   Note: The location displayed is the serial number of the CEC enclosure, which is on the vertically oriented bar code label at the front far right rack mount flange. This is a different serial number from the one on the CEC enclosure control panel.
6. If the operation was successful, the window will display `Operation completed successfully`.
7. Ensure the CEC enclosure amber identify LED **8** is lit. This identifies the CEC enclosure that is ready to have the control panel removed in the next step.

CEC Enclosure LEDs (Front)

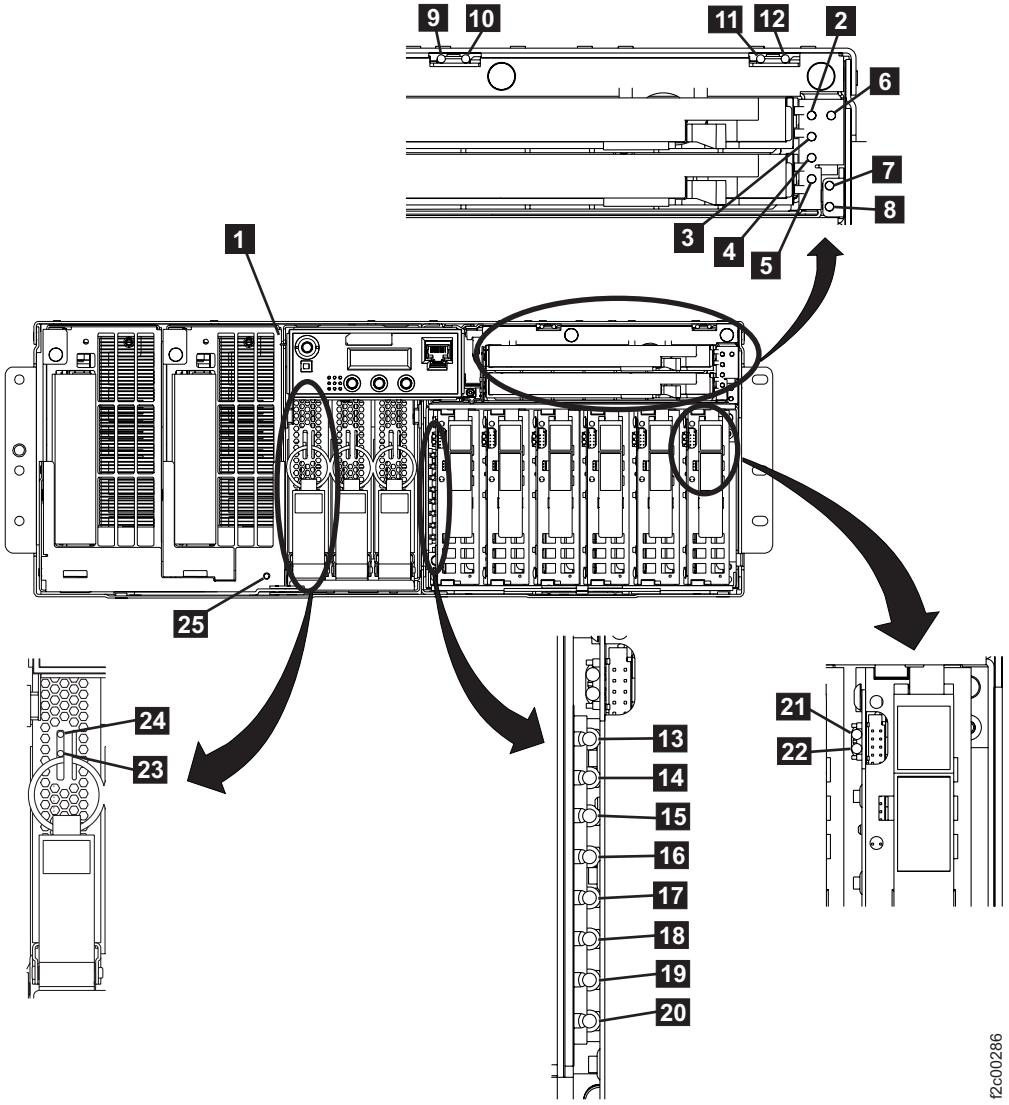


Figure 396. LED CEC enclosure front

8. Remove the control panel by pressing the locking tabs **A** located on either side of the panel, grasping the edges of the panel, and pulling it out of its bay.

   Attention: If the system power is on, a control panel filler should be installed for proper air flow and cooling. The control panel opening must be closed either with a filler or a control panel within 15 minutes.

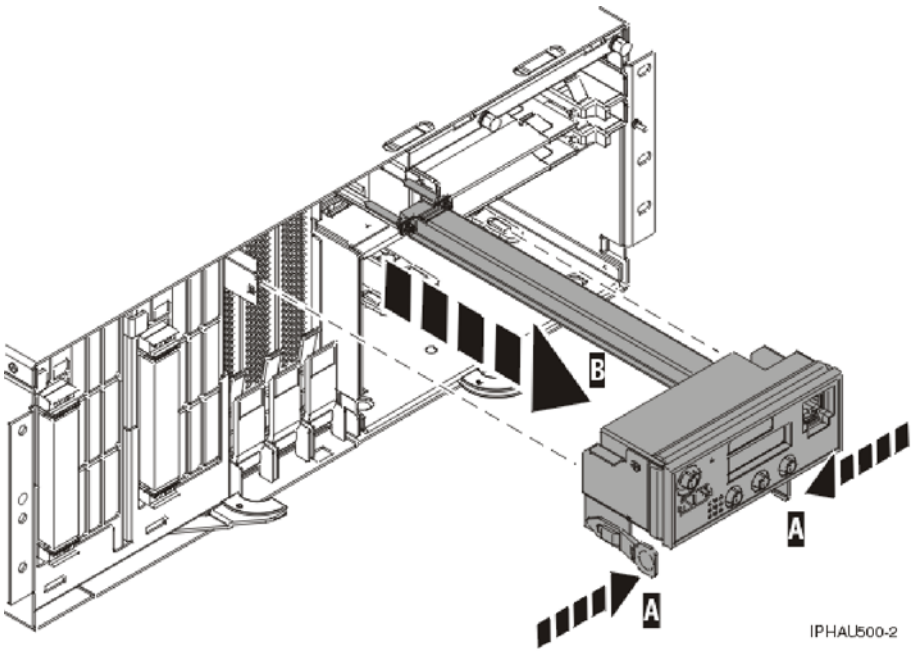


Figure 397. Removing the CEC enclosure control panel

MAP4110 Section-2 Install the control panel

1. Remove the machine type label, with the serial number, from the front of the existing control panel and place the label on the new control panel.
2. Carefully slide the control panel into the control panel bay until you feel the locking tabs **A** lock in place.

   Note: The control panel display will show a ″ball icon″ moving in a clockwise direction. This will continue until the ASMI is used to logically install the control panel in later steps.
3. In the navigation area of the ASMI, select **Concurrent maintenance** and then **Control panel**.
4. At the control panel window, select **Install** and then click **Continue**.
5. Choose the control panel's location and then click **Save Settings**.
6. If the operation was successful, the window displays `Operation completed successfully`.
7. The control panel should now display normally as compared to the other control panel.

   Note: If there is a ball or dot that appears in the middle of the control panel, toggle between function 02 and function 01 until the graphic disappears.
8. Return to the procedure that sent you here and continue the repair.

MAP4150 Service processor password problem during code update

The code update process pre-verify check ensures the service processor card access and login passwords are as expected. If one or more passwords are not set as expected you are sent to this procedure to set them using the ASM interface.

MAP4150 Section-1

1. Launch the ASM interface.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Service Utilities**, a window appears displaying a list of storage facilities.
   d. Select a **Machine Type/Machine Serial** from the list, click **Selected** (on top tool bar), and then select **Get Storage Facility Images**.
   e. A window appears displaying a list of System Processors (managed system). Select a **Machine Type/Machine Serial** from the list, click **Selected** (on top tool bar), and then select **Launch ASM Menu**.
   f. The Launch ASM Interface window displays, click **OK**. This will open an Opera browser window pointed to the Managed System's ASM login screen.
2. Login to ASM using User ID `dev`, password `FipSdev` (case sensitive).
3. In the ASM navigation area, expand **Login Profile**, then select **Change Password**.
4. There are three Login IDs that need their passwords set.
   - Use the table below to type in the needed information in the content area of the change password display.
   - Ensure "Operation completed successfully" status is displayed in the content area for each password change.

Table 199.

Login ID	Current Password	New Password (2107 default)
general	`FipSdev`	`gen2107`
admin	`FipSdev`	`admin2107`
HMC	`FipSdev`	`hmc2fsp`

5. Click the **Log out** button to exit ASM.
6. Return back to the procedure that sent you here.

MAP4240 888 error code on HMC LPAR virtual control panel

An 888 suggests that either a hardware or software problem has been detected and a diagnostic message is ready to be read. The next level of support will be called as they may have the additional information and access authority to do problem isolation and resolution.

MAP4240 Section-1

1. Perform the following steps to record the information contained in the 888 message and then call your next level of support.
   a. Wait until the 888 is displayed.
   b. Record in sequence each code that is displayed after the 888 goes away.
   c. Stop recording when the 888 reappears. Separate each code recorded with a blank space.
2. Find the first code recorded after the 888:
   - 102, this is a Type 102 error, go to step 3 on page 679.
   - 103, this is a Type 103 error which occurs when a hardware error is detected. go to step 4 on page 679.

3. Do the following to determine the content of the type 102 message. The Type 102 code sequence is: 888-102-RRR-SSS-*xxx*.
   - 102 = Message type
   - RRR = "Crash codes" on page 1627
   - SSS = "Dump progress indicators (Dump status codes)" on page 1626
   - xxx = Additional codes (optional)

   Are there additional codes following the Dump status code?
   - Yes, this message also has a type 103 message included in it, go to step 4.
   - No, call your next level of support. The 2107/242x software on the CEC disk drives may have been corrupted. You may be asked to use "MAP4020 Hard disk drive build process for both boot drives in a storage facility image LPAR" on page 639 reload the CEC software.
4. Do the following to determine the content of the Type 103 message. The Type 103 code sequence is: 888-102-XXX-YYY.
   - 103 = Message type
   - XXX-YYY = SRN

   Find the SRN in the "List of service request numbers" on page 1665 and perform the indicated action.

   Note: The only way to recover from an 888 type of halt is to power cycle the CEC enclosure. If the SRN repair does not do that, continue to step 5.
5. Power cycle the CEC enclosure by doing a "psuedo" FRU replace of the CEC enclosure fan. Do not actually remove or replace any parts, just use the process to safely power off and on the CEC enclosure. Use the Exchange FRU option on the HMC, reference "MAP1215 Replace a FRU" on page 488. If the CEC still hangs with 888, go to the next step.
6. Call the next level of support. They may need to use remote access to run LPAR AIX command line online diagnostics for all resources to try to generate an SRN to repair.

MAP4350 Isolating cluster code load counter=2

The CEC enclosure LPAR attempted to IML two times and failed each time. A serviceable event was created. When the LPAR boots, it first loads the AIX operating system, then the functional code and finally the RAS (maintenance package) code. The code load counter is initially set to 0 and is increased by 1 at the start of the code load. If the code load is successful, the counter is reset to 0. If it is unsuccessful, the counter is not reset to 0.

If the load of the functional code is not successful, the failing cluster creates an AIX error log. A serviceable event cannot be created as the functional code and RAS code were not able to be loaded yet. The partner LPAR on the other CEC enclosure reboots the failing LPAR to attempt to get past the error. If the code load is successful, the code load counter is reset to 0. The AIX error log from the prior unsuccessful attempt will not create a problem as the error was temporary. If the second reboot attempt fails, a final reboot occurs. The AIX code is loaded, the functional code load which would fail is bypassed, and the RAS code is loaded. This leaves the failing LPAR unable to do customer operations, but able to communicate to the management console (S-HMC). The LPAR on the partner CEC creates a serviceable event with an SRC=Bxxx-38F0 and uses this MAP for further isolation. That serviceable event does not give the error that caused the code load failures. The failing LPAR should create a separate serviceable event using the AIX

error log from the prior unsuccessful attempt. That separate serviceable event should contain repair information for the problem that caused the code load failures.

MAP4350 Section-1

1. Read the description section above.
2. Display serviceable events needing repair (reference "MAP1210 Displaying and repairing a serviceable event" on page 477). Look for related serviceable events that have CEC enclosure or I/O enclosure FRUs. Serviceable events that mention device adapter cards, FC-AL cables, and Fibre Channel interface cards (FCICs) are not related. Were related serviceable events found?
   - Yes, repair them.
   - No, call the next level of support.

MAP4360 Codes displayed by the CEC enclosure control panel

This MAP provides guidance on how to interpret and handle indications and codes on the CEC enclosure control panel.

The CEC enclosure control panel displays various types of codes that indicate the status of the individual storage facility system during power on and IML. Some are normal status and progress indications that change every few seconds. These same codes can indicate a problem if the system appears to hang with the code still displayed. Other codes indicate error conditions that will not prevent the code load from completing but will create a problem. Still other codes indicate conditions that prevent the cluster from completing its power on or code load.

MAP4360 Section-1

1. Use **Service Applications → Service Focal Point → Manage Serviceable Events** to check if you have a serviceable event to repair for the failing storage facility system. Did you find a serviceable event to repair?
   - Yes, repair the problem using the serviceable event.
   - No, continue with the next step.
2. Observe the CEC enclosure control panel. Is an 8-character code displayed in the format as shown in Figure 398?

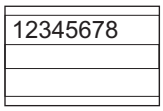


Figure 398. CEC enclosure control panel example display

   - Yes, allow 10 minutes. If the code is still displayed, go to "List of system reference codes and firmware codes" on page 1849.
   - No, continue with the next step.
3. Observe the CEC enclosure control panel. Is the display format as shown in Figure 400 on page 681 with a `01` on the top left?

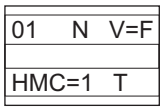


Figure 399. CEC enclosure control panel example display

- Yes, continue with "MAP4360 Section-2."
- No, continue with the next step.

4. Observe the CEC enclosure control panel. Does a 2-digit numeric code other than 01 appear in the top left, as shown in Figure 400?

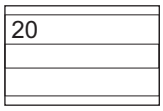


Figure 400. CEC enclosure control panel example display

Note: There may be text or characters in other positions on the display.

- Yes, continue with "MAP4360 Section-3" on page 682.
- No, go to "MAP4370 CEC enclosure control panel does not show a normal display" on page 683.

MAP4360 Section-2

This section verifies that the display indicates a normal state and, if necessary, provides guidance on how to correct the system state.

1. Observe the CEC enclosure control panel and compare the indications to Figure 401.

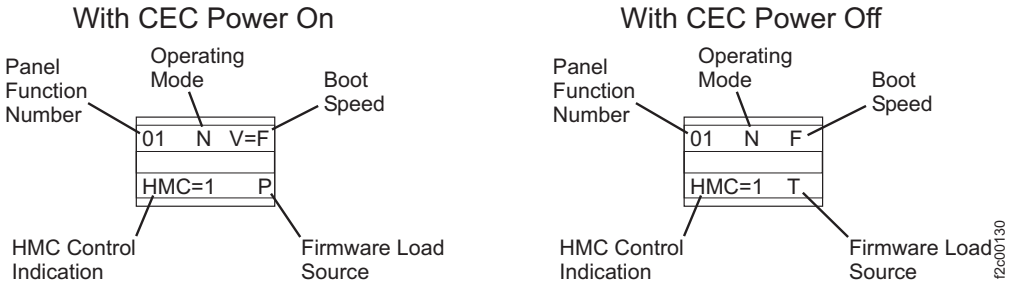


Figure 401. CEC enclosure control panel indications

Are the indications as shown in Figure 401?

- Yes, this is normal. No further action is required.
- No, continue with the next step.

2. Is the only difference that the firmware load source shows P (permanent)?
   - Yes, this is normal. No further action is required.
   - No, continue with the next step.
3. Use Table 200 to identify the abnormal indication and take the action listed.

Table 200. CEC enclosure control panel indicators

Control Panel Indication	Action
Panel Function Number is not 01	Go to "MAP4360 Section-3" on page 682.

Table 200. CEC enclosure control panel indicators (continued)

Control Panel Indication	Action
Operating mode is not N	Continue with step 4 in this section.
Power On Speed is not F	Continue with step 4 in this section.
Control Panel Indication	Continue with step 4 in this section.

4. Correct the Operating mode or System Boot Speed settings using Advanced System Management Interface (ASMI). Refer to "MAP6F00 Accessing the ASMI" on page 851.
   a. Log on to ASMI with userid: admin and password: admin2107.
   b. Select **Power/Restart Control / Power On/Off System**.
   c. Correct the System Operating mode or System Boot Speed settings and then click on **Save Settings**.

      Note: Do not click on Save Settings and Power Off as this could cause system disruption.

   d. **This ends the procedure.**
5. HMC Control = 0 indicates that the HMC is not controlling this SF system. If the HMC appears to be functional, then go to "MAP7000 Entry point for DS8000 private network problems" on page 855; otherwise, go to "MAP6000 Entry point for analyzing management console problems" on page 766.

MAP4360 Section-3

The CEC enclosure control panel is not set to function 01. Refer to Figure 402 and perform the following steps to reset the panel to function 01.

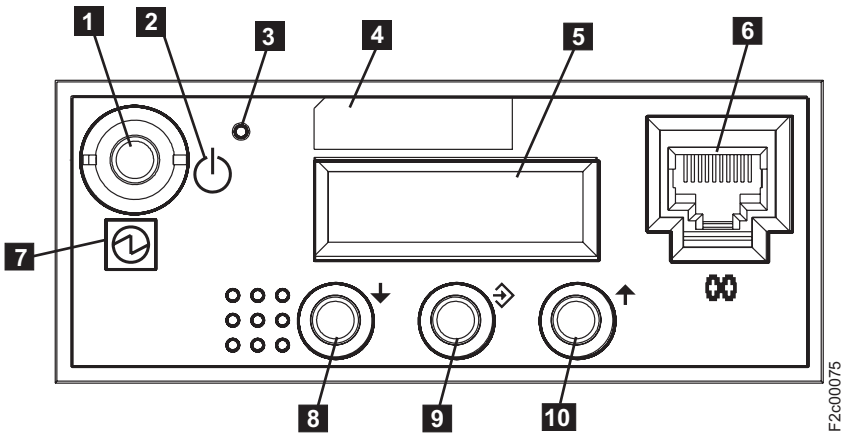


Figure 402. CEC enclosure control panel

1. Press the Increment 10 or Decrement 8 buttons until 01 is displayed in the top left corner of the control panel display.

   Note: If the Function number in the top left corner of the display does not change, this might indicate that a panel function was started but not completed. Because the effect is not predictable, do not continue with step 2.
2. Were you able to step to Function 01 by pressing the Increment or Decrement buttons?

- Yes, press the Enter button **9**. Return to the start of this MAP to verify that the indications are normal.
- No, this should be treated as an abnormal condition. Go to "MAP4370 CEC enclosure control panel does not show a normal display" to correct the condition.

Table 201. Key codes for CEC enclosure control panel

Key	Description
1	Power push-button
2	On/off power symbol
3	Service processor card reset pinhole
4	Type and serial number label
5	Function/data display
6	Ethernet connector
7	Power on light • A blinking light indicates standby power to the unit. • A constant light indicates full system power to the unit.
8	Decrement
9	Enter push-button
10	Increment

MAP4370 CEC enclosure control panel does not show a normal display

This procedure provides guidance on how to resolve the situation where the CEC enclosure control panel does not show a normal display.

The CEC enclosure control panel display problem may be as a result of a hang condition, a failing hardware, or when the panel was left in an abnormal state by previous panel actions.

MAP4370 Section-1

1. Does the Control Panel problem appear to be due to a faulty display? For example, missing characters, missing display segments.
   - Yes, replace the control panel. Use the HMC WebSM GUI and select **Service Applications → Service Focal Point → Exchange parts**
   - No, continue with the next step.
2. Perform the following steps to reset the Control Panel:
   a. Access ASMI on the Storage Facility System. Refer to "MAP6F00 Accessing the ASMI" on page 851.
   b. Logon to ASMI with userid: `celogin` and password: `FipSce`
   c. Select **Concurrent Maintenance / Control Panel**.
   d. Set the Action to **Remove** and click **Continue**.
   e. Click on the radio button and select **Save Settings**.
   f. Go to Chapter 34, "Exchanging parts," on page 991 for instructions on how to unplug and then replug the CEC enclosure control panel.
   g. Return to ASMI and select **Concurrent Maintenance / Control Panel**.
   h. Set the Action to **Install** and click **Continue**.

i. Click on the radio button and select **Save Settings**.

3. Is the problem now resolved?
   - Yes, **this ends the procedure.**
   - No, continue with the next step.
4. Reset the service processor card on the SF system which has the faulty display. Use "MAP4810 Resetting the service processor card (FSP)" on page 700. Return here when the service processor card has been reset.
5. Is the problem now resolved?
   - Yes, go to step 7
   - No, continue with the next step.
6. Repeat step 2, but install a new control panel. Is the problem now resolved?
   - Yes, continue with the next step.
   - No, the possible remaining FRUs are the Service Processor Card and the CEC Enclosure I/O Backplane Assembly. Either use the **Service Applications → Service Focal Point → Exchange Parts** option to replace the FRU(s) or call your next level of support..
7. Did you need to power off the SF system as described in "MAP4810 Resetting the service processor card (FSP)" on page 700.
   - Yes, use Service Utilities to Power on the SF system and resume the LPARs. **This ends the procedure.**
   - No, complete all other repairs, then select **Service Applications → Service Focal Point → Service utilities → Service utilities** and select **Manage Power Control** from the **Selected** drop-down to power on the Storage Facility.

MAP43B0 Resolving SFI LPAR Dual Hard-Drive SRCs

SRCs in the range BE1110xx are used to report problems that were detected by the SFI LPAR dual hard-drive process. In some cases they will be logged normally during a repair action and in some cases they will appear in conjunction with other SRCs.

MAP43B0 Section-1

Note: A single hard drive failure can normally be repaired without the SFI LPAR being Quiesced or shut down. **Do not shutdown or reboot the LPAR with the failing hard-drive during this repair unless directed by the maintenance package.**

1. Review the list of open serviceable events and display the details for each. Note the SRCs, MAPs and FRUs listed. For further information on displaying serviceable event details go to "MAP1210 Displaying and repairing a serviceable event" on page 477.
2. Use the table to determine the condition you have, and the action to perform:

SRC	Action
BE111050	**Description**: The SFI LPAR hard-disk drives are not mirrored, and the automatic mirroring function has been disabled. **Action**: Go to step 4 on page 686.

SRC	Action
BE111051	**Description**: An SFI LPAR hard-drive has failed. **Action**: **Notes:** This SRC may be logged if a hard-drive repair action was started but not completed. 1. If a repair action against another serviceable event failed or was interrupted, close this serviceable event and retry the original repair. 2. If there is another open serviceable event which lists a CEC enclosure hard-drive FRU, repair that serviceable event and close this one. 3. If there are no other serviceable events which relate to hard-drive failures, call your next level of support. **Note:** Next level should check the dual hard-drive status with `lsdev -C | grep hdisk`. If either hard drive displays status as defined, it should be replaced. To replace a FRU that is not listed in a serviceable event, use the HMC Exchange Parts menu option. See "MAP1215 Replace a FRU" on page 488.
BE111052	**Description**: An SFI LPAR dual hard-drive Mirror operation failed. **Action**: Go to step 4 on page 686.
BE111053	**Description**: An SFI LPAR dual hard-drive Unmirror operation failed. **Action**: **Notes:** This SRC may have been created during a repair action. 1. Retry the repair action. 2. If the retry was unsuccessful, then call your next level of support.
BE111057	**Description**: The capacity of the disk drive being installed is less than the capacity of the original disk drive. **Action**: Use the repair process to replace the disk drive with one of proper capacity.
BE111058	**Description**: An SFI LPAR dual hard-drive Mirroring cleanup operation failed. **Action**: Call your next level of support.
BE111059	**Description**: The partition's file system is full. **Action**: This can occur if a CD or DVD media is discovered in the in the CEC enclosure DVD drive. Remove the media. If no media is present, call your next level of support.
BE11105A	**Description**: An illegal SFI dual hard-drive operation was attempted. **Action**: If all repair actions were being done through the maintenance package, then this is an unexpected condition. Call your next level of support.
BE11105B	**Description**: An SFI LPAR dual hard-drive command failed. **Action**: Go to step 3 on page 686.
BE11105C	**Description**: The mirrored SFI LPAR dual hard-drives cannot be synchronized. **Action**: Go to step 4 on page 686.

SRC	Action
BE11105D	**Description**: An SFI LPAR dual hard-drive drive bosboot command failed. **Action**: Go to step 3.
BE11105F	**Description**: An SFI LPAR dual hard-drive is failing. The other is not mirrored so cannot be used. The AIX and Licensed Internal Code will have to be reloaded. Go to "MAP4020 Hard disk drive build process for both boot drives in a storage facility image LPAR" on page 639.
BE111060	**Description**: The SFI LPAR IML'd from the second hard disk drive in the bootlist, instead of the first. **Action**: Go to "MAP43C0 SFI LPAR IML from Second Hard Disk Drive" on page 687.
BE11106F	**Description**: One of the FHD logical volumes is failing. **Action**: Go to step 5.

3. Was this problem logged while completing a repair action against one of the SFI LPAR hard-drives?
   - Yes, close this problem. Call your next level of support. They will contact PFE to dial in and use the procedure for SRC=BE11105D to clear the software problem so the original repair can be tried again.
   - No, perform the following:
     - If there are other SFI LPAR hard-drive problems to repair then repair those and close this serviceable event.
     - Call your next level of support. They will contact PFE to check the status of the SFI LPAR hard drives and provide an action plan.

   Note: A utility will be provided in a Post-GA code level to enable the CE to check for a failing hard-drive.
4. Call your next level of support. They will involve PFE to:
   - Use **rsIdentifyDisk** to verify that both hard-drives are in a good condition.
   - Use **rsMirrorVg** to mirror the hard-drives.
   - Use **rsQueryVgState** to verify that the Mirror operation completes successfully.

   Note: A utility will be provided in a Post-GA code level to enable the CE to check for a failing hard-drive and whether it is OK to initiate mirroring.
5. Are there any open serviceable events for either disk drive in this CEC?
   a. Yes, exit this MAP and repair that serviceable now which will automatically fix this problem also. Remember to close the serviceable event that sent you here.
   b. No, call your next level of support. They will involve PFE.
      - There are two CEC disk drives that use mirroring for everything except the FHD logical volumes.
      - The FHD logical volume on each physical disk drive is unique.
      - PFE will use the **lsvg -l rootvg** to check for the failing FHD LV. (fhd_lv00 is on hdisk0 and fhd_lv01 is on hdisk1.)
      - PFE will use the **rsCreateFHDLV <hdiskx>** command to repair the broken FHD LV.

MAP43C0 SFI LPAR IML from Second Hard Disk Drive

SRC BE111060 is used to report a problem that caused the storage facility LPAR to boot from the second hard disk drive in the partition boot list instead of the first.

MAP43C0 Section-1

There is a problem with the first hard disk drive in the storage facility partition boot list. The storage facility LPAR booted from the second hard disk drive listed in the partition boot list.

1. Use the HMC to display Open Serviceable Events. Use:
   a. From the MC GUI, select **Service Applications → Service Focal Point → Manage Serviceable Events**.
   b. Leave the default settings and click **OK**.
   c. Look for a problem that indicates a CEC hard drive failure on the failing Storage Facility (2107/242x) or Storage Facility System (9117).
2. Did you find a related problem?
   - Yes, use **Repair Serviceable Event** to repair the related failure.
   - No, contact your next level of support

MAP4510 Processor complex to processor complex communication failure

This MAP is used for communication failures between the partner storage facility images (SFIs) in the CEC enclosures. The communication begins after AIX is loaded and the functional code load occurs. The communication is across the RIO interface (CEC enclosure to I/O enclosure to other CEC enclosure).

Because the RIO loop has two cables in parallel, no single cable fault should cause a communication failure. Each SFI periodically sends a communication message to the partner SFI (heartbeat) and sets a timer waiting for the response. If the timer expires with no response, the error recovery process will cause the non-responding SFI to failover its resources to the originating SFI and then reboot itself to try to restore communication.

- If communication is restored, a fail-back occurs to return resources, and no serviceable event is created.
- If communication still fails, the SFI is fenced and a serviceable event is created to send you to this MAP.

1. Display the status of the Server and Partitions (SFI).
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Server and Partition → Server Management**.
   c. In the right content area, open each server and partition.

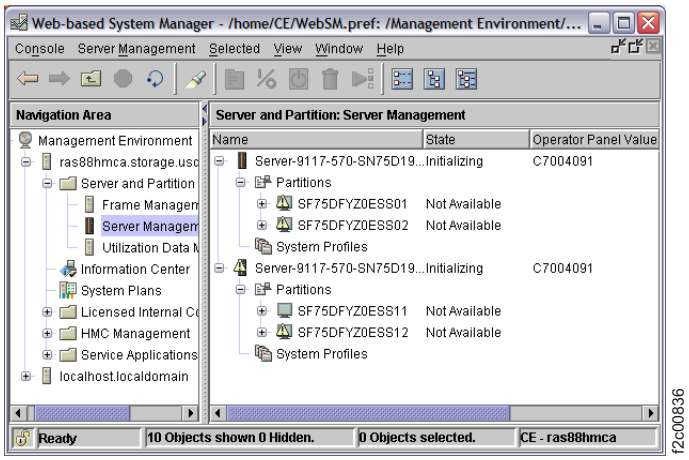


Figure 403. Server and Partition: Server Management

2. Do one of the following:
   - If any server or partition that displays an Operator Panel Value is not responding, exit this MAP and go to "MAP4360 Codes displayed by the CEC enclosure control panel" on page 680. After the repair is complete, close the serviceable event that sent you here.
   - If any Server State is not "Operating" or any Partition State is not "Running", display and repair any related serviceable events for that CEC enclosure. After the repair is complete, close the serviceable event that sent you here. If no related serviceable events are found, contact your next level of support.

MAP4520 Pinned data and/or volume status unknown

Pinned Data can exist for DASD Fast Write, High Bandwidth Sequential Fast Write, and Cache Fast Write Data. Pinned Data is caused by failures that prevent data from being destaged to DASD. These are either DASD failures that make the array/volume unavailable or failures that make cache and/or NVS data unavailable. Pinned Data can only be freed or unpinned by successful retry of the destage operation or a request to discard the pinned data is received from the host or service interface.

CAUTION:
Perform this procedure only at the direction of the service terminal or other service guide procedures. Failure to follow this attention can cause customer operations to be disrupted.

MAP4520 Section-1

1. Is the installed LIC code bundle 6.1.0.xxx or higher?
   - Yes, go to the next step.
   - No, call your next level of support for assistance in determining the volumes that are affected and then go to step 3.
2. Determine the volumes that are affected.
   a. Display the **View Storage Facility State** window. See "MAP1100 Section-1" on page 446.
   b. In the list, select **Pinned Data on LPARs** and then click the **Details** button to view the volumes that are affected.
   c. Return here and continue at the next step.

3. Your next level of support may direct you to do the following steps after they have reviewed all of the information. They may change the order of the repairs. Wait for them to guide you before continuing.
4. Are there any DASD, Device Adapter, Fibre Channel Interface Card or DA to FCIC interface related problems?

   Note: A loop with only one DDM failure will not normally cause pinned data if the DDM is part of a RAID array.

   - Yes, repair the DASD, DA, FCIC or interface problems. The repair may allow retryable pinned data to destage.
   - No, continue with the next step.
5. Are there any CEC, I/O enclosure or RIO-G related problems?
   - Yes, repair the problems. The repair may allow pinned data to destage so the retryable pinned data status is reset. The repair process may require you to discard non-retryable pinned data before the FRUs are replaced. This will cause customer data loss.
   - No, continue with the next step.
6. After all related repairs have been completed, call your next level of support to display the pinned data status.

   Note: A Utility will be available to display this information from the HMC in a post-GA level of microcode.

MAP4560 No valid subsystem status available

There is no one problem that will identify the various combinations of failures that created the **No valid subsystem status available** condition. This procedure will help you determine the highest priority problem to repair first.

Global subsystem status (GSS) exists for each Logical Subsystem (LSS). Two copies are kept, each on a separate array. If one copy becomes unavailable, a problem is created and a new second copy is created on a different array if possible. It stays in this new location even after the repair is complete. Normally, when a volume is unavailable, the array it is located on has status of *offline* or *unknown*.

An LSS can operate on just one GSS copy. If both GSS copies are unavailable, the LSS gives 'FC' status to all ESCON host system requests to its volumes. The LSS gives command rejects and check conditions of internal target failure to all SCSI host system requests to its volumes. There can be one or more problems for each GSS copy that is unavailable. It normally takes two or more failures to prevent the fault tolerant RAID architecture from accessing a particular array (rank).

If access to the GSS copies was lost, but the data is still valid, then the repair action should restore access. This will automatically reset the ″No Valid Subsystem Status″ condition.

If both copies lost the actual GSS data, then the GSS status for that LSS will have to be reset when determined by the next level of support. This can cause customer data loss.

There is no one problem that will identify the various combinations of failures that created the condition. Each GSS copy has at least one problem needing repair. There may be other non-related problems needing repair also. An example would be a problem for a DDM replacement on an array and FC-AL loop not part of the LSS with the condition.

MAP4560 Section-1

Contact your next level of support.

MAP4570 Genesis for model conversions

This procedures loads AIX and 2107 functional code on both of the hard disk drives of one storage facility image LPAR.

The code will first be loaded on one of the hard disk drives then it will be automatically mirrored to the other hard disk drive. This is a non-concurrent process. The other LPAR in the storage facility image (SFI) will not be available for customer use throughout the process.

MAP4570 Section-1

1. Were you sent here from the HMC model conversion screen?
   - Yes, continue with the next step.
   - No, return to the procedure that sent you here. This process should only be followed if the HMC model conversion screen sent you here.
2. Ensure that you can identify the target SFI Partition name and the Storage Facility System on which it runs. For example, SFI Partition = SF1303240ESS11, SF System = 9117-570*13AADF0.

   Note: If you are unsure how to find this information, contact your next level of support.
3. You will now be guided by a series of on-screen message panels. After several actions you will be asked to return to this MAP for further instructions. The following steps will be performed before you return to this MAP.
   a. The LPAR model conversion configuration data was copied to the DVD-RAM media (the model conversion DVD-RAM media) previously during the model conversion.
   b. You will then be asked to open a Terminal Window on the failing LPAR. To open a Terminal Window:
      - In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
      - Click **Server and Partition → Server Management**.
      - In the right content area, click the + to expand the failing server and partition (indicated by a State of **Not Activated**).
      - Right-click the failing partition and choose **Open Terminal Window**.
      - Return to the message box and click the **OK** button to continue.
   c. You will be asked to insert the 2107 Operating System Volume 1 CD into the DVD-RAM drive on the system that is the current target LPAR.
   d. A message box will ask you to return to this MAP. It will also ask you to confirm that the model conversion completed successfully. **Do not click OK until directed to do so by on-screen messages in the Terminal window**.
   e. Continue with the next step
4. Wait for the SMS menu to appear on the Virtual Terminal as shown below. At this point, it is required to set the boot device to the DVD/CD-ROM. Select option 5 and press **Enter**.

```
PowerPC Firmware
Version SF220_001
SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
Main Menu
 1.  Select Language
 2.  Setup Remote IPL (Initial Program Load)
 3.  Change SCSI Settings
 4.  Select Console
 5.  Select Boot Options



-------------------------------------------------------------------------------
Navigation Keys:

                                          X = eXit System Management Services
-------------------------------------------------------------------------------
```

5. The following menu will now be displayed. Type 1 (Select Install or Boot a Device) and press **Enter**.

```
Version SF220_001
SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
 1.  Select Install or Boot a Device
 2.  Select Boot Devices
 3.  Multiboot Startup <OFF>


-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
```

6. The following menu will now be displayed. Type 4 (IDE) and press **Enter**.

```
Version SF220_001
SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
Select Device Type
 1.  Diskette
 2.  Tape
 3.  CD/DVD
 4.  IDE
 5.  Hard Drive
 6.  Network
 7.  List all Devices



-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
```

7. The following menu will now be displayed. The DVD/CD-ROM device should be shown. Type 1 and press **Enter**.

```
Version SF220_001
SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
Select Device
Device  Current  Device
Number  Position  Name
 1.        1      IDE CD-ROM
                  ( loc=U7879.001.10002CA-P3-D2 )




-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
```

8. The following menu will now be displayed. Type 2 and press **Enter**.

```
Version SF220_001 SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
Select Task

IDE CD-ROM
    ( loc=U7879.001.10002CA-P3-D2 )

 1.  Information
 2.  Normal Mode Boot
 3.  Service Mode Boot



-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
```

9. A confirmation screen will appear asking you to verify that you want to exit the SMS. Type 1 and press **Enter**.

```
Version SF220_001
SMS 1.5 (c) Copyright IBM Corp. 2000,2003 All rights reserved.
-------------------------------------------------------------------------------
Are you sure you want to exit System Management Services?
 1.  Yes
 2.  No



-------------------------------------------------------------------------------
Navigation Keys:

                                            X = eXit System Management Services
-------------------------------------------------------------------------------
```

10. The system will now boot from the CD. The “Welcome To AIX” screen is displayed. Other messages will scroll for several minutes. Continue with the next step.

```
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
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IBM IBM IBM IBM IBM IBM                                   IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM       STARTING SOFTWARE          IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM          PLEASE WAIT...          IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM                                  IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
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IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM

--------------------------------------------------------------------------------
                                Welcome to AIX.
                      boot image timestamp: 14:52 04/19
```

11. The following menu will now be displayed. Type 1 and press **Enter**.

    Note: The '1' is not displayed when typed.

```
******* Please define the System Console. *******
Type a 1 and press Enter to use this terminal as the
 system console.
Pour definir ce terminal comme console systeme, appuyez
 sur 1 puis sur Entree.
Taste 1 und anschliessend die Eingabetaste druecken, um
 diese Datenstation als Systemkonsole zu verwenden.
Premere il tasto 1 ed Invio per usare questo terminal
 come console.
Escriba 1 y pulse Intro para utilizar esta terminal como
 consola del sistema.
Escriviu 1 1 i premeu Intro per utilitzar aquest
 terminal com a consola del sistema.
Digite um 1 e pressione Enter para utilizar este
 terminal como console do sistema.
```

12. The following menu will now be displayed. Type 1 and press **Enter**.

```
 HARDWARE SYSTEM MICROCODE
Licensed Internal Code - Property of IBM
(C) Copyright IBM Corp. 1990, 1994.
All rights reserved.

US Government Users Restricted Rights -
Use, duplication or disclosure restricted
by GSA ADP Schedule Contract with IBM Corp.



>>>  1 Type 1 and press Enter to have English during install.
     2 Entreu 2 i premeu Intro per veure la installacion en catalan.
     3 Entrez 3 pour effectuer l'installation en français.
     4 Fur Installation in deutscher Sprache 4 eingeben
       und die Eingabetaste druecken.
     5 Immettere 5 e premere Invio per l'installazione in Italiano.
     6 Digite 6 e pressione Enter para usar Portugues na instalacio.
     7 Escriba 7 y pulse Intro para la instalacion en español.


    88  Help ?


>>> Choice [1]: 1
```

13. The following menu will now be displayed. Type 311 and press **Enter**.

    Note: This is a hidden option that causes the model conversion DVD to be used to automate the installation process.

```
Welcome to Base Operating System
            Installation and Maintenance

Type the number of your choice and press Choice is indicated by >>>.

>>> 1 Start Install Now with Default Settings

        2 Change/Show Installation Settings and Install

        3 Start Maintenance Mode for System Recovery


      88 Help ?
      99 Previous Menu
>>> Choice (1): 311
```

14. In the following steps, you will be requested by on-screen messages to insert and remove CD/DVDs. To determine the correct 2107 CD/DVDs to use, refer to the table below.

Table 202. 2107 CD/DVDs

On screen message	**2107 CD/DVD to use**
Product media or system backup CD/DVD	2107 Operating System Volume 1 CD **Note:** This is **not** the model conversion DVD-RAM created earlier.
The model conversion CD/DVD media	The model conversion DVD-RAM media (created earlier)
2107 Operating System Volume 2 CD 2107 Operating System Volume 3 CD 2107 Operating System Volume 4 CD	2107 Operating System Volume 2 CD 2107 Operating System Volume 3 CD 2107 Operating System Volume 4 CD
2107 Operating System Update CD	AIX PTF
2107 Licensed Machine Code (LMC) CD	SEA

15. The following message will now be displayed. Type 1 and press **Enter**.

```
Type 1 and press Enter for data files on CD/DVD,
or type 2 and press Enter to continue the installation.
>>> 1
```

16. The following message will now be displayed. Perform the following steps:
    a. Remove the 2107 Operating System Volume 1 CD.
    b. Insert the model conversion DVD-RAM media (created earlier).
    c. Wait for the green LED to stop flashing.
    d. Press **Enter**.

```
Please remove the product or system backup CD/DVD, insert
the customized data CD/DVD, and press Enter.
```

17. After approximately 2 minutes, the following message will be displayed:

```
Please insert the product media or system backup CD/DVD,
and press the Enter key.
```

    a. Remove the model conversion DVD-RAM media.
    b. Insert the 2107 Operating System Volume 1 CD.
    c. Wait for the green LED to stop flashing.
    d. Press **Enter**.

18. The installation will now continue. Follow the on-screen messages to insert the model conversion DVD-RAM media, 2107 Operating System Volume 2/3 & 4 CDs, AIX PTF CD and 2107 Licensed Machine Code (LMC) CD. See Table 202 on page 694.

    Note: You may see a message from the AIX install process that refers to missing files. This is normal.

19. The boot drive will be mirrored automatically (this will take approximately 45 minutes).
20. Successful completion will be indicated by this message in the Terminal Window. Follow the instructions to start the reboot, close the Terminal Window, and indicate success by clicking **OK** in the message box.

```
*****************************************************
*   The Hard Drive Rebuild has now completed.       *
*                                                   *
*  Read and Note the following instructions BEFORE  *
*  the partition is rebooted.                       *
*                                                   *
*  a).As soon as the selection is entered, the      *
*     partition is rebooted on its own.             *
*                                                   *
*  b).Please select YES option of the Model       *
*     Conversion dialog box on the HMC to indicate  *
*     that model conversion of the target LPAR has  *
*     completed successfully.                       *
*                                                   *
*  c).Close the virtual terminal to indicate that   *
*     the rebuild model conversion has completed.   *
*                                                   *
*  d).Follow the 4570 MAP for further guidance.     *
*                                                   *
*  e).To continue, type your selection from the     *
*      list below and press Enter.                  *
*                                                   *
*                                                   *
*  1 = Continue                                     *
*                                                   *
*****************************************************
```

21. The LPAR will now reboot. The reboot will be monitored and when the IML completes a message box will ask you to check if any new problems were logged. Use **Service Applications** → **Service Focal Point** → **Manage Serviceable Events**.
22. Were any new problems opened? **READ THIS CAREFULLY**.
    - Yes, perform the following:
      - Click **No** to indicate that you do not want to continue with the Model Conversion Process.
      - Confirm your selection.
      - Repair the problems.
      - If necessary, resume the LPAR using **Service Utilities** → **Get ESS LPARs** → **Resume an LPAR**.
    - No, click **Yes** to indicate that you want to continue with the Model Conversion Process. Continue with the next step.
23. A message box will appear that asks you to confirm that the LPAR should be Resumed. Click **OK**. Successful resume of the LPAR will be indicated by a message box. Was the resume of the LPAR successful?
    - Yes, this completes the procedure.
    - No, repair the new problem. Use **Service Applications** → **Service Focal Point** → **Repair Serviceable Event**.

MAP45A0 Pinned data special case

A pinned data condition can occur when handling logical partitions (LPARs).

A pinned data condition can be detected when the following events occur:

- The resumption of a processor complex or storage facility image (SFI) LPAR as part of a service action.
- An LPAR recovery, other LPAR in the storage facility image rebooted this LPAR.
- A failback to service or a failover to service, specific code actions.

The pinned data may be retryable or non-retryable. The SFI LPARs might not be available for customer use but should be able to do limited service login and PE login actions.

One SFI LPAR was controlling the other LPAR (in the same SFI) that was being rebooted. The controlling LPAR has the pinned data and could not complete the return of the other LPAR. The other LPAR is left fenced, even though it may have no operational problem and no related problems.

MAP45A0 Section-1

Call your next level of support for specific guidance. Failure to do so may cause unnecessary customer data loss.

Note: You might be asked to use MAP1100 to view the status of any inaccessible or pinned LSSs or volumes. See "MAP1100 View storage facility state (end of call)" on page 446.

MAP4760 Recovering from corrupted files or functions

A cluster file (dataset) or function is corrupted. If this has affected customer operations, a separate serviceable event should have been created. In many cases, customer operations will not be affected. Only Processes and/or files used by the RAS (maintenance package) processes may be affected.

There are three recommended actions:

- The cluster can be quiesced, powered off and on, then resumed. This reloads the code into the cluster which might clear a hung process. If the failure is still present, then the next action is needed.
- The code is reloaded onto the cluster hard disk drives. An important part of this process is the saving and restoring of the configuration and customization files. This allows the cluster to restore access to the customer data after the process is complete. If the failure is still present, then the next action is needed.
- The next level of support is contacted. They can remotely access and then do functions similar to that of an AIX system administrator.

MAP4760 Section-1

1. Does the serviceable event SRC = BE1E2120?
   - Yes, call the next level of support. There is a mismatch of the code levels on the CEC enclosures clusters during the LIC update.
   - No, continue with the next step.
2. Read the description section above.
3. Reload the CEC enclosure code by quiescing, powering off, powering on and then resuming the CEC enclosure. Use the exchange parts option to do a psuedo repair of the NVC card FRU in the CEC enclosure. Psuedo repair means you use the FRU replace guided process, but when directed to actually replace the FRU, you do not actually replace it.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Exchange Parts**, a window appears displaying a list of storage facilities.
   d. Select the storage facility, click **Selected** (on top tool bar), and then select the Exchange CEC Components option. A window appears displaying a list of the CEC enclosures.

e. Select the Enclosure Location Code, then click the **Show FRUs** button.
f. Select the FRU Location Code for the DVD-RAM drive, then click the **Exchange FRU** button.
g. Follow the guided procedures, but do not physically remove the FRU.
h. Complete the psuedo FRU replace.

4. Display open serviceable events to determine if the CEC code is still failing. Either the original serviceable event will have updated timestamps in the details view, or a new serviceable event will have been created. Does the CEC code appear to still be failing?
   - Yes, call the next level of support. They may have you rebuild both CEC disk drives using "MAP4020 Hard disk drive build process for both boot drives in a storage facility image LPAR" on page 639.
   - No, exit this MAP and close the serviceable event.

MAP4770 Customer problem accessing Ethernet port for Flash Copy Establish feature

The customer is reporting a problem with one or more of the CEC Ethernet ports that are used for managing their Flash Copy pairs. The Ethernet ports are part of an optional feature code (1801, 1802, or 1803) that is present on the storage facility.

MAP4770 Section-1

1. The customer has reported a problem with connections to one or more Ethernet ports for the Flash Copy Establishment feature. The feature installs one or two pairs of two-port Ethernet cards in the rear of each CEC enclosure. The cards are directly connected to the customer network. They are installed in PCI slot 1 or 5, as shown in Figure 404 and Figure 405 on page 699.

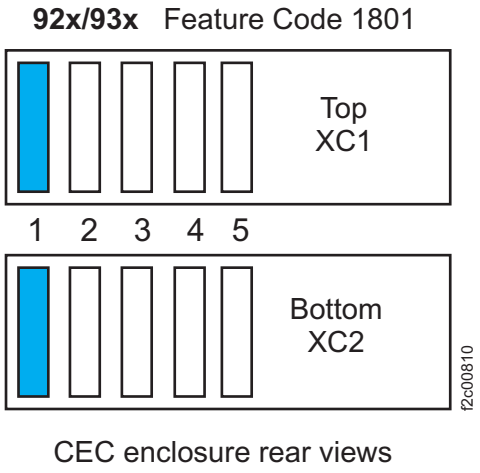


Figure 404. Ethernet card pair on the rear of the CEC enclosures (FC1801)

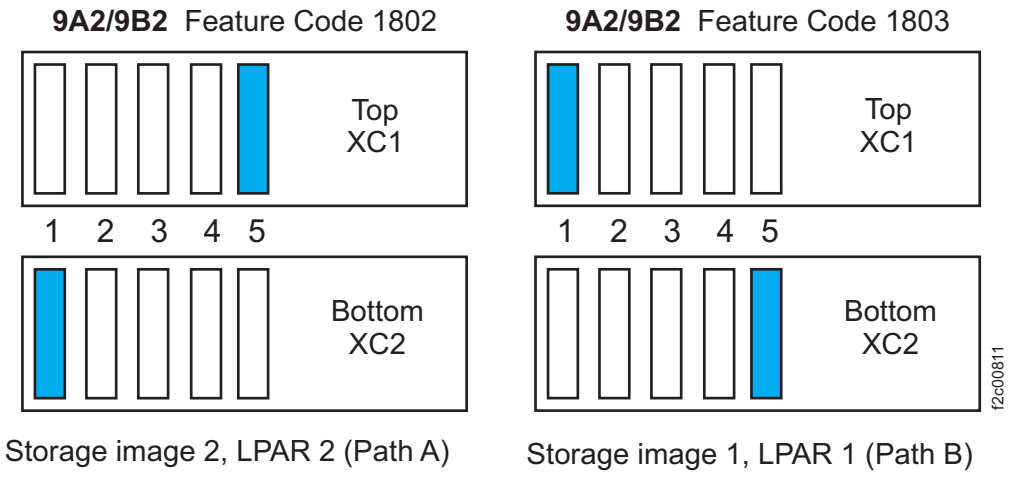


Figure 405. Ethernet card pairs on the rear of the CEC enclosures (FC1802 and FC1803)

2. Use the following to isolate the problem:
   a. Have the customer use the DS Storage Manager GUI to confirm that each Ethernet port is enabled and has the correct network settings (**Storage images main table → Configure Network Ports**)

      Note: The HMC service interface does not have any utilities that allow you to view or update the settings.
   b. Ensure the Ethernet cables from the customer network are only connected to the upper port on each dual port PCI Ethernet card.
   c. Observe the green activity LED next to each port. It should be on solid or flashing if there is a working connection to the customer network.
   d. Display and repair any related serviceable events for the CEC enclosures.
   e. Normal network diagnostic techniques, such as ping and telnet to the port IP address, will not work as those functions are disabled as part of the security and reliability design of the dedicated connection. Only an SSL connection is enabled. The next level of support can work with the customer if the problem determination is particularly difficult.
   f. See additional Tips, Hints and Installation information at: http://www-1.ibm.com/support/docview.wss?rs=1114&context=HW2C2&dc=DB500&q1=ssg1*&uid=ssg1S1002943&loc=en_US&cs=utf-8&lang=en.

MAP47B0 NVS Mismatch

A mismatch between the NVS function in the two LPARs for the storage facility image has been detected. The NVS function is provided by the main system memory that is not needed for the AIX operating system and function code. The memory system memory resides on CEC enclosure, system processor card memory DIMMs. Normally this error is caused when some of the memory in one CEC enclosure is no longer available for use.

MAP47B0 Section-1

1. Display and repair any related serviceable event (SE) for the failing CEC enclosure. A related SE would most likely have one of the following FRUs listed:
   - system processor card
   - memory DIMM
   - system processor backplane assembly

(Reference "MAP1210 Displaying and repairing a serviceable event" on page 477.)

If there is no related SE to repair, perform the following steps.

2. Display the memory details for the server (CEC enclosure) for the serviceable event that sent you here. Look for differences between the two servers and the go to the next step.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Server and Partition**, select **Server Management**.
   c. In the right content area, right click the **Server-9117-570-SNxxxxxxx**, and then click **Properties**.
   d. A window appears displaying information tabs, select **Memory**.
3. Display the memory details for each logical partition (LPAR) for the storage facility image (SFI) serviceable event that sent you here. Look for differences between the two LPARs and then go to the next step.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Server and Partition**, select **Server Management**.
   c. In the right content area, open the **Server-9117-570-SNxxxxxxx**, open **Partitions**.
   d. Right click the partition (SFxxxxxxxESS0x), and then click **Properties**.
   e. A window appears displaying information tabs, select **Hardware**, and then select **Processors and Memory**.
4. Select the action that applies:
   - If differences were found in steps 2 or 3, there should be an open serviceable event. Display serviceable events in the closed state to ensure it was not accidentally closed without being repaired. If there are no serviceable events, call your next level of support.
   - If no differences were found, this may be a false serviceable event. Call your next level of support.

MAP4810 Resetting the service processor card (FSP)

This procedure will provide guidance on how to perform a reset of the service processor card (FSP).

Warning: Improper use of this procedure could result in customer data loss. It must only be used if you were sent here from elsewhere in maintenance package.

MAP4810 Section-1

Are you here to reset the service processor cards in both of the CEC enclosures in a storage facility?

- Yes, go to "MAP4810 Section-2."
- No, go to "MAP4810 Section-3" on page 702.

MAP4810 Section-2

Note: Use this section only if you are resetting the service processor cards in both of the CEC enclosures in the storage facility. This is not a concurrent procedure and it will require that the storage facility be completely powered off.

1. Verify that the CEC enclosures are already powered off. At the rear of the storage facility, view the CEC enclosure power supplies. See Figure 1. **1** is the LED for AC GOOD, **2** is the LED for DC GOOD, **3** is the LED for IDENT.

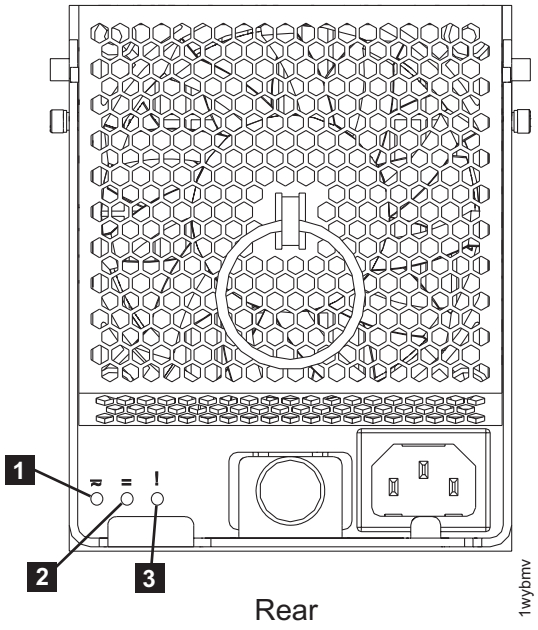


Figure 406. CEC Enclosure Power Supply LEDs

Are the DC GOOD LEDs lit continuously?

- Yes, continue with the next step.
- No, continue with "MAP4810 Section-4" on page 705.

2. Attempt to power off the storage facility by using the Service Utilities. Perform the following steps:
   a. Ensure that the Local/Remote switch on the local remote switch card or zSeries local remote switch card is set to Remote. See Figure 407 on page 702.
   b. Click **Service Applications** → **Service Focal Point** → **Service Utilities**.
   c. Select the storage facility that you are currently installing, click **Selected** and from the drop-down, click **Manage Power Control**.
   d. Ensure that the Power Control Mode is set to **Manual**, click **Power Off Storage Facility** and then click **OK**.
   e. Allow up to 5 minutes for the storage facility to power off. Go to step 1 to verify that the CEC enclosure is now powered off.

      Did the power off complete successfully?

      - Yes, continue with "MAP4810 Section-4" on page 705.
      - No, continue with the next step.

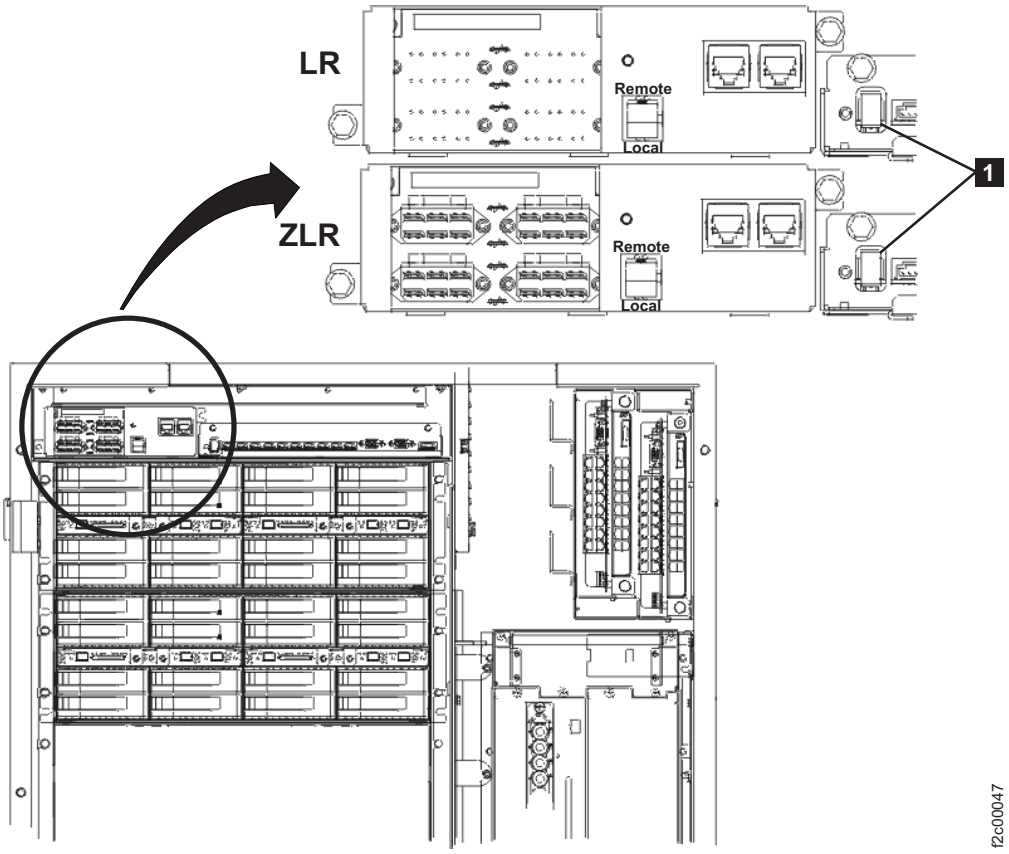


Figure 407. Service power switch (white, rocker)

3. Use the white Service Power Switch **1** to power down the storage facility. Perform the following:
   a. Set the Local/Remote switch on the local remote switch card or zSeries local remote switch card to Local. See Figure 407 above.
   b. Press the white Service Power Switch (rocker) downwards.
   c. Allow up to 10 minutes for the storage facility to power off. Go to step 1 on page 701 to verify that the CEC enclosure is now powered off.

      Did the power off complete successfully?
      - Yes, continue with "MAP4810 Section-4" on page 705.
      - No, contact your next level of support.

MAP4810 Section-3

Note: Use this section if you are resetting the service processor card in only one of the CEC enclosures in the storage facility. This must not be done on both of the CEC enclosures in the storage facility or this could result in customer data loss.

1. Verify that the CEC enclosure is powered off. At the rear of the storage facility, view the CEC enclosure power supplies for the CEC enclosure, which houses the service processor card that you have been asked to reset. See Figure 408 on page 703. **1** is the LED for AC GOOD, **2** is the LED for DC GOOD, **3** is the LED for IDENT.

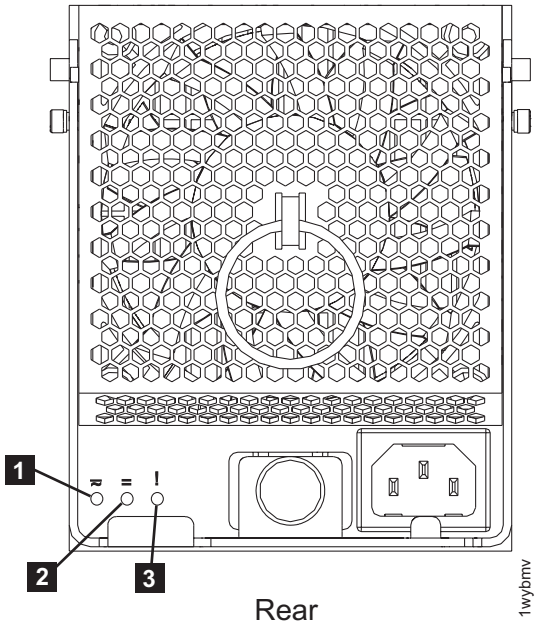


Figure 408. CEC Enclosure Power Supply LEDs

Are the DC GOOD LEDs lit continuously?

- Yes, continue with the next step.
- No, continue with "MAP4810 Section-4" on page 705.

2. Quiesce the LPARs that run on the CEC enclosure that requires the service processor card reset. Perform the following steps to select the CEC enclosure:

   Note: Repeat the following steps for each Storage Facility Image (SFI) (one or more) that runs on the CEC enclosure.

   a. Click **Service Applications** → **Service Focal Point** → **Service Utilities** → **Get Storage Facility Images**.
   b. Select the Storage Facility Image.
   c. Click **Selected** and then click **Quiesce an SFI LPAR**.
   d. Select the LPAR to be Quiesced, press the **Enter** key, and confirm the action.

3. Deactivate the LPARs that run on the CEC enclosure that requires the FSP reset. Perform the following steps to select the CEC enclosure:

   Note: Repeat the following steps for each SFI (one or more) that runs on the CEC enclosure.

   a. Click **Service Applications** → **Service Focal Point** → **Service Utilities** → **Get Storage Facility Images**.
   b. Select the Storage Facility Image.
   c. Click **Selected** and then click **Deactivate an SF LPAR**.
   d. Select the LPAR to be deactivated, press the **Enter** key, and confirm the action.

4. Attempt to power off the CEC enclosure using the Service Utilities. Perform the following steps to select the CEC enclosure:

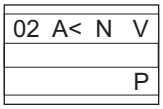
   Note: If there is a communication problem between the HMC and the service processor card, this step might not work.

a. Click **Service Applications** → **Service Focal Point** → **Service Utilities** → **Get Storage Facility Images**.
b. Select the CEC enclosure that requires a service processor card reset.
c. Click **Selected** and then click **Storage System Power Control**.
d. Click **Power Off System** and confirm the action.

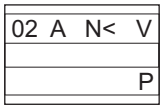
Did the power off complete successfully? See step 1 on page 702 to verify.

- Yes, continue with "MAP4810 Section-4" on page 705.
- No, continue with the next step.

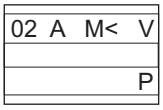
5. Power off the CEC enclosure using the CEC enclosure control panel. Perform the following steps while referring to Figure 409 on page 705.
   a. Press the Increment button until `02` is displayed on the display.
   b. Press **Enter**. Display will show:



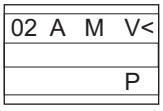
   c. Press **Enter**. Display will show:



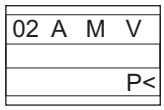
   d. Press the Increment button. Display will show:



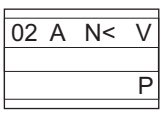
   e. Press **Enter**. Display will show:



   f. Press **Enter**. Display will show:



   g. Press **Enter**. Display will show `02` only.
   h. Press the Power push-button and hold it until you see the power down sequence start.
   i. Wait until the CEC enclosure has powered down (Power On light will be flashing).
   j. Reset the CEC enclosure to Normal mode. Repeat steps a through d. The display should now show:



   k. Press Enter three times. Display will now show `02` only.
   l. Continue with "MAP4810 Section-4" on page 705

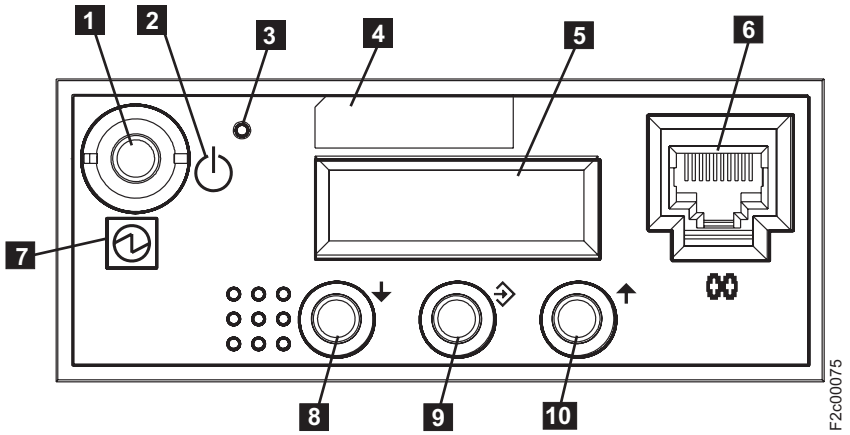


Figure 409. CEC enclosure control panel

Table 203. Key code for the CEC enclosure control panel

Key	Description
1	Power push-button
2	On/off power symbol
3	Service processor card reset pinhole
4	Type and serial number label
5	Function/data display
6	Ethernet connector
7	Power on light • A blinking light indicates standby power to the unit. • A constant light indicates full system power to the unit.
8	Decrement
9	Enter push-button
10	Increment

MAP4810 Section-4

Use this section to perform the reset of the service processor card.

1. Ensure you have completed the steps in "MAP4810 Section-2" on page 700 or "MAP4810 Section-3" on page 702 before performing the following steps.
2. To perform a reset of the service processor card, refer to Figure 409 to do the following:
   a. Unbend a paper clip so that it has a straight section about two inches long.
   b. Insert the clip straight into the hole, keeping the clip perpendicular to the plastic bezel.
   c. Feel the detent of the reset switch when it is engaged. After you press the switch, the service processor is reset, then the CEC enclosure shuts down.
3. Wait while the service processor card continues to IPL. This will take a few minutes. Following a good IPL, the CEC enclosure control panel will show:

01 N V=F
HMC=1 P

4. Return to the MAP that sent you here.

MAP4820 Performing a slow boot of a processor complex

This procedure provides guidance on how to perform a slow boot of a processor complex (or CEC enclosure).

Note: This procedure must only be used if you were sent here from elsewhere in maintenance package.

MAP4820 Section-1

1. Verify that the CEC enclosures are already powered off. At the rear of the storage facility, view the CEC enclosure power supplies. See Figure 410

   Are the DC GOOD LEDs lit continuously?

   - Yes, do not continue with the next step. Return to the procedure that sent you here.
   - No, continue with the next step.

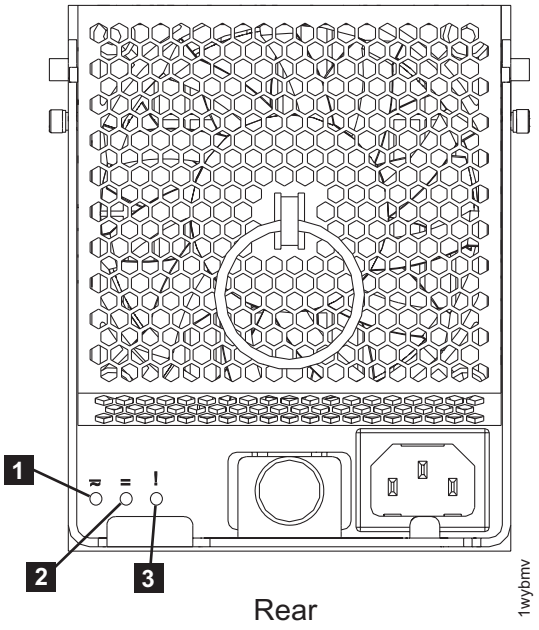


Figure 410. CEC Enclosure Power Supply LEDs

2. Use the CEC enclosure control panel to set the CEC enclosure to perform a slow boot on the next power on. Perform the following steps. Refer to Figure 411 on page 707 when performing these steps.
   a. Press the Increment button until 02 is displayed on the display.
   b. Press **Enter**. Display will show:

02 A< N V
P

   c. Press **Enter**. Display will show:

02 A N< V
P

d. Press **Enter**. Display will show:

02 A N V<
P

e. Press the Increment button twice. Display will show:

02 A N S<
P

f. Press **Enter**. Display will show:

02 A M S
P<

g. Press **Enter**. Display will show `02` only.

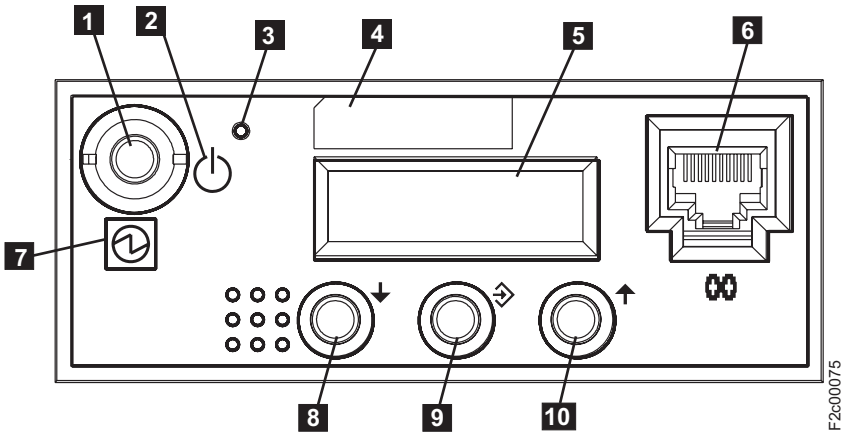


Figure 411. CEC enclosure control panel

Table 204. Key codes for the CEC enclosure control panel

Key	Description
1	Power push-button
2	On/off power symbol
3	Service processor card reset pinhole
4	Type and serial number label
5	Function/data display
6	Ethernet connector
7	Power on light • A blinking light indicates standby power to the unit. • A constant light indicates full system power to the unit.

Table 204. Key codes for the CEC enclosure control panel (continued)

Key	Description
8	Decrement
9	Enter push-button
10	Increment

3. Press the Power push-button to power on the CEC enclosure. See step Figure 411 on page 707 above.
4. Return to the MAP that sent you here.

MAP4830 Changing the process unit identifier

This procedure will provide guidance on how to change the Processing Unit Identifier (SPCN ID).

CAUTION:
This procedure must only be used if you were sent here from elsewhere in maintenance package.

MAP4830 Section-1

1. Verify if the managed system is powered off. At the rear of the storage facility, view the CEC enclosure power supplies. See Figure 412.
   Are the DC GOOD LEDs lit?

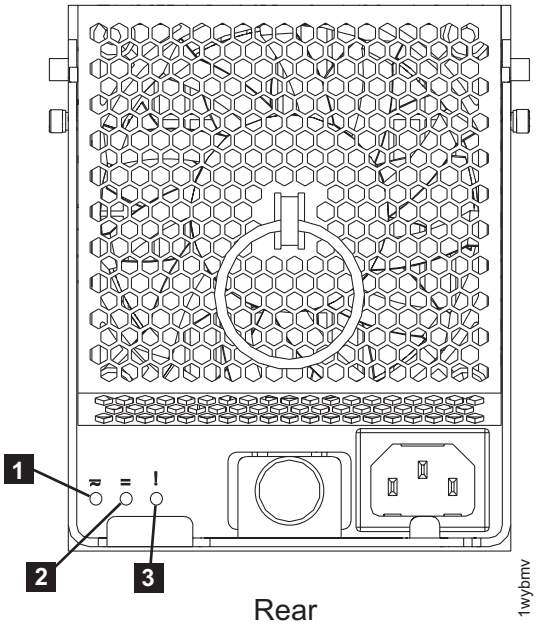


Figure 412. CEC Enclosure Power Supply LEDs

   - Yes, contact your next level of support.
   - No, continue with the next step.
2. Use ASMI to access the failing SF system. Refer to "MAP6F00 Accessing the ASMI" on page 851.
3. Logon to ASMI with userid: `general` and password `gen2107`.
4. Select **System Configuration** then **Processing Unit Identifier**. Set the **Identifier** value to B6 and click **Save Settings**.

5. The FSP (Service Processor) will then reboot. Allow up to 10 minutes for this to complete.
6. Return to the procedure that sent you here.

MAP4840 SF system fails to power off during service processor card repair

You have been sent to this procedure during the replacement of a service processor (FSP) card in one of the storage facility systems. **Warning:**. This procedure must **only** be used if you were sent here from elsewhere in maintenance package.

You are here because the replacement process either failed to power off the storage facility systems or was unable to verify if the SF System was already powered off. This can occur if the management console is unable to communicate with the service processor card.

MAP4840 Section-1

1. Verify if the managed system is powered off. At the rear of the storage facility, view the CEC enclosure power supplies. See Figure 413

   1 is the LED for AC GOOD, **2** is the LED for DC GOOD, **3** is the LED for IDENT.

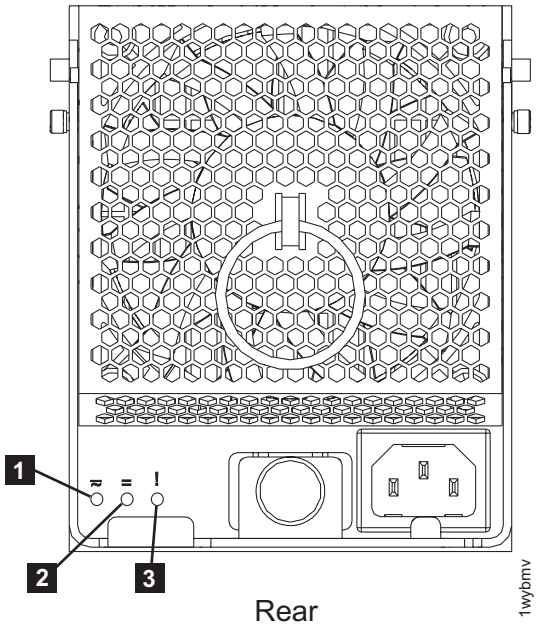
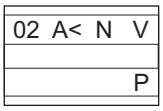


Figure 413. CEC Enclosure Power Supply LEDs

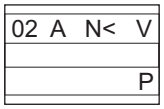
   Are the DC GOOD LEDs lit continuously?

   - Yes, continue with the next step.
   - No, the SF system is already powered off. Return to the on-screen panel that sent you here and continue with the replacement process.

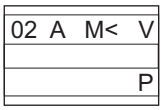
2. Attempt to power off the SF managed system using the CEC enclosure control panel. Perform the following steps. Refer to Figure 414 on page 711. **Note:** If the CEC enclosure control panel is inoperative, contact your next level of support.
   a. Press the Increment button until `02` is displayed on the display.
   b. Press **Enter**. Display will show:



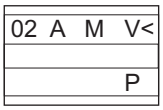
c. Press **Enter**. Display will show:



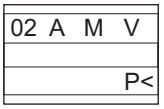
d. Press the Increment button. Display will show:



e. Press **Enter**. Display will show:



f. Press **Enter**. Display will show:

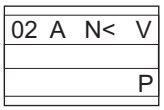


g. Press **Enter**. Display will show `02` only.

h. Press the Power push-button and hold it until you see the power down sequence start.

i. Wait until the CEC enclosure has powered down (Power On light will be flashing).

j. Reset the SF managed system to Normal mode. Repeat steps a through d. The display should now show:



k. Press **Enter** three times. Display will now show 02 only.

l. Continue with step 3.

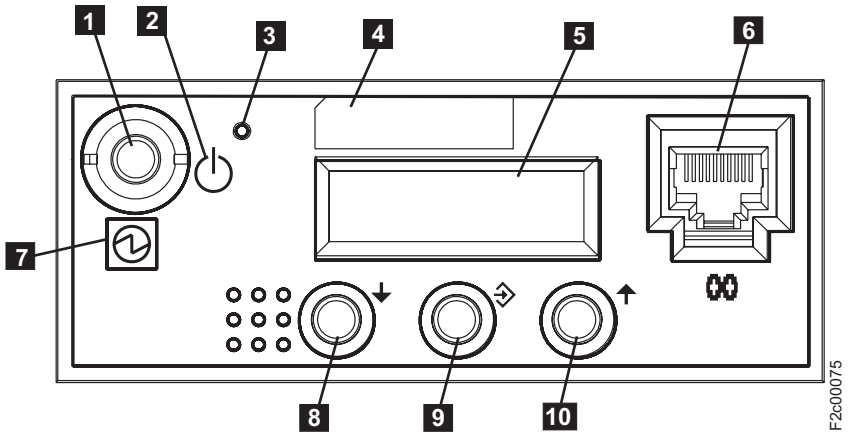


Figure 414. CEC enclosure control panel

Table 205. Key codes for the CEC enclosure control panel

Key	Description
1	Power push-button
2	On/off power symbol
3	Service processor card Reset pinhole
4	Type and serial number label
5	Function/data display
6	Ethernet connector
7	Power on light • A blinking light indicates standby power to the unit. • A constant light indicates full system power to the unit.
8	Decrement
9	Enter push-button
10	Increment

3. The CEC enclosure has now been powered off. Return to the on-screen panel that sent you here and continue with the replacement process.

MAP4910 Handling a missing or failing host adapter resource

This failure indicates that an expected Host Adapter (HA) or Host Adapter Port resource was not found (SRC=BE360010 or BE360012). This may mean that the resource is not in the expected location or the resource is failing in such a way that it can not be detected.

MAP4910 Section-1

1. View the list of serviceable events for this storage facility. For guidance, use "MAP1210 Displaying and repairing a serviceable event" on page 477. Do you have a serviceable event that indicates a 'higher level' failure, for example an I/O enclosure or RIO-G?
   - Yes, repair that serviceable event first. Return here if you still have missing resources after that is repaired.
   - No, continue with the next step.

2. View the list of serviceable events and check for any events other than SRC=BE360010 or BE360012 which list an HA as a FRU. Did you find any other serviceable events which meet this criteria?
   - Yes, repair that serviceable event first. Return here if you still have missing resources after that is repaired.
   - No, continue with the next step.
3. View the serviceable event details for any events with SRC=BE360010 or BE360012 and use the following table to determine the next action. Look carefully at the FRU location field to see if an HA card is listed as the FRU (U1300.001.ssssss-P1-Cx) or an HA port(U1300.001.ssssss-P1-Cx-Ty). For guidance on viewing serviceable event details use "MAP1210 Displaying and repairing a serviceable event" on page 477.

Table 206. MAP4910 symptoms and actions

Symptom	Action
Multiple HA cards are listed	Call your next level of support.
Single HA card	Go to "MAP4910 Section-2"
Single HA card and one or more ports on the same card	Go to "MAP4910 Section-2"
Single HA port	Go to "MAP4910 Section-3" on page 713
Multiple HA ports on the same card	Go to "MAP4910 Section-2"
Multiple HA ports on different HA cards	Call your next level of support.
Other conditions	Call your next level of support.

MAP4910 Section-2

1. Note the physical location of the failing HA card or HA card which contains the failing HA ports.
2. Locate the failing HA card and perform a visual inspection. For help in locating the failing HA card, use "MAP1245 Finding FRUs using location codes" on page 514.
3. Was a related MES, RPQ or repair procedure being followed before or at the time this error occurred?
   - Yes, ensure that all steps were completed properly. If no problem is identified, then call your next level of support.
   - No, continue with the next step.
4. Is there a card plugged into the failing slot?
   - Yes, continue with the next step.
   - No, if the card was removed using an MES, RPQ or repair procedure then ensure that all steps were completed. If no problem is identified, then call your next level of support.
5. Observe the power led for the slot containing the failing card. This is a green LED that is located towards the bottom of the card. Is the power LED lit?

   Note: There is an Amber LED used for 'Identify' that is located immediately below it. See "I/O enclosure light indicators" on page 1448 for further information
   - Yes, return to the serviceable event to replace the HA card.
   - No, the most likely FRU is the I/O enclosure backplane. However the HA card should be eliminated first. Perform the following:

a. Return to the Serviceable event to replace the HA card.

b. If replacement of the HA card does not resolve the problem, then replace the I/O enclosure backplane. Use **Service Applications → Service Focal Point → Exchange Parts**.

MAP4910 Section-3

1. Note the location code of the failing HA port. This provides the MTMS of the I/O enclosure and the HA card location.
2. Run the HA port wrap test to determine if the host adapter card or port is failing. Do the following:
   a. Select **Service Applications → Service Focal Point → Service Utilities**
   b. Select the storage facility, click **Selected**, and then choose **Manage FRUs**.
   c. Click **Show I/O Enclosures**, select the enclosure location, and then choose **Show Host Adapters**.
   d. Select the **Host Adapter** and select the **Perform Wrap Test** button
3. Did the test run successfully?
   - Yes, it appears that the port is functional. Call your next level of support.
   - No, return to the serviceable event to replace the HA card.

MAP4920 Handling a missing device adapter resource

This failure indicates that an expected device adapter resource was not found (SRC = BE340012). This may mean that the resource is not in the expected location or the resource is failing in such a way that it cannot be detected.

MAP4920 Section-1

1. Did this failure occur during an install procedure?
   - Yes, go to step 2.
   - No, go to step 7.
2. Does the serviceable event FRU list contain multiple storage enclosures?
   - Yes, go to step 3.
   - No, go to step 7.
3. Ensure that each end of the blue FC-AL cables in the rack are connected (one end at the storage enclosure, the other end at the I/O enclosure device adapter card). Review the installation instructions to determine if the FC-AL cables need to be routed from the rack that you are installing and connected to another rack.

   Are the cables connected properly?
   - Yes, observe the storage enclosure LEDs and DDMs to ensure power is on. If the power is not on, review the installation instructions or call the next level of support. If the power is on, go to step 7.
   - No, go to the next step.
4. Use the installation instructions to connect the FC-AL cables correctly.
5. The storage enclosures now need to have the hardware resources ″harvested″. This automatically occurs each time the storage facility is powered on or when a CEC enclosure is powered on. To harvest the hardware resources, perform either of the following procedures:
   - Power-cycle the storage facility.

- Use the **Service Focal Point → Exchange Parts** option to do a pseudo part replacement of a CEC enclosure FRU (when you perform a pseudo part replacement, you do not actually replace the part, even though you use the part replacement procedure)

6. Manually invoke the DDM certify process to the DDMs in the storage enclosures that you just recabled.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications → Service Focal Point**.
   c. In the right content area, select **Service Utilities**. A window displays a list of Storage Facilities.
   d. Select the Storage Facility that is being installed. On the main menu, click **Selected → Certify DDMs...**.
   e. The certify process can take a few hours. Continue the installation procedure during the certify process.
7. View the list of Serviceable Events for this Storage Facility. For guidance, use "MAP1210 Displaying and repairing a serviceable event" on page 477

   Do you have an open serviceable event that lists a FRU that is related to the same resource in the serviceable event that sent you here? (For example, an I/O enclosure backplane, device adapter card, FC-AL cable, FCIC card, storage enclosure backplane, or DDM?)
   - Yes, repair that serviceable event first. After the repair, if you still have missing resources, return here.
   - No, go to the next step.
8. Visually inspect the resource or FRU listed in the serviceable event that sent you here. Use the location code listed to ensure that the part is not physically missing or that it has not been installed in the wrong location during a repair. Use the following guidelines:
   - If the part is missing, repeat the install or service procedure to install the part. If an install cannot be repeated, try using the **Service Focal Point → Exchange Parts** procedure.
   - If the part was installed in the wrong location, the code has discovered it and created a resource object for it. Even after you physically remove the part, the resource object will remain. The resource object must be found and manually removed with command line access; call the next level of support for this.
   - Even if a part is present and passes a visual inspection, replace it. To replace the part, use the sserviceable event FRU list or use the **Service Focal Point → Exchange Parts** procedure.

MAP4970 SRCs that require next level of support or special repair actions

This MAP is called for SRCs that require special repair actions to be performed by the CE or next level of support. The normal replacement of FRUs, applying code updates, power-cycling the CEC, or power-cycling the storage facility will not correct these conditions.

MAP4970 Section-1

Most SRCs that call this MAP will require that you call the next level of support.

- If your SRC is listed in Table 207 on page 715, try to repair it before you call the next level of support.

- If your SRC is not listed in Table 207, call the next level of support now.

Table 207. SRCs that require special repairs

SRC	Repair
BE1E2043 BE1E2044 BE1E204A BE1E204B BE1E2050 BE1E2051 BE1E2054	The LPAR code has detected and is reporting a permanent error condition that is most likely caused by a hardware problem. Display and repair any serviceable events with hardware FRUs for the CEC enclosures, then close the serviceable event that sent you here.
BE1E2110 BE1E2111 BE1E2112 BE1E2113 BE1E2114 BE1E2115 BE1E2116 BE1E2117	SRC definitions: • BE1E2110 LIC Feature Instant Image Disabled • BE1E2111 Instant Image V2 Disabled • BE1E2112 PAV Disabled • BE1E2113 PPRC Disabled • BE1E2114 PPRC V2 Disabled • BE1E2115 Remote Flash Copy Disabled • BE1E2116 XC Miscompare • BE1E2117 XRC Disabled Go to “MAP4990 LIC feature license failure.”
BE340012	The resource manager harvest process has found one or more missing resources. Go to “MAP4920 Handling a missing device adapter resource” on page 713.
BE340026	Device Health check attempted to fail a rejected, bypassed, or unknown DDM, but was unable to determine the location code. The DDM might not be fully installed or the DDM object might be missing. Go to “MAP4920 Handling a missing device adapter resource” on page 713.
BE340027	The DDM system level verify install process detected a bypassed/empty slot and was unable to unbypass the slot. Call the next level of support. They will look up the special command line procedure for this SRC and dial into this storage facility to correct the problem.
BE360010 BE360012	The Host Adapter harvest process has found missing devices. Go to “MAP4910 Handling a missing or failing host adapter resource” on page 711.
BE362602	The card type of the host adapter FRU does not match the card type of the original failed host adapter. To resolve the mismatch, remove and reinstall the new host adapter FRU (**Service Applications → Service Focal Point → Install/Add/Remove Hardware**).
BE362604	The host adapter card could not be discovered and/or configured even though the owning PCI slot is powered on. Verify that the card is seated correctly. If the card is seated correctly, retry the service action. If the service action continues to fail, the host adapter card might be defective and needs to be replaced.
All other SRCs	The MAP and SRC are working as designed. Call your next level of support. This MAP is a general usage MAP, so some SRCs have actions listed above while others need next level of support procedures to recover the code condition that is being reported.

MAP4990 LIC feature license failure

This procedure will guide you in handling a LIC feature license failure.

There are licensed features that the customer buys a license for. The customer enables the features by downloading unique activation codes from an IBM website for the specific storage facility. If there is a mismatch, a problem will be created with an SRC field that identifies the feature that is disabled.

MAP4990 Section-1

1. Display the serviceable event and use the listed SRC code to identify the LIC feature that is disabled
   - 2110 LIC Feature Instant Image Disabled
   - 2111 Instant Image V2 Disabled
   - 2112 PAV Disabled
   - 2113 PPRC Disabled
   - 2114 PPRC V2 Disabled
   - 2115 Remote Flash Copy Disabled
   - 2116 LPAR LIC Feature Miscompare between partner LPARs of an SFI
   - 2117 XRC Disabled
2. Have the customer display the LIC feature status. (LIC feature activation is the customer responsibility, there is no management console (HMC) option for the service provider to display or activate these features. The LIC feature will be disabled if the customer has not created and installed the LIC feature.

   Note: The LIC features are automatically reloaded as part of the processor complex hard disk drive rebuild process.
3. The LIC feature will be automatically disabled if the Configured Capacity exceeds the Feature Capacity Limit. If it does, have the customer do one of the following:
   - Reduce the configured capacity.
   - Purchase more LIC feature capacity.
4. Ensure that the LIC feature capacities are the same on both LPARs of a storage facility image (SFI). If they are not, call the next level of support.
5. Was there a LIC feature already installed on this storage facility?
   - Yes, a feature might have been removed, and both LPARs for that SFI need to be rebooted. Call the next level of support for the latest procedure.
   - No, call the next level of support.

MAP4A00 HMC failure with CCL code update or code update utility still active

This procedure is called for when a error is detected but the management console (HMC) cannot communicate with the Storage Facility Image (SFI) to suspended CDA, or the HMC fails and becomes inaccessible while a code load is in process. CDA attributes are kept in the SFI. For the later condition no open problems can be viewed.

This MAP is called for when a error is detected but the HMC cannot communicate with the SFI to suspended code update or the HMC fails and becomes inaccessible while a code load is in process. Code update status is kept in the SFI. For the later condition no open problems can be viewed.

A single HMC can be controlling a code update on more than one DS8000 at a time. Only one Storage Facility Image on a DS8000 is updated at a time. If the

HMC itself fails, then more than one code update could also fail. In that case, there should be a separate serviceable event for each code update process. They will be repaired individually.

MAP4A00 Section-1

1. Can you login to the HMC?
   - Yes, go to the next step.
   - No, you must be able to login to the HMC to continue in this MAP. Go to "MAP6000 Entry point for analyzing management console problems" on page 766. After you can once again login, return to this MAP and continue with step 2.
2. Display the code update request status for the SFI. From the HMC navigation select: **Licensed Internal Code Maintenance → Licensed Internal Code Updates → Change Internal Code**. Select the **Storage Facility**, then click **Selected**. Select **Update and Recovery Utilities → Display Update Request Status → Request Management Utilities**.

   Note: If a code update is still active in the SFI, and the HMC is no longer aware of that status, using this option to display the status will create a new serviceable event. It will also suspend the code update process in the SFI. (You should not have been sent to this MAP, if this case does not apply.)

   Can the HMC display the status?
   - Yes, go to the next step.
   - No, display and repair serviceable events for the CEC enclosure and private network. After the repair is complete, return to the beginning of this MAP.
3. Has one of the following occurred since the code update process was started?
   - HMC hard drive was replaced or the code image was reloaded during an HMC repair.
   - HMC was replaced with a different HMC.
   - Yes, ensure the HMC is loaded with the code level for the update that was in progress. Then go to the next step.
   - No, go to the next step.
4. Wait two minutes before proceeding. This will allow the code update process enough time to create a serviceable event if needed. Was a new serviceable event created with an SRC of BE9Cxx40 / BE9Cxx41(code update invoked by an HMC utility option) or BE9CxxC0 / BE9CxxC1 (code update process invoked by CCL process)?
   - Yes, close the serviceable event that sent you here and then exit this MAP. Continue the repair with the new serviceable event.
   - No, close the serviceable event that sent you here. Exit this MAP and start the code update process over again from the beginning. If it fails again in this MAP step, call the next level of support.

MAP4A10 Code update error during acquire

Acquiring the code to be loaded onto the HMC detected a problem.

MAP4A10 Section-1

1. Can you login to the HMC?
   - Yes, go to the next step.
   - No, exit this MAP and isolate the failure to login.

2. Find the SRC in the table below to determine the repair action.

Table 208. Repair action for code update error

SRC	Description	Action
BE9C2080	Code update process lost communication with the WebSM client.	Go to step 3.
BE9C2081	Acquired failed due to internal error.	Call next level of support.
All other SRCs.	Not an expected condition.	Call next level of support.

3. Do the following steps:
   a. Logout from the HMC
   b. Login to the HMC
   c. Restart the code update "acquire" process. If it fails, call the next level of support.

MAP4A20 Error during update of HMC code

An error was detected during the HMC code update process.

MAP4A20 Section-1

1. Can you login to the HMC?
   - Yes, go to the next step.
   - No, exit this MAP and isolate the failure to login.
2. Find the SRC in the table below to determine the repair action.

Table 209. Repair action for code update error

SRC	Description	Action
BE9C0080	Code update process lost communication with the WebSM client.	Go to step 3.
BE9C0081	HMC update failed due to internal error.	Call next level of support.
All other SRCs.	Not an expected condition.	Call next level of support.

3. Do the following steps:
   a. Logout from the HMC.
   b. Login to the HMC.
   c. Restart the HMC update process. If it fails, call the next level of support.

MAP4A30 CCL code update process was manually suspended

A CCL code update process has been manually suspended by the service representative using the HMC Emergency Update Utility option **Suspend Code Update**.

This would occur for one of the following reasons:

- Directed by MAP4A00 HMC failure with CCL code update or code update utility still active
- A service representative suspended the CCL code update for an unknown reason.

There should not be an additional serviceable event as the code update process was manually suspended, and not suspended by the code update process discovering an unexpected serviceable event.

MAP4A30 Section-1

1. In addition to the serviceable event that sent you here, are there any other open serviceable events?
   - Yes, go to the next step.
   - No, continue with step 3.
2. Display the serviceable event details for the other serviceable event that did not send you here. Use the following table to prioritize the repair sequence.

   Note: You will not be able to reselect the serviceable event in the original window that you used to select it when you began this repair. Instead, return to the main HMC menu selection and repeat the steps to view serviceable events.

Table 210. MAP4A30 repair prioritization

Serviceable event type	Repair Sequence	Action
CEC enclosure serviceable event	1	Repair serviceable event and then return here and continue.
All other problems except any serviceable event with MAP4A50 in the FRU list.	2	Repair serviceable event and then return here and continue.
Serviceable event with MAP4A50 in FRU list.	3	Repair serviceable event and then return here and continue.
All other serviceable events repaired.	4	Go to the next step.

3. Exit this MAP and go to MAP4A60 Verify resources before restarting CDA CCL.

MAP4A40 Code update CCL process was automatically suspended

This MAP is called for a CCL Activate Step that is automatically suspended by CCL. A code update process activate step running under CCL has been automatically suspended by an unexpected problem that should have created a separate serviceable event from the one that sent you here.

This MAP is called for a CDA Activate Step that is automatically suspended by CDA.

MAP4A40 Section-1

1. In addition to the serviceable event that sent you here, are there any other open serviceable events?
   - Yes, continue with step 3.
   - No, continue with step 2.
2. Did you already repair a related serviceable event or problem?
   - Yes, go to step 4.

- No, the code update has failed with no associated error, call next level of support.

3. Display the serviceable event details for the other serviceable event that did not send you here. Use the following table to prioritize the repair sequence.

   Note: You will not be able to reselect the serviceable event in the original window that you used to select it when you began this repair. Instead, return to the main HMC menu selection and repeat the steps to view serviceable events.

Table 211. MAP4A40 repair prioritization

Serviceable event type	Repair Sequence	Action
CEC enclosure serviceable event	1	Repair serviceable event and then return here and continue.
All other problems except any serviceable event with MAP4A50 in the FRU list	2	Repair serviceable event and then return here and continue.
Serviceable event with MAP4A50 in FRU list	3	Repair serviceable event and then return here and continue.
All other serviceable events repaired	4	Go to the next step.

4. Exit this MAP and go to MAP4A60.

MAP4A50 CCL Code update errors that will result in code update being automatically suspended

MAP4A50 Section-1

This MAP is called for a CCL code update that has been automatically suspended. The other serviceable events will be repaired first, and then this MAP will be used last. The information in this serviceable event will be used by next level of support if the repair cannot be completed and next level of support is called.

1. Where you sent here by MAP4A30 or MAP4A40?
   - Yes, go to step 4.
   - No, go to the next step.
2. Is there an open serviceable event with an SRC of BE9CFFFE?
   - Yes, exit this MAP now. Leave the serviceable event that sent you here in open status. Continue the repair using the serviceable event with the SRC of BE9CFFFE.
   - No, go to the next step.
3. Is there another serviceable event that has MAP4A30 or MAP4A40 in the FRU list?
   - Yes, exit this MAP and go repair it.
   - No, call the next level of support.
4. Is there an additional serviceable event?
   - Yes, call next level of support. (MAP4A30 or MAP4A40 should have repaired all other serviceable events.)
   - No, exit this MAP, close the serviceable event that sent you here, and return to the MAP that sent you here.

MAP4A60 Verify resources before restarting CCL code update

MAP4A60 Section-1

All other serviceable events for the code update process failure have been repaired. This MAP provides guidance for special processing that is required before resuming selected resources. (You will only be sent here from MAP4A30 or MAP4A40.)

1. There should only be one serviceable event left open from the MAPs that sent you here. Do you have only one serviceable event open, and is its SRC = BE9C*xx*C0 or BE9C*xx*C1?
   - Yes, go to the next step.
   - No, call the next level of support.
2. Are either RPC cards in service mode? See "MAP1100 View storage facility state (end of call)" on page 446.

   Note: This is a normal condition during the code update process that would have been automatically reset if the code update process had continued without error.
   - Yes, call the next level of support.
   - No, continue with step 3.
3. Is a storage facility image LPAR in service mode? See "MAP1100 View storage facility state (end of call)" on page 446.

   Note: This is a normal condition during the code update process that would have been automatically reset if the code update process had continued without error.
   - Yes, go to next step.
   - No, continue with step 7.
4. Is the SRC of the serviceable event that sent you here equal to BE9C56*xx* or BE9C66*xx* (install was in progress)?
   - Yes, call the next level of support.
   - No, go to step 5.
5. Remove the 'norsstart' file. From the HMC navigation select: **Service Focal Point → Service Utilities**. Select the **Storage Facility**, open the **Selected** menu on the tool bar. Select **Get ESS LPARS → LPAR → Reset No-rsStart**.
6. Resume the LPAR. From the HMC navigation select: **Service Focal Point → Service Utilities**. Select the **Storage Facility**, open the **Selected** menu on the tool bar. Select **Get ESS LPARS → LPAR → Start/Stop SFI LPAR**.
7. Are there any open serviceable events with an SRC of BE9C7*xxx*?

   Note: This indicates that the code update process was updating host adapters.
   - Yes, go to step 8.
   - No, go to step 11.
8. A host adapter card and host adapter port that has completed its code update will have a state=0. Determine the state of the host adapter cards and host adapter ports.

   Note: For definitions of states other than 0, reference "MAP1100 View storage facility state (end of call)" on page 446.

   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).

b. Open **Service Applications → Service Focal Point**
c. In the right content area, select **Service Utilities**, a window appears displaying a list of storage facilities.
d. Select the storage facility, click **Selected** (on top tool bar), and then select **View Resources State**.
e. In the View Resources State panel, check the State for the IBM.EssHA and IBM.EssHAPort resources.
f. Are there any host adapter cards or ports with a state other than 0?
   - Yes, go to step 9.
   - No, go to step 11.

9. The code update may complete successfully if the card is quiesced and resumed. A psuedo repair using the HMC ″Exchange Part″ option will be used to force this.
   a. Call the next level of support. From the Review Resources State screen, provide them the Identifier (third column) (for example: cpssfc0232) of the card/port that have a state not equal to 0. They will need to determine the specific location of the FRU. This is the MTMS (machine type model serial) of the I/O enclosure and the physical location (PCI slot) the card resides in (for example: U1300.001.102ABBA-P1-C3), and then determine a FRU location
10. Use the location code of the host adapter card to do the pseudo repair. This means you do the complete replacement procedure but do not disconnect any cables or remove the host card. Use the Exchange FRU option to replace the FRU.
    a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
    b. Open **Service Applications → Service Focal Point**.
    c. In the right content area, select **Exchange Parts**, a window appears displaying a list of storage facilities.
    d. Select the storage facility, click **Selected** (on top tool bar), and then select the Enclosure or Component containing the FRU.
    e. Select the enclosure location code, click Enclosure or Component. Then select the **Show FRUs** button, select **FRU Location Code** and click the **Exchange FRU** button.
    f. Go to step 8 to determine if the pseudo repair allowed the code update to complete successfully. If the state=0, continue at step 11. If the state does not equal 0, replace the card with a new FRU and then return to step 8.
11. Is the control switch for CUIR (Control Unit Initiated Request) enabled on the storage facility images that were being updated?
    - Yes, It is unknown if all customer paths were successfully restored. Have the customer check and restore their paths or call the next level of support for help if needed. After all customer path access is confirmed, return here and go to step 12.
    - No, go to step 12.
12. Close the serviceable event that sent you here and go to step 13.
13. Restart the code update process. From the HMC navigation select: **Licensed Internal Code Maintenance → Licensed Internal Code Updates → Change Internal Code**. Select **Storage Facility**, from **Tool** menu and select **Update Storage Facility Code**, select **Storage Facility Image** and click **OK**. The panel will indicate update in progress, select **Resume**.

MAP4A70 CCL code update process completed but not all resources were updated

A CCL code update process detected a problem during the update and was able to continue. Not all code updates were completed.

MAP4A70 Section-1

1. Display the code update request status for the Storage Facility Image (SFI). From the HMC navigation select: **Licensed Internal Code Maintenance → Licensed Internal Code Updates → Change Internal Code**. Select **SFI**, open the **Selected** menu, choose **Update and Recovery Utilities** and **Display Update Request Status**.
2. Is code update active?
   - Yes, wait until the code update status is `complete` and then go to the next step.
   - No, go to the next step.
3. Use the following table to determine the repair action for the SRC you have.

SRC	Description	Action
BE9C7x87	Vary Off of Host Adapter port failed	Go to "MAP4A70 Section-2" on page 724.
BE9C7x89	Fast Load of Host Adapter failed	Go to "MAP4A70 Section-3" on page 724.
BE9C7x8A	CUIR not supported by host system	Go to "MAP4A70 Section-3" on page 724.
BE9C7x8B	Quiesce of Host Adapter failed	Go to "MAP4A70 Section-3" on page 724.
BE9C7x8C	CUIR found disabled for host system connections that support CUIR	Go to "MAP4A70 Section-3" on page 724.
BE9C8x81	Storage Enclosure firmware update bypassed because an owner device adapter is not in the working state	Call the next level of support.
BE9C8x82	Storage Enclosure firmware update bypassed because an array is not in a good state	Call the next level of support.
BE9C8x83	Storage Enclosure firmware update bypassed because there are no DDMs from issdload -s	Call the next level of support.
BE9C8x84	Storage Enclosure firmware update bypassed because not all DDMs on the adapter are available	Call the next level of support.
BE9C8x85	Storage Enclosure firmware update bypassed because a DDM is not in a good state	Call the next level of support.
BE9C8x86	Storage Enclosure firmware update bypassed because a storage enclosure is not in a good state	Call the next level of support.

SRC	Description	Action
BE9C8x87	Storage Enclosure firmware update bypassed because there are no device adapters available	Call the next level of support.
BE9C8x88	Storage Enclosure firmware update bypassed because there is a FC-AL loop problem	Call the next level of support.
BE9C8x89	Invalid Parameters	Call the next level of support.
BE9C8x90	Insufficient Number of Spare	Call the next level of support.
BE9C8x91	Internal Error	Call the next level of support.
Other ESCs	n/a	Call the next level of support.

MAP4A70 Section-2

The code update of the host card failed while accessing the port listed in the FRU group. The replace FRU process for the host adapter card automatically attempts to load the latest code available on the host card ports. The host card and the host card ports might not be bad, but instead might only need the code update attempted again. Go to "MAP4A70 Section-3."

MAP4A70 Section-3

The code update of the host cards listed in the FRU group failed. The replace FRU process automatically attempts to load the latest code available on the host card. The host card might not be bad, but instead might only need the code update attempted again.

The host card needs to be quiesced and then resumed to complete the code load process. There are no utilities to do this. Instead, you will do a psuedo parts exchange of the host card. A psuedo parts exchange means you use the serviceable event FRU replace process, but do not disconnect the host cables or remove the host card when prompted.

1. At the same time this procedure was displayed, the PBcommonPostInfoCenterIsolateQuery10 screen was also displayed. Find the PBcommonPostInfoCenterIsolateQuery10 screen and select **Problem not fixed**. You will then be guided to replace the next FRU in the list, which will be the host card. After that is complete, return here and continue.

   Was the psuedo FRU exchange successful?

   - Yes, repeat this process for any other host cards that may be listed in the FRU list. When finished, exit this MAP and close the serviceable event that sent you here.
   - No, repeat the repair, but this time replace the host card with a new FRU. When there are no more host cards needing a code update, exit this MAP and close the serviceable event that sent you here.
2. Activate CUIR (for the procedure, see the appendix of the Codeload instructions).
3. Restart Codeload.

MAP4A80 Code update utility process was manually suspended

A code update utility process has been manually suspended by the service representative using the HMC Emergency Update Utility option, **Suspend Code Update**. This would occur for one of the following reasons:

1. Directed by "MAP4A00 HMC failure with CCL code update or code update utility still active" on page 716.
2. Service representative suspended the utility code update for an unknown reason.

There should not be an additional serviceable event as the code update process was manually suspended, and not suspended by the code update process discovering an unexpected serviceable event.

MAP4A80 Section-1

1. In addition to the serviceable event that sent you here, are there any other open serviceable events?
   - Yes, go to the next step.
   - No, continue with step 3.
2. Display the serviceable event details for the other serviceable event that did not send you here. Use the following table to prioritize the repair sequence.

   Note: You will not be able to reselect the serviceable event in the original window that you used to select it when you began this repair. Instead, return to the main HMC menu selection and repeat the steps to view serviceable events.

Table 212. Service repair sequence priority

Serviceable Event Type	Repair Sequence	Action
CEC Enclosure serviceable event	1	Repair serviceable event and then return here and continue.
All other problems except any serviceable event with MAP4A80 or MAP4AA0 in the FRU list.	2	Repair serviceable event and then return here and continue.
Serviceable event with MAP4AA0 in FRU list.	3	Close this serviceable event and then continue.

3. Close the serviceable event that sent you here.

   Note: There should be no open serviceable events remaining now.
4. Exit this MAP and restart the original code update Utility option from the beginning.

MAP4A90 Code update utility process was automatically suspended

A code update process started by a Utility option has been automatically suspended by an unexpected problem that should have created a separate serviceable event from the one that sent you here.

MAP4A90 Section-1

1. In addition to the serviceable event that sent you here, are there any other open serviceable events?
   - Yes, continue with step 3.
   - No, go to the next step.
2. Did you already repair a related serviceable event or problem?
   - Yes, go to step 4.
   - No, the code update has failed with no associated error, call next level of support
3. Display the serviceable event details for the other serviceable event that did not send you here. Use the following table to prioritize the repair sequence.

   Note: You will not be able to reselect the serviceable event in the original window that you used to select it when you began this repair. Instead, return to the main HMC menu selection and repeat the steps to view serviceable events.

Table 213. Service repair sequence priority

Serviceable Event Type	Repair Sequence	Action
CEC Enclosure serviceable event	1	Repair serviceable event and then return here and continue.
All other problems except any serviceable event with MAP4A90 or MAP4AA0 in the FRU list.	2	Repair serviceable event and then return here and continue.
Serviceable event with MAP4AA0 in FRU list.	3	Close this serviceable event and then continue.

4. Close the serviceable event that sent you here.

   Note: There should be no open serviceable events remaining now.
5. Exit this MAP and restart the original code update Utility option from the beginning.

MAP4AA0 Code update utility errors that caused a suspend

MAP4AA0 Section-1

This code load utility has been automatically suspended. The other serviceable events will be repaired first and then this MAP will be used last. The information in this serviceable event will be used by the next level of support if the repair cannot be completed and the next level of support is called.

1. Were you sent here by MAP4A80, MAP4A90, or MAP4AE0?
   - Yes, go to step 3 on page 727.
   - No, go to the next step.
2. Is there an open serviceable event with an SRC of BE9CFFFE (HMC rebooted during the CDA process, special HMC recovery state)?
   - Yes, exit this MAP now. Leave the serviceable event that sent you here in open status. Continue the repair using the serviceable event with the SRC of BE9CFFFE.
   - No, go to the next step.

3. Does the additional serviceable event have a FRU list that contains MAP4A80, MAP4A90, or MAP4AE0?
   - Yes, exit this MAP and continue the repair using that serviceable event.
   - No, call the next level of support.

MAP4AB0 Unknown Code Update Error

An unknown error has been detected by the CDA process.

This MAP overrides all other CDA MAPs that may have been called.

MAP4AB0 Section-1

Call the next level of support. This MAP overrides all other code update MAPs (MAP4A00 - MAP4AC0).

MAP4AC0 Code update pre-verify check

At the start of the code update process (CCL or utility), the process failed the pre-verify check. The pre-verify check ensures all the needed functional code and HMC code resources are available. The next level of support will need to be called to resolve it.

MAP4AC0 Section-1

1. Call the next level of support. This MAP overrides all other code update MAPs (MAP4A00 - MAP4AB0)

MAP4AD0 PPS reset procedure to recover from SRC BE193602, BE193603, BE193802, BE193803

When you install new PPS power firmware on a machine with a PPS code level of 052629 or 062634, the code distribute and activate (CDA) process might fail. Use this MAP to fix the problem.

When the CDA process fails, one of the following SRCs will be reported:

SRC	Condition
BE193602	The PPS-1 (upper) failed to go into firmware download mode.
BE193603	The firmware S-record data transfer to the PPS-1 (upper) failed.
BE193802	The PPS-2 (lower) failed to go into firmware download mode.
BE193803	The firmware S-record data transfer to the PPS-2 (lower) failed.

If there is more than one rack in the storage facility, all of the upper PPSs are updated in parallel and then all of the lower PPSs are updated in parallel. If one PPS fails, it interrupts the parallel process to the other PPSs also. It will be necessary to reset the failed or interrupted PPSs.

MAP4AD0 Section-1

1. Identify the failing PPS using the location code in the serviceable event FRU list that sent you here. E1 is the location code for the upper PPS. E2 is the location code for the lower PPS.

Note: The failing PPS will have its front red power fault LED off. The working PPS will have its front red power fault LED flashing, to report the failure of the other PPS.

2. Is there more than one rack in the storage facility?
   - Yes, go to the next step, perform it on each rack, and then go to step 4. For example, if the location of the failing PPS is E2 (the lower PPS), perform step 3 on the lower PPS in each rack, and then go to step 4.
   - No, go to the next step.
3. Reset the failing PPS.

   Important: In the following step, do not mistakenly disconnect the cable from connector J3a on the 5/12V DDM module.

   a. At the rear of the failing PPS, disconnect the cable from connector J3 on the sequencer module. See Figure 415.

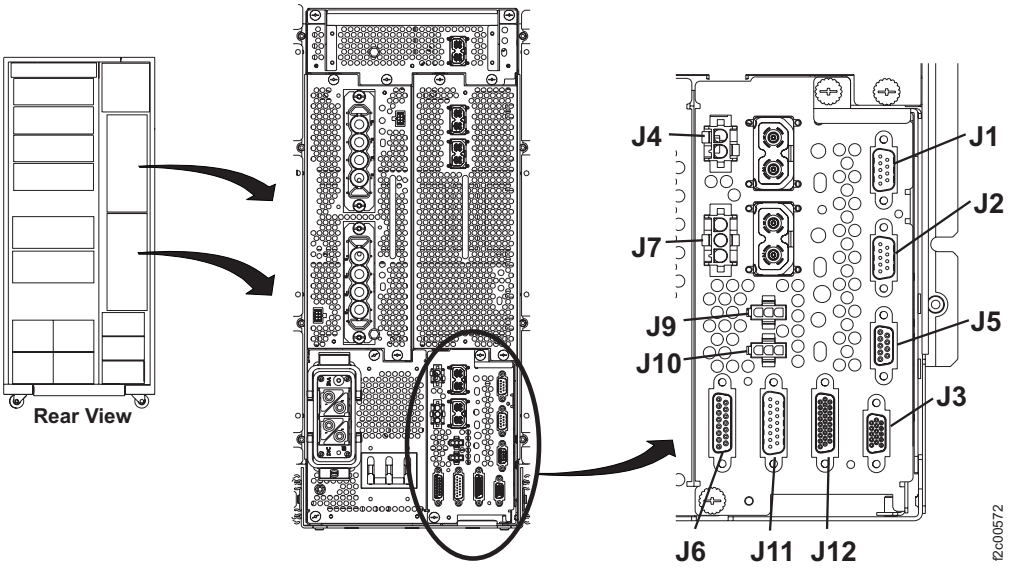


Figure 415. Identifying the connectors on a sequencer module (rear of a PPS)

   b. Disconnect the cable from connector J4.
   c. Disconnect the cable from connector J6.
   d. At the AC input power module (to the left of the sequencer module), switch off the yellow CB.
   e. Reconnect the cables to connectors J4 and J6 on the sequencer module.
   f. At the AC input power module, switch on the yellow CB and wait one minute for the PPS to power up.
   g. Reconnect the cable to connector J3 on the sequencer module.
4. Retry the PPS power firmware update process. Was the update successful?
   - Yes, exit this MAP.
   - No, go to the next step.
5. Did the failure occur on the same PPS (for example, E1 or E2)?
   - Yes, go to the next step.
   - No, return to step 1 on page 727.
6. Replace the PPS sequencer module, P/N 22R5730.

- The sequencer module code is corrupted and can only be reloaded by the factory.
- The FRU list includes the PPS as a possible failing FRU. The guided procedure for the PPS will instruct you to replace all five modules that are part of the base PPS FRU.
- Use the PPS procedure, but only replace the sequencer module.

7. Retry the PPS power firmware update process. Was the udpate successful?
   - Yes, exit this MAP.
   - No, call the next level of support.

MAP4AE0 Code migration to R2 utility process was automatically suspended

The Release Upgrade - Single CEC Utility option has been automatically suspended by an unexpected problem that should have created a separate serviceable event from the one that sent you here.

MAP4AE0 Section-1

1. In addition to the serviceable event that sent you here, are there any other open serviceable events?
   - Yes, continue with step 3.
   - No, go to the next step.
2. Did you already repair a related serviceable event or problem?
   - Yes, go to step 6 on page 730.
   - No, the code update has failed with no associated error; call the next level of support.
3. Use Table 214 to determine if any special restrictions exist for the repair action for the system reference codes (SRCs) that you have.

Table 214. SRC BE9D1xC1

SRC	Description	Action
BE9D1xC1	Failure during CEC migration	Go to step 4.
Other error symptom codes	N/A	Go to step 5.

4. The update of both the CEC firmware and LPAR AIX® operating system did not complete properly. There is an intermix of CEC firmware at GA7 and AIX at 5.2, which are not compatible.

   Note: Do *not* resume or IML an LPAR in the CEC being upgraded during the repair process. If the repair process requires an LPAR resume or IML, stop and call the next level of support.

5. Display the serviceable event details for the other serviceable event that did not send you here.

   Use Table 215 to prioritize the repair sequence.

Table 215. Event types

Serviceable event type	Repair sequence	Action
CEC enclosure serviceable event	1	Repair the serviceable event and then return here and continue.

Table 215. Event types (continued)

Serviceable event type	Repair sequence	Action
Any other serviceable event that does not have MAP4AA0 in the FRU list	2	Repair the serviceable event and then return here and continue.
Any serviceable event with MAP4AA0 in FRU list	3	Close the serviceable event and then return here and continue.

6. Close the serviceable event (with MAP4AE0 in the FRU list) that sent you here.
7. Find the SRC from the serviceable event that you just closed and use Table 216 to determine the correct restart action.

Table 216. SRCs

SRC	Description	Action
BE9D00C1	Prepare for upgrade	Go to "MAP4AE0 Section-4" on page 732
BE9D01C1	Preverify failed	Go to "MAP4AE0 Section-4" on page 732
BE9D02C1	Quiescing LPARs failed	Go to "MAP4AE0 Section-4" on page 732
BE9D03C1	Updating Ethernet firmware failed	Go to "MAP4AE0 Section-4" on page 732
BE9D10C1	eServer upgrade to GA7 failed	Go to "MAP4AE0 Section-2" on page 731
BE9D11C1	LPAR upgrade AIX 5.3 and DS8000 LMC Rel 2 failed (for a Dual storage facility image (SFI) configuration, both LPARs in the CEC are updated)	Go to "MAP4AE0 Section-2" on page 731
BE9D12C1	LPAR upgrade AIX 5.3 and DS8000 LMC Rel 2 failed (for a Dual SFI configuration both LPARs in the CEC are updated) - Timed out	Go to "MAP4AE0 Section-2" on page 731
BE9D13C1	Rebooting LPARs failed	Go to "MAP4AE0 Section-2" on page 731
BE9D14C1	Verifying upgrade failed	Go to "MAP4AE0 Section-2" on page 731
BE9D15C1	Cleaning AIX filesets failed	Go to "MAP4AE0 Section-2" on page 731
BE9D16C1	Installing packages failed	Go to "MAP4AE0 Section-2" on page 731
BE9D21C1	Resuming LPARs failed	Go to "MAP4AE0 Section-3" on page 732
BE9D22C1	Mirroring hard drives failed	Go to "MAP4AE0 Section-3" on page 732
Other ESCs	N/A	Call the next level of support

MAP4AE0 Section-2

1. Is there an open serviceable event that includes MAP4AA0 in the FRU list?
   - Yes, go to step 2.
   - No, go to step 6 on page 732.
2. Is this the first time attempting to use this MAP to recover this exact problem?
   - Yes, go to step 3.
   - No, go to step 6 on page 732.
3. Refer to Table 217 and use the following guidance to display the needed information:
   a. The first SRC must be in a serviceable event that was just closed using section 1 of this MAP.
   b. The second SRC must be in a serviceable event that was just closed using MAP4AA0.
   c. The CEC State is displayed by the server management HMC menu option, as shown in "MAP66C0 Managed system states displayed by the HMC" on page 848.
   d. The Partition state is displayed by the server management HMC menu option, as shown in "MAP66C0 Managed system states displayed by the HMC" on page 848.

   Do you have the exact combination of SRCs and States listed in any of the rows in Table 217?
   - Yes, use the Action column in Table 217 to continue the repair.
   - No, go to step 6 on page 732.

Table 217. SRC and States

First SRC	Second SRC	CEC State	Partition State	Action
BE9D10C1	BE9DD266	*Any state*	*Any state*	Go to step 4.
BE9D11C1	BE9D11C3	Operating	Not Activated	Go to step 5.
BE9D11C1	BE9D11C3	Standby	Not Activated	Go to step 7 on page 732.

4. Contact your next level of support. The next level of support will need to determine the following:
   a. Which CEC needs the pinhole reset.
   b. How to do the pinhole reset based on the current state of the CEC.
   c. How to restore the storage facility to a proper state where the "Release Upgrade - Single CEC Utility" can be restarted.
   d. Go to step 6 on page 732.
5. Set the CEC enclosure state to Standby (PHYP) using the ASM menu options.
   a. Launch the ASM menu on the failing CEC enclosure, as described in "MAP6F10 Accessing the ASMI using the management console" on page 852.
   b. Power off the CEC by clicking **Save setting and power off** on the ASM screen, which is shown in Figure 416 on page 732.
   c. Power on the CEC to Standby (PHYP), set "Boot to system server firmware" to **Standby**, and then click **Save settings and continue system server boot**.
   d. Go to step 7 on page 732.

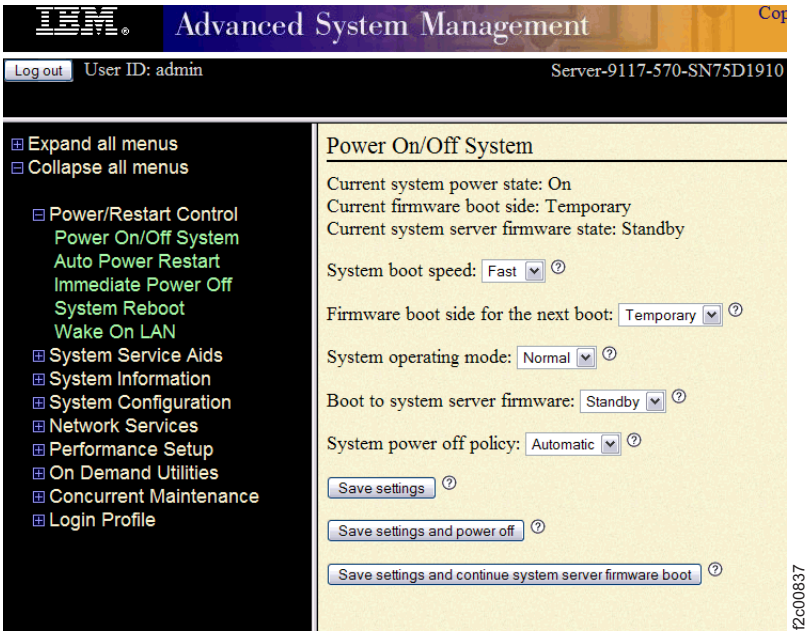


Figure 416. ASM Power On/Off System

6. Contact your next level of support to restore the storage facility to a proper state where the "Release Upgrade - Single CEC Utility" can be restarted. Go to step 7.
7. Exit this MAP and start the "Release Upgrade - Single CEC Utility" again.

MAP4AE0 Section-3

1. Resume any LPARs that are quiesced or fenced. Refer to "MAP1100 View storage facility state (end of call)" on page 446 to display quiesce or fencing status.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Service Applications** → **Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   d. Select the storage facility (Machine Type/Machine Serial).
   e. On the main menu (top toolbar), click **Selected** → **Get ESS LPARs**.
   f. Click the machine name of the LPAR.
   g. On the main menu, click **Selected** → **Start/Stop SFI LPAR**
2. Exit this map and continue with the next step in the migration process (The Current Utility completed).

MAP4AE0 Section-4

1. Resume any LPARs that are quiesced or fenced. Refer to "MAP1100 View storage facility state (end of call)" on page 446 to display quiesce or fencing status.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Service Applications** → **Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.

d. Select the storage facility (Machine Type/Machine Serial).
e. On the main menu (top toolbar), click **Selected → Get ESS LPARs**.
f. Click the machine name of the LPAR.
g. On the main menu, click **Selected → Start/Stop SFI LPAR**

2. Exit this MAP and restart the original code update Utility option from the beginning.

MAP4E00 RIO/SPCN problems

Use the tables in this section to find the system reference code (SRC) that directed you to this MAP.

The serviceable event FRU list contains: MAP4E00, RIO (or SPCN) interface logic FRU at one end of the cable, RIO (or SPCN) interface logic FRU at the other end of the cable (optional), and RIO (or SPCN) cable. If the serviceable event was created while the customer was running, then the FRU list is repaired in the order listed. If the serviceable event was created during an install or repair activity that connected the cable, then the cable FRU is inspected and or replaced first, followed by the logic FRUs.

Note: The RIO topology error analysis is automatically run when a RIO cable is connected with power already on. It can be hot-plugged.

MAP4E00 Section-1

Find the SRC that sent you here in the table below and do the action listed.

SRC	Definition	Go to:
BED1-01xx	RIO Trailing Port Status failures	"MAP4E00 Section-2"
BED1-02xx	RIO Leading Port Status failures	"MAP4E00 Section-3" on page 734
BED1-03xx	RIO Leading Port Speed failures	"MAP4E00 Section-4" on page 735
BED1-04xx	SPCN failures	"MAP4E00 Section-5" on page 735
BED1-05xx	RIO Leading Port Type failures	"MAP4E00 Section-6" on page 737
BED1-06xx	RIO Leading Port VPD failures	"MAP4E00 Section-7" on page 737
BED1-07xx	RIO Trailing Port VPD failures	"MAP4E00 Section-8" on page 739
BED1-08xx	RIO Enclosure VPD failures	"MAP4E00 Section-9" on page 740

MAP4E00 Section-2

1. Find the SRC in this table and then go to the step listed.

SRC	Definition	Go to:
BED1-0110	RIO trailing port status failure on Power controlling CEC.	Step 2 on page 734
BED1-0120	RIO trailing port status failure on local I/O Enclosure.	Step 2 on page 734
BED1-0130	RIO trailing port status failure on Remote CEC.	Step 2 on page 734
BED1-0140	RIO trailing port status failure on Remote I/O Enclosure.	Step 2 on page 734
BED1-0150	Invalid trailing port status returned by PHYP code to RAS code.	Step 4 on page 734

2. Was the serviceable event that sent you here created during an install or repair activity during which you connected the RIO cable to a logic FRU?
   - Yes, go to the next step.
   - No, exit this MAP, return to the repair procedure and replace the FRUs in the order listed in the serviceable event FRU list.
3. There may be a RIO cable problem. The cable may have been left unplugged, the connector pins may have been damaged, or the cable itself may have failed internally. The RIO cable is last in the FRU list. Return to the repair process and replace the cable first. If the failure still occurs, then replace the RIO logic FRU or FRUs listed.

   Note: If the cable was left unplugged, then of course a new cable is not needed, just reconnect the original cable during the FRU replace process.
4. BED1-0150 - Call next level of support. (They may need to call engineering for assistance.)

MAP4E00 Section-3

1. Find the SRC in this table and then go to the step listed.

SRC	Definition	Go to:
BED1-0210	RIO leading port status failure on Power controlling CEC.	Step 2
BED1-0220	RIO leading port status failure on local I/O Enclosure.	Step 2
BED1-0230	RIO leading port status failure on Remote CEC.	Step 2
BED1-0240	RIO leading port status failure on Remote I/O Enclosure	Step 2
BED1-0250	Invalid leading port status returned by PHYP code to RAS code	Step 4

2. Was the serviceable event that sent you here created during an install or repair activity during which you connected the RIO cable to a logic FRU?
   - Yes, go to the next step.
   - No, exit this MAP, return to the repair procedure and replace the FRUs in the order listed in the serviceable event FRU list.
3. There may be a RIO cable problem. The cable may have been left unplugged, the connector pins may have been damaged, or the cable itself may have failed internally. The RIO cable is last in the FRU list. Return to the repair process and replace the cable first. If the failure still occurs, then replace the RIO logic FRU or FRUs listed.

   Note: If the cable was left unplugged, then of course a new cable is not needed, just reconnect the original cable during the FRU replace process.
4. BED1-0250 - Call next level of support. (They may need to call engineering for assistance.)

MAP4E00 Section-4

1. Find the SRC in the following table and then go to the step listed.

SRC	Definition	Go to:
BED1-0310	RIO trailing port speed failure on Power controlling CEC.	Step 2
BED1-0320	RIO trailing port speed failure on local I/O enclosure.	Step 2
BED1-0330	RIO trailing port speed failure on Remote CEC.	Step 2
BED1-0340	RIO trailing port speed failure on Remote I/O Enclosure.	Step 2
BED1-0350	Invalid enclosure type returned by PHYP code to RAS code.	Step 4

2. Was the serviceable event that sent you here created during an install or repair activity during which you connected the RIO cable to a logic FRU?
   - Yes, go to the next step.
   - No, exit this MAP, return to the repair procedure and replace the FRUs in the order listed in the serviceable event FRU list.
3. There may be a RIO cable problem. The cable may have been left unplugged, the connector pins may have been damaged, or the cable itself may have failed internally. The RIO cable is last in the FRU list. Return to the repair process and replace the cable first. If the failure still occurs, then replace the RIO logic FRU or FRUs listed.

   Note: If the cable was left unplugged, then of course a new cable is not needed, just reconnect the original cable during the FRU replace process.
4. BED1-0350 - Call next level of support. (They may need to call engineering for assistance.)

MAP4E00 Section-5

1. Find the SRC in the following table and then go to the step listed.

SRC	Definition	Go to:
BED1-0410	Power controlling CEC enclosure SPCN MTMS VPD error due to incorrect cabling.	Step 2 on page 736
BED1-0411	Power controlling CEC enclosure read invalid SPCN MTMS VPD.	Step 3 on page 736
BED1-0412	Power controlling CEC enclosure cannot read SPCN MTMS VPD.	Step 4 on page 736
BED1-0420	Local I/O enclosure SPCN MTMS VPD failure due to incorrect cabling.	Step 2 on page 736
BED1-0421	Local I/O enclosure read invalid SPCN MTMS VPD.	Step 3 on page 736
BED1-0422	Local I/O enclosure cannot read SPCN MTMS VPD.	Step 4 on page 736

SRC	Definition	Go to:
BED1-0430	Remote CEC enclosure SPCN MTMS VPD failure due to incorrect cabling.	Step 2
BED1-0431	Remote CEC enclosure read invalid SPCN MTS VPD.	Step 3
BED1-0432	Remote CEC enclosure cannot read SPCN MTS VPD.	Step 4
BED1-0440	Remote I/O enclosure SPCN MTMS VPD failure due to incorrect cabling.	Step 2
BED1-0441	Remote I/O enclosure read invalid SPCN MTMS VPD.	Step 3
BED1-0442	Remote I/O enclosure cannot read SPCN MTMS VPD.	Step 4
BED1-0450	Invalid SPCN MTMS VPD returned by PHYP code to RAS code.	Step 5

2. BED1-04x0 - Call the next level of support.

   Note: The most likely cause of this are two or more SPCN cables that are cross connected. DO NOT ATTEMPT to repair this concurrently or by powering the storage facility off and correcting the cabling. There may be firmware and microcode issues that also need to be corrected.

3. BED1-04x1 - Call the next level of support.

   Note: The UTMP values read indicate the power controlling CEC SPCN MTMS VPD was not able to be initialized. Next level may be able to correct the problem by remote access. If that fails, then the FRU listed in the SRC FRU list may need to be replaced.

4. BED1-04x2 - Do the following:
   a. Use location codes from the FRU list in the serviceable event that sent you here to determine the CEC or I/O enclosure.
   b. Ensure the SPCN cables are properly connected. If unplugged, there should be separate serviceable event to repair the cable with. After the cable is repaired, this serviceable event can be closed.
   c. Determine if there are any other serviceable events related to this enclosure for logic or power problems. If there is a power problem repair it first.
   d. If there are no related serviceable events, return to procedure that sent you here and replace the next FRU in the FRU list until it is repaired.

5. BED1-0450 - Call next level of support.

   Note: Next level may need to call development for assistance.

MAP4E00 Section-6

1. Find the SRC in the following table and then go to the step listed.

SRC	Definition	Go to:
BED1-0510	RIO leading port type failure on Power controlling CEC.	Step 2
BED1-0520	RIO leading port type failure on local I/O enclosure.	Step 2
BED1-0530	RIO leading port type failure on Remote CEC.	Step 2
BED1-0540	RIO leading port type failure on Remote I/O Enclosure.	Step 2
BED1-0550	Invalid leading port type returned by PHYP code to RAS code.	Step 4

2. Was the serviceable event that sent you here created during an install or repair activity during which you connected the RIO cable to a logic FRU?
   - Yes, go to the next step.
   - No, exit this MAP, return to the repair procedure and replace the FRUs in the order listed in the serviceable event FRU list.
3. There may be a RIO cable problem. The cable may have been left unplugged, the connector pins may have been damaged, or the cable itself may have failed internally. The RIO cable is last in the FRU list. Return to the repair process and replace the cable first. If the failure still occurs, then replace the RIO logic FRU or FRUs listed.

   Note: If the cable was left unplugged, then of course a new cable is not needed, just reconnect the original cable during the FRU replace process.
4. BED1-0550 - Call next level of support. (They may need to call engineering for assistance.)

MAP4E00 Section-7

1. Find the SRC in the following table and then go to the step listed.

SRC	Definition	Go to:
BED1-0610	Power controlling CEC enclosure RIO leading port VPD failure due to incorrect cabling.	Step 2 on page 738
BED1-0611	Power controlling CEC enclosure read invalid RIO leading port VPD.	Step 3 on page 738
BED1-0612	Power controlling CEC enclosure cannot read RIO leading port VPD.	Step 4 on page 738
BED1-0620	Local I/O enclosure RIO leading port VPD failure due to incorrect cabling.	Step 2 on page 738
BED1-0621	Local I/O enclosure read invalid RIO leading port VPD.	Step 3 on page 738

SRC	Definition	Go to:
BED1-0622	Local I/O enclosure cannot read RIO leading port VPD.	Step 4
BED1-0630	Remote CEC enclosure RIO leading port VPD failure due to incorrect cabling.	Step 2
BED1-0631	Remote CEC enclosure read invalid RIO leading port VPD.	Step 3
BED1-0632	Remote CEC enclosure cannot read RIO leading port VPD.	Step 4
BED1-0640	Remote I/O enclosure RIO leading port VPD failure due to incorrect cabling.	Step 2
BED1-0641	Remote I/O enclosure read invalid RIO trailing port VPD.	Step 3
BED1-0642	Remote I/O enclosure cannot read RIO trailing port VPD.	Step 4
BED1-0650	Invalid RIO leading port VPD returned by PHYP code to RAS code.	Step 5

2. BED1-06x0 - Call the next level of support.

   Note: The most likely cause of this are two or more RIO cables that are cross connected. DO NOT ATTEMPT to repair this concurrently or by powering the storage facility off and correcting the cabling. There may be firmware and microcode issues that also need to be corrected.

3. BED1-06x1 - Call the next level of support.

   Note: The UTMP values read indicate the RIO leading port VPD was not able to be initialized. Next level may be able to correct the problem by remote access. If that fails, then the FRU listed in the SRC FRU list may need to be replaced.

4. BED1-06x2 - Do the following:
   a. Use location codes from the FRU list in the serviceable event that sent you here to determine the CEC or I/O enclosure.
   b. Ensure the RIO cables are properly connected. If unplugged, there should be separate serviceable event to repair the cable with. After the cable is repaired, this serviceable event can be closed.
   c. Determine if there are any other serviceable events related to this enclosure for logic or power problems. If there is a power problem repair it first.
   d. If there are no related serviceable events, return to procedure that sent you here and replace the next FRU in the FRU list until it is repaired.

5. BED1-0650 - Call next level of support.

   Note: Next level may need to call development for assistance.

MAP4E00 Section-8

1. Find the SRC in the following table and then go to the step listed.

SRC	Definition	Go to:
BED1-0710	Power controlling CEC enclosure RIO trailing port VPD failure due to incorrect cabling.	Step 2
BED1-0711	Power controlling CEC enclosure read invalid RIO trailing port VPD.	Step 3
BED1-0712	Power controlling CEC enclosure cannot read RIO trailing port VPD.	Step 4 on page 740
BED1-0720	Local I/O enclosure RIO trailing port VPD failure due to incorrect cabling.	Step 2
BED1-0721	Local I/O enclosure read invalid RIO trailing port VPD.	Step 3
BED1-0722	Local I/O enclosure cannot read RIO trailing port VPD.	Step 4 on page 740
BED1-0730	Remote CEC enclosure RIO trailing port VPD failure due to incorrect cabling.	Step 2
BED1-0731	Remote CEC enclosure read invalid RIO trailing port VPD.	Step 3
BED1-0732	Remote CEC enclosure cannot read RIO trailing port VPD.	Step 4 on page 740
BED1-0740	Remote I/O enclosure read RIO VPD out of order due to incorrect cabling.	Step 2
BED1-0741	Remote I/O enclosure read invalid RIO trailing port VPD.	Step 3
BED1-0742	Remote I/O enclosure cannot read RIO trailing ort VPD.	Step 4 on page 740
BED1-0750	Invalid RIO trailing port VPD returned by PHYP code to RAS code.	Step 5 on page 740

2. BED1-07x0 - Call the next level of support.

   Note: The most likely cause of this are two or more RIO cables that are cross connected. DO NOT ATTEMPT to repair this concurrently or by powering the storage facility off and correcting the cabling. There may be firmware and microcode issues that also need to be corrected.

3. BED1-07x1 - Call the next level of support.

Note: The UTMP values read indicate the VPD was not able to be initialized. Next level may be able to correct the problem by remote access. If that fails, then the FRU listed in the SRC FRU list may need to be replaced.

4. BED1-07x2 - Do the following:
   a. Use location codes from the FRU list in the serviceable event that sent you here to determine the CEC or I/O enclosure.
   b. Ensure the RIO cables are properly connected. If unplugged, there should be separate serviceable event to repair the cable with. After the cable is repaired, this serviceable event can be closed.
   c. Determine if there are any other serviceable events related to this enclosure for logic or power problems. If there is a power problem repair it first.
   d. If there are no related serviceable events, return to procedure that sent you here and replace the next FRU in the FRU list until it is repaired.
5. BED1-0750 - Call next level of support.

   Note: Next level may need to call development for assistance.

MAP4E00 Section-9

1. Find the SRC in the following table and then go to the step listed.

SRC	Definition	Go to:
BED1-0810	Power controlling CEC enclosure read RIO VPD out of order due to incorrect cabling.	Step 2 on page 741
BED1-0811	Power controlling CEC enclosure read invalid RIO VPD.	Step 3 on page 741
BED1-0812	Power controlling CEC enclosure cannot read RIO VPD.	Step 4 on page 741
BED1-0820	Local I/O enclosure read RIO VPD out of order due to incorrect cabling.	Step 2 on page 741
BED1-0821	Local I/O enclosure invalid RIO VPD.	Step 3 on page 741
BED1-0822	Local I/O enclosure cannot read RIO VPD.	Step 4 on page 741
BED1-0830	Remote CEC enclosure read RIO VPD out of order due to incorrect cabling.	Step 2 on page 741
BED1-0831	Remote CEC enclosure read invalid RIO VPD.	Step 3 on page 741
BED1-0832	Remote CEC enclosure cannot read RIO VPD.	Step 4 on page 741
BED1-0840	Remote I/O enclosure read RIO VPD out of order due to incorrect cabling.	Step 2 on page 741
BED1-0841	Remote I/O enclosure read invalid RIO VPD.	Step 3 on page 741

SRC	Definition	Go to:
BED1-0842	Remote I/O enclosure cannot read RIO VPD.	Step 4
BED1-0850	Invalid enclosure type returned by PHYP code to RAS code.	Step 5

2. BED1-08x0 - Call the next level of support.

   Note: The most likely cause of this are two or more RIO cables that are cross connected. DO NOT ATTEMPT to repair this concurrently or by powering the storage facility off and correcting the cabling. There may be firmware and microcode issues that also need to be corrected.

3. BED1-08x1 - Call the next level of support.

   Note: The UTMP values read indicate the VPD was not able to be initialized. Next level may be able to correct the problem by remote access. If that fails, then the FRU listed in the SRC FRU list may need to be replaced.

4. BED1-08x2 - Do the following:
   a. Use location codes from the FRU list in the serviceable event that sent you here to determine the CEC or I/O enclosure.
   b. Ensure the RIO cables are properly connected. If unplugged, there should be separate serviceable event to repair the cable with. After the cable is repaired, this serviceable event can be closed.
   c. Determine if there are any other serviceable events related to this enclosure for logic or power problems. If there is a power problem repair it first.
   d. If there are no related serviceable events, return to procedure that sent you here and replace the next FRU in the FRU list until it is repaired.
5. BED1-0850 - Call next level of support.

   Note: Next level may need to call development for assistance.

MAP4E10 RIO cable parts exchange without a serviceable event

Use this procedure to exchange a RIO cable when the cable is not listed in a serviceable event FRU list.

1. Is the RIO cable that you are replacing listed in a serviceable event FRU list?
   - Yes, exit this MAP and use the normal procedures for serviceable event FRU replacement.
   - No, go to the next step.
2. Are there any open serviceable events that contain RIO FRUs for this RIO loop? (Possible RIO FRUs include: CEC enclosure I/O planar assembly, CEC enclosure RIO card, I/O enclosure RIO card, or RIO cable.)
   - Yes, go to the next step.
   - No, go to step 4.
3. Before you go to the next step, consider the following:
   - The other RIO FRUs for this RIO loop should be replaced first unless directed by the next level of support. Replacing the RIO cable before replacing the other FRUs could create a second break in the loop that could unexpectedly isolate one or more resources.

- If the RIO cable that you are replacing is directly connected to the other failing RIO FRU, replacing the cable should not create a second break in the loop.

4. All of the following must be followed to successfully replace the RIO cable:
   - The RIO cable can be ″hot plugged″ without setting a quiesce or service mode condition.
   - After you disconnect the RIO cable, wait at least two minutes before you connect the replacement cable.

     Note: The RIO Health Check runs once every minute to detect and verify the RIO loop cables and hardware.
   - To mechanically exchange the cable, see “Exchange the RIO cable” on page 1041.

MAP4E20 RIO Topology tool

Use the RIO Topology Tool menu option to check the status of the RIO loops.

MAP4E20 Section-1

1. Display the RIO topology status.
   a. In the HMC Navigation area, open the **Management Environment**. Select and open the HMC.
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Service Utilities**. A list of storage facilities is displayed.
   d. Select a storage facility.
   e. On the main menu (top tool bar), click **Selected** → **Get SF Systems**. A list of System Units (CEC enclosures) is displayed.
   f. Select a System Unit.
   g. On the main menu (top tool bar), click **Selected** → **View RIO Topology**.
2. The RIO Topology window is displayed.

   Note:
   - The upper half of the window displays the Current RIO Topology.
   - The lower half of the window displays the last Valid RIO Topology.
   - Check the LinkStatus column to determine the state of each RIO interface node (connection).
   - The normal LinkStatus of each RIO node should be Operational.
   - A LinkStatus other than Operational should be investigated.
   - A repair that causes a CEC enclosure or I/O enclosure to be powered off will, of course, power off those RIO nodes and non-operational status would be expected. After repairs are complete, check the LinkStatus again.
   - If no repairs are in progress and the LinkStatus is not Operational, a serviceable event should have been created. If there are no related serviceable events, it is best to call the next level of support.

MAP4F00 Warmstart occurred

A warmstart of an LPAR has occurred. The next level of support may need one or more dumps off-loaded to analyze the cause. If more than one warmstart has occurred for this LPAR, they will all be reported by the same serviceable event.

1. Call the next level of support to determine if they want you to offload and send any dump files.
2. To offload files associated with this serviceable event, select the serviceable event, and then select the **Manage Problem Data** option instead of the **View Details** option.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications**, select **Service Focal Point**.
3. In the right content area, select **Manage Serviceable Events**, a window appears displaying a list of selection criteria.
4. Select the Problem number for the serviceable event that sent you here and click **OK**.
5. A window appears listing the serviceable event. Select the serviceable event, click **Selected** (on top tool bar), select **Manage Problem Data**, a window displays the files available for offload.
6. Select one or more files as directed by the next level of support. (Use the Shift key to select multiple files.)
7. Select the offload method as directed by the next level of support.

MAP5xxx range

Use this section for host interface isolation procedures

MAP5230 Isolating a fixed block read data failure

Note: Customer disruption may occur if microcode and power boundaries are not in the proper conditions for this service action. Verify that you start all service activities in Chapter 1, “Start here,” on page 1.

You are here to resolve a Data Check failure that has been logged with one of the SRC BE35 values listed below. An action to repair hardware or microcode is necessary; the action required may be to repair another problem in the log.

This MAP isolates for the following SRC BE35s:

- **SRC BE353490**, customer data sequence number validation error with data LRC.
- **SRC BE3534A0**, customer data sequence number validation error without data LRC.
- **SRC BE3534AF**, third or later repeat of customer data sequence number validation error on the same target LBA (Logical Block Address), track or volume.
- **SRC BE3534B0**, SCSI Send Diagnostic command initiated data transfer validation process failure.
- **SRC BE354960**, second occurrence of customer data sequence number validation error on the same target LBA (Logical Block Address), track or volume.

MAP5230 Section-1

Refer to the table that follows for the SRC BE35 that requires problem resolution. Determine the necessary hardware or microcode repair action.

Table 218. SCSI Read Data Failure SRC BE35 Repairs

SRC BE35	Description	Recommended Action
3490	Customer Data Sequence Number validation error. Data transferred from a DDM to cache memory is not from the expected Logical Block Address (LBA). The Sequence Number in the received LBA does not match the expected Sequence Number. Sequence number validation also detected LRC indicating that the LBA data is defective.	LRC failures are a higher priority symptom. If a serviceable event exists with SRC value BE3533xx (LRC failure), the recommended action is to repair the SRC BE3533XX problem. If a problem with SRC BE35 33xx does not exist then the probable cause for this failure is a Microcode Logic Error. The recommended action is to contact your next level of support for fault isolate and repair assistance.
34A0, 34AF, or 4960	Customer Data Sequence Number validation error. Data transferred from a DDM to cache memory is not from the expected Logical Block Address (LBA). The Sequence Number in the received LBA does not match the expected Sequence Number. SRC BE3534AF indicates that additional Sequence Number error events have been logged for the same target LBA, track or volume.	An error has occurred during the reading or writing of data from the track, volume or array. The recommended action is to contact your next level of support for fault isolate and repair assistance. Customer repair action may be required to restore data after the hardware problem has been resolved.
34B0	A SCSI Send Diagnostic command initiated data transfer validation process failed. A write or read data transfer failure would be logged as another error event and SRCBE35. If no other error has been logged then this failure indicates that the data read did not match the test pattern data written.	This problem should only be used to determine a repair action if the problem log does not contain any other records for a hardware failure that would be associated with this diagnostic failure SCSI port, data path and target volume. If you are unable to identify another hardware repair action then the recommended action is to contact your next level of support for fault isolate and repair assistance.

MAP5240 Customer data check

A data check failure has caused customer data to be unreadable.

Note: Customer disruption may occur if microcode and power boundaries are not in the proper conditions for this service action. Verify that you start all service activities in Chapter 1, “Start here,” on page 1.

You are here to resolve a Data Check failure that has been logged with one of the SRC BE50 values listed below. An action to repair hardware or microcode is necessary. This required action will be to repair another problem in the serviceable event log.

The customer must restore the data after the hardware or microcode repair action is complete.

This MAP isolates for the following SRC BE50s:

- **SRC BE504910**, Customer data check, DDM media error, single LBA.
- **SRC BE504920**, Customer data check, DDM media error, multiple LBAs.
- **SRC BE504930**, Customer data check, data LRC, single LBA.
- **SRC BE504940**, Customer data check, data LRC, multiple LBAs.

MAP5240 Section-1

1. Refer to the following table for the SRC BE50 that requires problem resolution. Determine the necessary hardware or microcode repair action.

   If a hardware repair problem is not available for this failure, the failure may be intermittent. If the data failure continues, call your next level of support for assistance in isolating and repairing the problem.

Table 219. Customer Data Check Failure SRC BE50 Repairs

SRC BE50	Description	Recommended Action
4910 or 4920	Customer Data Check affecting one or more Logical Block Address on the target volume. 4910 indicates one LBA, 4920 indicates more than one LBA. The device adapter card or fibre channel interface card (FCIC) reported a Media Error during data transfer from DDM to cache memory.	Locate and repair the problem with SRC BE3*X XXXX*, D*XXX* or E*XXX* that contains a repair action for the DDM, device adapter or FCIC card that is associated with this Data Check.
4930 or 4940	Customer Data Check affecting one or more Logical Block Address on the target volume. 4930 indicates one LBA, 4940 indicates more than one LBA. An LRC check, sequence number check or physical address check detected during data transfer could not be recovered. Data has been marked defective on the DDM. Subsequent attempts to read this data will fail.	Locate and repair any problems with SRC BE3*X XXXX* or 34*XX*.

2. After the underlying hardware has been repaired, customer repair action will be required to restore the track:

Option	Description
Fixed block	Refer to the additional FRUs in the problem and/or other related problems for the failed volume(s) and first failing LBA on track information. Use the appropriate customer media maintenance tools to scan all data on the applicable volumes. Restore this data from backup.
CKD	A Media SIM for Media Maintenance Procedure 2 has been sent to the host. Ask the customer to follow this procedure to return the track to usable condition, then restore the customer data from backup. Media Maintenance Procedure 2 is described in ″Analyzing a media SIM″

MAP5240 Section-2 (Analyzing a Media SIM)

For information about correcting a failure that causes a media SIM, refer to *Maintaining IBM Storage Subsystem Media*.

Note: Before the customer does a media maintenance procedure, the customer might need to determine the address of the cylinder and head involved in the failure. Use the SIM portion of an EREP system execution report to obtain the address *(cccchh)*.

Instruct the customer to perform the media maintenance procedure indicated in "MAP5240 Section-3 (Media SIM Maintenance Procedure 2)." In addition, refer to the examples in "MAP5240 Section-4 (Example of Media SIM Maintenance Procedure 2)"

MAP5240 Section-3 (Media SIM Maintenance Procedure 2)

The first part of this procedure finds all track with unrecoverable data and supplies information on the allocation of the user data (for example, dataset names).

The second part of this procedure returns the indicated track to a usable condition. Data on this track is no longer readable. All subsystem attempts at media maintenance have been unsuccessful. All attempts to recover the data have been unsuccessful.

1. Using ICKDSF Release 16 or higher, enter the following commands:

   ```
   IODELAY SET MSEC(100)
   ANALYZE <UNIT() |DDNAME()> NODRIVE SCAN
   ```

   IODELAY adjusts ICKDSF to run concurrently with customer operations. ANALYZE scans the volume for data that is not readable or usable.
2. See "MAP5240 Section-4 (Example of Media SIM Maintenance Procedure 2)" for the location of the BE5049XX and addresses of the failing track and head (cccchh) in the Analyze sense information.
3. For each track that reports an SRC BE5049XX, issue the following command (all on the same line):

   ```
   INSPECT <UNIT() | DDNAME()> <VFY()|NOVFY>
   ASSIGN NOCHECK NOPRESERVE TRACK(cccc,hh)
   ```

   Attention: The above ICKDSF inspect command will result in the **loss of all customer data** on that track.

   The NOPRESERVE parameter must be specified for the DS8000. The PRESERVE parameter is not valid for the DS8000. All previous attempts by the subsystem to recover the data have not been successful. Although the track will be returned to a usable state, all customer data on the specified track will be lost when the INSPECT command is run.

MAP5240 Section-4 (Example of Media SIM Maintenance Procedure 2):

To locate all tracks with unrecoverable data, obtain information on the allocation of user data. To restore such tracks to a usable condition, run the ICKDSF command sequence below. ICKDSF must be at level 16 or higher. The bold text in the following example is defined in the note that follows.

```
ENTER INPUT COMMAND:
analyze unit(1290) nodrive scan
 ANALYZE UNIT(1290) NODRIVER SCAN

ICK00700I DEVICE INFORMATION FOR 1290 IS CURRENTLY AS FOLLOWS:
      PHYSICAL DEVICE = XXXX
      STORAGE CONTROLLER = XXXX
      STORAGE CONTROL DESCRIPTOR = CC
```

```
      DEVICE DESCRIPTOR = 06
ICK04000I DEVICE IS IN SIMPLEX STATE
ICK01400I 1290 ANALYZE STARTED
ICK01408I 1290 DATA VERIFICATION TEST STARTED
ICK21776I DATAVER TEST: ERROR DURING DATA VERIFICATION
CSW = D07C88 0200FFFF CCW = DE000000 3000FFFF FILEMASK = 1E
SENSE = 80000000 9000010B 00000034 80000004 02007667 FB20 0F0B 000040E2 00 03A401
ICK21401I 1290 SUSPECTED DRIVE PROBLEM
ICK401I  1290 SUSPECTED DRIVE PROBLEMcchh
ICK01406I 1290 ANALYZE ENDED
ICK00001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 8
```

Note: In this example, the **SRC BE35** is **0F0B** and the failing track and head address (**ccchh**) is **03A401**. The **cccc** is **03A4** and the **hh** is **01**.

MAP5240 Section-5 (Common ICKDSF Messages)

ICK310541

Device not supported for specific function.

Ensure that the parameters specified in the media maintenance procedure are correct and rerun the ICKDSF media maintenance procedure.

ICK12155I

Parameter ignored for device type (parameter).

The parameter identified is not valid for the DS8000. This parameter is ignored and processing continues. No action is needed.

MAP5250 Isolating a Meta data check failure

You are here to resolve a data check failure that has been logged with one of the SRC BE50 values listed below. An action to repair hardware or microcode is necessary. This required action will be to repair another problem in the log.

This MAP isolates for the following SRC BE50s:

- **SRC BE504980**, Meta data check, DDM medium error, single LBA.
- **SRC BE504990**, Meta data check, DDM medium error, multiple LBA.
- **SRC BE3 49A0**, Meta data check, data LRC, single LBA.
- **SRC BE5049B0**, Meta data check, data LRC, multiple LBA.

MAP5250 Section-1

1. Refer to the table that follows for the SRC BE50 that requires problem resolution.
2. Determine the necessary hardware or microcode repair action.

   Data will be recovered by internal microcode. No data repair action is required. If a hardware repair problem is not available for this failure, the failure may be intermittent. If the data failure continues, call your next level of support for assistance in isolating and repairing the problem.

Table 220. Meta Data Check Failure SRC BE50 Repairs

SRC BE50	Description	Recommended Action
4980 or 4990	Meta Data Check affecting one or more Logical Block Address on the target volume. 4980 indicates one LBA, 4990 indicates more than one LBA. The device adapter card or fibre channel interface card (FCIC) reported a Medium Error during data transfer from DDM to cache memory.	Locate and repair the problem with SRC BE50 CXXX, DXXX or EXXX that contains a repair action for the DDM or device adapter card or fibre channel interface card (FCIC) that is associated with this Data Check.
49A0 or 49B0	Meta Data Check affecting one or more Logical Block Address on the target volume. 49A0 indicates one LBA, 49B0 indicates more than one LBA. An LRC check detected during data transfer from DDM to cache memory could not be recovered.	Locate and repair the problem with SRC BE50 33XX that contains a repair action for the DDM or device adapter card or fibre channel interface card (FCIC) that is associated with this data check.

MAP5300 ESCON or fibre channel link fault

Link incidents are problems that are not automatically detected, isolated and reported by any one single node on the optical link. They occur on an interface and may cause multiple nodes to detect different types of link incidents. Each node detecting and reporting a link incident will generate its own link incident.

Note: Customer disruption may occur if microcode and power boundaries are not in the proper conditions for this service action. Verify that you start all service activities in Chapter 1, “Start here,” on page 1.

Fault isolation of link incidents is solved by the combined use of product and system documentation:

- *ESCON Link Fault Isolation*
- *Fiber Optic Links (ESCON, FICON®, Coupling Links & Open System Adapters)*

Fiber Optic Cable Handling Precautions

CAUTION:
Do not look into the end of a fiber optic cable or into a fiber optic receptacle. Eye injury can result. To verify the continuity of a fiber optic cable, use an optical light source and a power meter. Although shining light into one end and looking into the other end of a disconnected optical fiber to verify the continuity of optic fibers may not injure the eye, this procedure is potentially dangerous. Therefore, verifying the continuity of optical fibers by shining light into one end and looking into the other end is not recommended. (1061)

Note: This notice is translated into selected languages. See *IBM TotalStorage® Solutions Safety Notices*, GC26-7229.

Fiber optic cables are easily damaged from fiber breakage. The cable connectors must be clean to perform correctly. Observe the following precautions to prevent damage when you handle fiber optic cables.

- Save all the plastic connector covers for later use. These cover can be used to protect the link cable connectors when you remove the storage facility host adapter card or when you store the cables.
- Do not remove the protective cover plugs from the connector ends until you are ready to insert the connector into a card. You may have to remove the cover to feed the cable through the tailgate.
- Before you insert the connector into a card, ensure that you clean the connector end faces. Use the fiber optic cleaning procedure specified in the fiber optic connector cleaning kit (New P/N 46G6844 or Old P/N 545321).
- Do not pull on the connector.
- Do not bend the cable to a radius smaller than 12mm (0.5 in).

MAP5300 Section-1

1. Were you sent here by a link incident that was detected by a unit or device external to this storage facility?
   - Yes, go to the next step.
   - No, go to step 3.
2. Display serviceable events that need repair, refer to "MAP1210 Displaying and repairing a serviceable event" on page 477.
3. Display serviceable events that need repair. Is there a serviceable event for the host adapter connected to the failing link?
   - Yes, go to the next step.
   - No, go to step 5.
4. Is the SRC defined as a `Bit Error Rate Failure`?
   - Yes, go to the MAP for the host adapter card that is reporting the problem. ("MAP5410 Fibre channel bit error validation" on page 763). If the problem is not resolve, return here and go to step 7.
   - No, use the problem to replace the FRUs.
5. Is the link cable properly connected to host adapter card?
   - Yes, go to the next step.
   - No, connect the cable, exit this MAP and have the customer attempt to use the link. If the problem still persists, go to the next step.
6. Clean the fiber optic connectors on the host card and cables. Then go to the next step.

   Note: Use the fiber optic cleaning procedure specified in the fiber optic connector cleaning kit (New P/N 46G6844 or Old P/N 545321).
7. Run the Wrap test to determine if the host adapter card or port is failing. At the management console, select **Service Applications** → **Service Focal Point** → **Service Utilities**. Select the **Storage Facility**. From the tool bar, click **Selected**, select **Manage FRUs** from the drop down. Click **Show I/O Enclosures** button, select the enclosure location. Click **Show Host Adapters** button. Select **Host Adapter**, click **Perform Wrap Test** button.

   Did the test run successfully?
   - Yes, continue with the next step.
   - No, use the repair process to replace the FRU.
8. Have the customer attempt to use the link. Was the customer able to use the link without further errors?
   - Yes, go to the next step.
   - No, the problem may be intermittent, go to step10 on page 750.

9. Is this the first time with a problem on this link?
   - Yes, the problem may be fixed. No further action is required unless the problem returns.
   - No, the problem may be intermittent. Go to the next step.
10. Check the optical transmitter output level.
    - For ESCON, use "MAP5320 ESCON optical power measurement" on page 751.
    - For Fibre Channel, use "MAP5321 Fibre channel optical power measurement" on page 758.

    Was the optical transmitter output correct?
    - Yes, go to the next step.
    - No, exchange the FRU. At the management console, select **Service Applications → Service Focal Point → Exchange Parts**. Select the Machine Type/Machine Serial, from the tool bar click **Selected**. Select **Exchange I/O Enclosure and Components** from the drop down menu. Select **Enclosure Location Code**, click **Show FRUs** button. Select **FRU Location Code**, click **Exchange FRU** button.
11. Check that the optical receiver is receiving a correct signal level.
    - For ESCON, use "MAP5320 ESCON optical power measurement" on page 751 to answer the question that follows.
    - For Fibre Channel, use "MAP5321 Fibre channel optical power measurement" on page 758 to answer the question that follows.

    Was the optical receiver input level correct?
    - Yes, verify that all optical link cables are reconnected, cancel any outstanding problems logged for this link, resume any quiesced links, then call your next level of support.
    - No, the problem is within the link cabling or the transmitter in the remote card.
12. Is the problem cause identified?
    - Yes, exit this procedure.
    - No, contact your next level of support.

MAP5305 ESCON or fibre channel bit error rate test failure

The Bit Error Rate Test was run and the ESCON or fibre channel link that the test was run on could not transmit fibre frames.

Note: Customer disruption may occur if microcode and power boundaries are not in the proper conditions for this service action. Verify that you start all service activities in Chapter 1, "Start here," on page 1.

The Bit Error Rate Test counts errors during fibre frame transmission on a fibre link, when the link cannot transmit frames, no errors can occur. This means that the Bit Error Rate Test cannot be run. The problem with the link may be caused by the fibre link itself or by the adapter at either end of the link. This diagnostic requires that the port being tested is connected to an enabled source transmitting communication frames. This does not require customer data transfer, the normal idle process is enough. Normally the interface must be physically connected directly to a host system or through a switch (ESCON director or SAN fabric).

Do you have an enabled connection as described above?

- Yes, return to the procedure that sent you here.

- No, the test was run without the needed connection, close the serviceable event.

MAP5310 ESCON bit error rate validation

Bit Error Rate Threshold incidents are caused by specific conditions at an interface or along a line which can cause bits to be received or interpreted incorrectly. These bit errors are counted, and when a specific number is reached (threshold exceeded), the link is operating in a degraded mode. Bit errors are counted by each node attached on a link. You must determine which node(s) in a link have detected a threshold exceeded condition to identify the link or nodes causing the incident.

Note: Customer disruption may occur if microcode and power boundaries are not in the proper conditions for this service action. Verify that you start all service activities in Chapter 1, "Start here," on page 1.

MAP5310 Section-1

1. Determine what type of error was reported by the customer. Was the customer-reported error a "Bit Error Threshold Exceeded" (BER) detected at the ATTACHED node?
   - Yes, go to step 3.
   - No, continue with the next step.
2. Display serviceable events that need repair. Refer to "MAP1210 Displaying and repairing a serviceable event" on page 477. Are there any bit error rate serviceable events (SRC=BE35356A) for the failing link?
   - Yes, continue with the next step.
   - No, additional link problem determination is needed. Ensure that all optical link cables are reconnected, then return to MAP0120 in the *ESCON Link Fault Isolation*.
3. Test the bit error rate.
   a. Reconnect the optical link cables to the subsystem, if previously disconnected.
   b. Run the Bit Error Rate Test on the failing link. Select: **Service Applications → Service Focal Point → Service Utilities**. Select the enclosure location, click **Show Host Adapters** button. Select **Host Adapter**, click **Perform Bit Error Rate Test** button.
   c. Select the SA interface to be tested, and follow the instructions on the screen to run the test. Did the test run successfully?
      - Yes, cancel any outstanding Bit Error Rate problems logged for this link and resume any quiesced links. The call is complete.
      - No, continue with the next step.
4. Determine how many times the ESCON Port Optical Bit-Error-Rate Test has been run. Has this test been run only one time?
   - Yes, clean the fiber optic connectors and run this test again. Use the fiber optic cleaning procedure specified in the fiber optic connector cleaning kit (New P/N 46G6844 or Old P/N 5453521). Continue at step 3.
   - No, return to the step in "MAP5300 ESCON or fibre channel link fault" on page 748.

MAP5320 ESCON optical power measurement

This MAP contains two procedures that must be performed sequentially. These procedures measure the optical power at the storage facility ESCON card and the

customers ESCON port cable using the optical power meter (P/N 18F7005). The coupler and test cable are part of the fiber optic test support kit (P/N 18F6953).

Note: Customer disruption may occur if microcode and power boundaries are not in the proper conditions for this service action. Verify that you start all service activities in Chapter 1, "Start here," on page 1.

Attention: Ensure that you read "Fiber Optic Cable Handling Precautions" on page 748 **before** you run this test.

Isolation Procedure Section-1 will run the ESCON Port Optical Wrap Test on the selected storage facility ESCON card port. A successful wrap test will not only ensure that the card is operating correctly, but will also *condition* the port for a power measurement.

Note: Do not skip the wrap test, even if it was previously run.

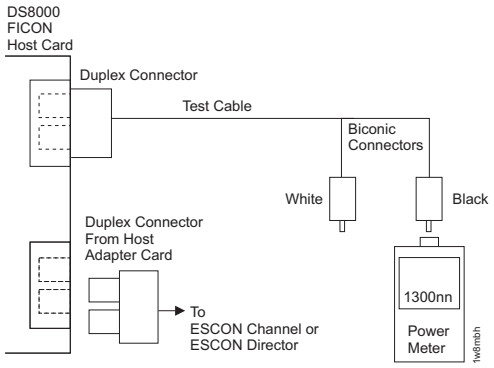


Figure 417. Measuring optical transmit power

MAP5320 Section-1 (Optical Transmitter Measurement)

This procedure measures the optical power transmitted from the storage facility ESCON card through a short test cable (P/N 18F6948).

Note: Clean the fiber optic connectors as described in the cleaning instructions in the fiber optic cleaning kit (NEW P/N 46G6844 or Old P/N 5453521) before connecting or reconnecting the fiber optic cables.

1. Verify that the I/O enclosure containing the storage facility ESCON card is powered on.

2. Run the optical wrap test on the desired ESCON card port. At the management console, select **Service Applications → Service Focal Point → Service Utilities**. Select the **Storage Facility**, from the tool bar click **Selected**, select **Manage FRUs** from the drop down. Click **Show I/O Enclosures** button. Select the enclosure location, click **Show Host Adapters** button. Select **Host Adapter**, click **Perform Wrap Test** button.
   a. Select the desired host card port to be tested and follow the screen instructions to run the test.

      Important: After the wrap test returns a `Machine Test was successful` message and displays Make Resource Available for Customer Use, **STOP!**

      Do not press Enter. Do not follow the screen instructions to reconnect the customer cables and resume the resources until instructed to do so at the end of this MAP (when all power measurements are complete).
3. Was the wrap test successful?
   - Yes, the host card port is now ready to perform the power measurement, continue with the next step.
   - No, use the repair process to replace the FRU. Refer to "MAP1215 Replace a FRU" on page 488.
4. Connect the duplex connector of the optical power meter test cable to the storage facility ESCON card duplex connector (see Figure 418 on page 755).

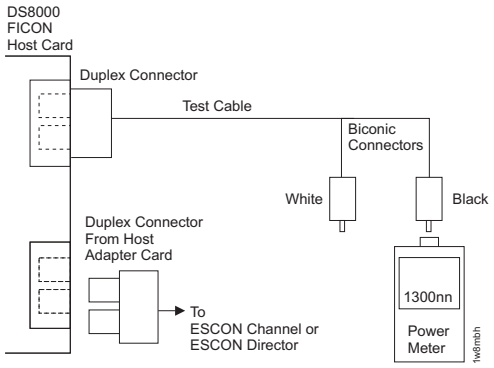


Figure 418. Measuring optical transmit power

If the optical power meter has **not** been previously turned on, zeroed, and set to the correct scale, set the meter using the "MAP5320 Section-3 (Optical Power Meter Setup)" on page 758.

After the meter is set, insert the black biconic connector of the test cable, P/N 18F6948, into the receptacle on the top of the power meter.

5. Use the optical power meter to obtain a reading. The power reading should be at least -21 dBm (-20 dBm is more power than -21 dBm. For example, -22 dBm indicates that the transmitter is failing.)
   a. Record the actual measurement value for possible use during the link fault isolation procedures.
6. Disconnect the test cable from the storage facility ESCON card.

7. Was the power measurement correct?
   - Yes, continue with the next step.
   - No, use the repair process to replace the ESCON host card FRU as follows. Refer to "MAP1215 Replace a FRU" on page 488, and then repeat the Optical Transmitter Measurement.

   a. Connect the service terminal to the working cluster. From the service terminal Main Service Menu, select: **Repair Menu → Replace a FRU → Host Bay FRUs**. Replace the ESCON host card that was being tested, then repeat the Optical Transmitter Measurement.

      Note: The repair procedure will resume the required resources. When the repair is complete, return to the procedure that directed you here.
8. Do you still need to perform the Optical Receiver Measurement procedure?
   - Yes, perform the Optical Receiver Measurement "MAP5320 Section-2 (Optical Receiver Measurement)."
   - No, continue with the next step.
9. Return to the management console and follow the instructions on the screen to "Make Resource Available for Customer Use".
10. Return to the procedure that sent you here.

MAP5320 Section-2 (Optical Receiver Measurement)

This procedure measures the power received at the end of the customers ESCON link cable (input into the host storage facility card optical receiver).

Always clean the fiber optic connectors as described in the cleaning instructions in the fiber optic cleaning kit (New P/N 46G6844 or Old P/N 5453521) before connecting or reconnecting the fiber optic cables.

1. Ensure that the device on the other end of the link is powered on.
2. Disconnect the fiber optic cable connector from the duplex connector on the storage facility ESCON card, if not previously disconnected
3. Connect the duplex connector of the customers fiber optic cable (the duplex connector that was removed from the storage facility ESCON card) into one side of the duplex-to-duplex test coupler, P/N 18F6952.

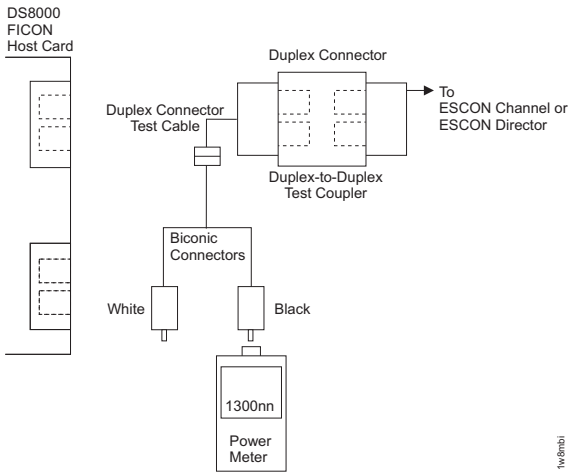


Figure 419. Measuring optical receive power

4. Connect the duplex connector of the optical power meter test cable into the other side of the duplex-to-duplex test coupler. If the optical power meter has not been previously turned on, zeroed, and set to the correct scale, set the meter using "MAP5320 Section-3 (Optical Power Meter Setup)" on page 758.

   After the meter is set, insert the black biconic connector of the test cable, P/N 18F6948, into the receptacle on the top of the power meter.
5. Use the optical power meter to obtain a reading. The power reading should be at least -29.0 dBm (-28.0 dBm is more than -29.0 dBm). Record the actual measurement value for possible use later during the link fault isolation procedures.

6. Disconnect the customer fiber optic channel cable from the coupler and reconnect the cable to the storage facility ESCON card.
7. Return to the management console and follow the instructions on the screen to "Make Resource Available for Customer Use".
8. Return to the procedure that sent you here.

MAP5320 Section-3 (Optical Power Meter Setup)

Use this procedure only to do the initial setup of the optical power meter (P/N 18F7005).

1. Power meter On.
2. Set the meter to 1300 nanometers (nm).
3. Zero the meter
4. Set the meter to display the dBm scale.

   Note: Do not hold down a push-button for more than one-half second. When held down for more than approximately three seconds, the push-button generates results different from those needed.
5. Ensure that the black cap is over the biconic receptacle at the top of the power meter.
6. Press Power **On/Off**. `AUTO OFF` will be displayed and the meter will turn off if no push-button is pressed in ten minutes. Allow a two minute warm-up period.
7. If the meter does not display `1300 nm`, press the lambda symbol push-button repeatedly until `1300 nm` is displayed.
8. Press **ZERO**; you will see two displays.
   - A value between 0.30 and 0.70 nW (nanowatts).
   - `ZERO` will blink after a short time, indicating that the meter is properly set to zero.

   If the above indicators do not display and `Hi` or `Lo` is displayed after pressing ZERO, press ZERO again. Using a small screwdriver, adjust the trim pot that is next to the biconic receptacle at the top of the meter until a value of between .30 and .70 nW is displayed. Set the value as close to .50 nW as possible.
   a. Press **ZERO** again to zero the meter.
9. The meter must also display `dBm` (decibel, based on one milliwatt). If `nW` is displayed, press dBm/Watt. Continue with one of the following: "MAP5320 Section-1 (Optical Transmitter Measurement)" on page 753 or "MAP5320 Section-2 (Optical Receiver Measurement)" on page 756.

MAP5321 Fibre channel optical power measurement

This MAP contains two procedures that must be performed sequentially. These procedures measure the optical power at the storage facility fibre channel host card and the customer's fibre channel cable using the optical power meter (P/N 18F7005).

Note: Customer disruption may occur if microcode and power boundaries are not in the proper conditions for this service action. Verify that you start all service activities in Chapter 1, "Start here," on page 1.

Attention: Ensure that you read "Fiber Optic Cable Handling Precautions" on page 748 **before** you run this test.

MAP5321 Section-1 will run the Fibre Channel Port Optical Wrap Test on the selected storage facility fibre card port. A successful wrap test will not only ensure that the card is operating correctly, but will also *condition* the port to perform a power measurement.

MAP5321 Section-2 will measure the power at the end of the customer's cable.

Note: Do not skip the wrap test, even if it was previously run.

MAP5321 Section-1 (Optical transmitter measurement)

This procedure measures the optical power transmitted from the storage facility fibre channel host card through a short C-to-SC test cable (P/N 54G3407), SC-to-ST adapter (P/N 54G3424) and ST-to-ST test cable (P/N 02G6159).

Clean the fiber optic connectors as described in the cleaning instructions in the fiber optic cleaning kit (New P/N 46G6844 or Old P/N 5453521) before connecting or reconnecting the fiber optic cables.

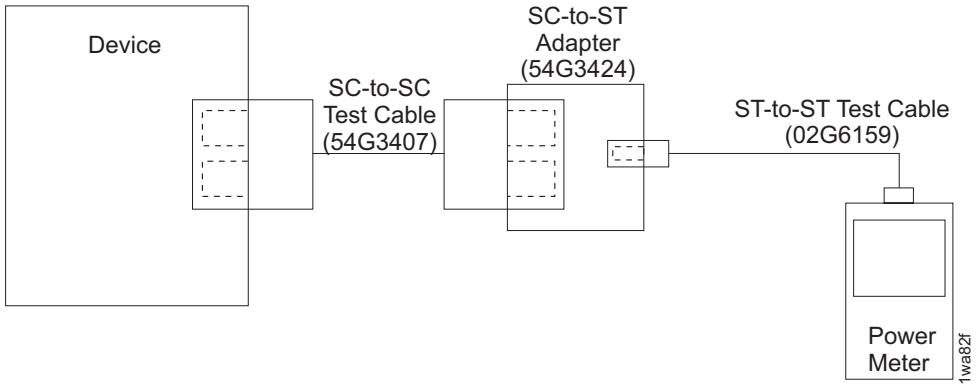


Figure 420. Measuring fibre channel optical transmit power

1. Verify that the I/O enclosure that contains the storage facility fibre channel card is powered on.
2. Run the optical wrap test on the desired fibre channel card port: At the management console, select **Service Applications → Service Focal Point → Service Utilities**. Select the Storage Facility, click **Selected** on the tool bar. Select **Manage FRUs** from the drop-down list, then click the **Show IO Enclosures** button. Select the enclosure location, then click **Show Host Adapters** button. Select **Host Adapter**, then click the **Perform Wrap Test** button.
3. After the wrap test returns a `Machine Test was successful` message and displays Make Resource Available for Customer Use, **STOP!**. **Do not** press Enter. Do not follow the screen instructions to reconnect the customer cables and resume the resources until instructed to do so at the end of this MAP (when all power measurements are complete).
4. Was the wrap test successful?
   - Yes, the host card port is now ready to perform the power measurement, continue with the next step.
   - No, use the repair process to replace the FRU. Refer to "MAP1215 Replace a FRU" on page 488.

5. Connect one end of a SC-to-SC test cable to the SC-to-ST adapter; then connect the other end to the storage facility fibre channel host card, see Figure 420 on page 759.
6. Connect the ST-to-ST test cable from the SC-to-ST adapter to the power meter.

   Note: If the optical power meter has **not** been previously turned on, zeroed, and set to the correct scale, set the meter using ″Optical Power Meter Setup″.

   If the fibre channel connection uses long wavelength (LW2), set the meter to 1300nm. If it uses short wavelength (SW2), set the meter to 780nm.
7. Use the optical power meter to obtain a reading. The power reading should be between -3.0 dBm and -9.0 dBm (-8 dBm is more power than -9.0 dBm. For example, -10 dBm indicates that the card transmitter is failing.) Record the actual measurement value for possible use during the link fault isolation procedures.
8. Disconnect the test cable from the storage facility fibre channel card. Was the power measurement correct?
   - Yes, continue with the next step.
   - No, use the repair process to replace the FRU. Refer to “MAP1215 Replace a FRU” on page 488.
9. Do you still need to perform the Optical Receiver Measurement procedure?
   - Yes, perform the Optical Receiver Measurement (Isolation Procedure 2).
   - No, continue with the next step.
10. Return to the management console and follow the instructions on the screen to ″Make Resource Available for Customer Use.″
11. Return to the procedure that sent you here.

MAP5321 Section-2 (Optical receiver measurement)

This procedure measures the power received at the end of the customers fibre channel link cable (input into optical receiver) through a SC-to-ST adapter (P/N 54G3424) and ST-to-ST test cable (P/N 02G6159).

Always clean the fiber optic connectors as described in the cleaning instructions in the fiber optic cleaning kit (New P/N 46G6844 or Old P/N 5453521) before connecting or reconnecting the fiber optic cables.

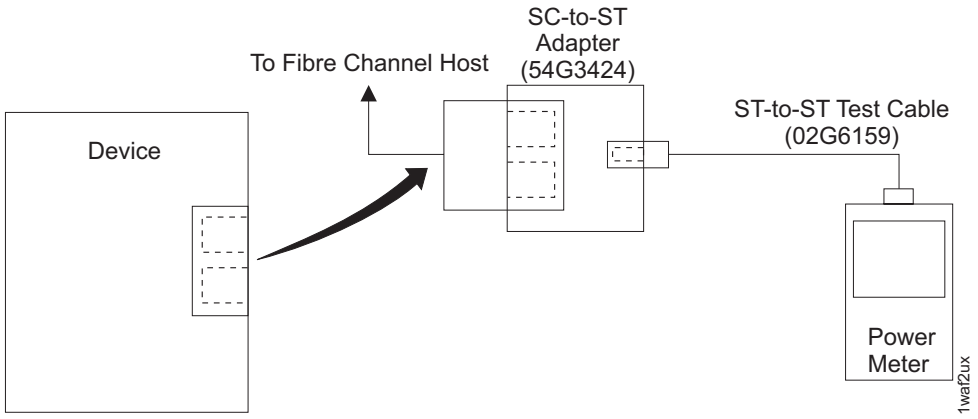


Figure 421. Measuring fibre channel optical receive power

1. Ensure that the device on the other end of the link is powered on.
2. Disconnect the fiber optic cable from the duplex connector on the storage facility fibre channel card, if not previously disconnected.
3. Connect the customer's fiber optic cable (that was removed from the storage facility fibre channel host card) to the SC-to-ST adapter, see Figure 421.
4. Connect the ST-to-ST test cable from the SC-to-ST adapter to the power meter.
   a. If the optical power meter has not been previously turned on, zeroed, and set to the correct scale, set the meter using "MAP5320 ESCON optical power measurement" on page 751.
   b. If the Fibre Channel connection uses long wavelength (LW2), set the meter to 1300nm. If it uses short wavelength (SW2), set the meter to 780nm.
5. Use the optical power meter to obtain a reading. The power reading should be -3.0 dBm and -20.0 dBm (-19.0 dBm is more power than -20.0 dBm). Record the actual measurement value for possible use later during the link fault isolation procedures.
6. Disconnect the customer fiber optic channel cable from the coupler and reconnect the cable to the storage facility fibre channel card.
7. Return to the service terminal and follow the instructions on the screen to "Make Resource Available for Customer Use".
8. Return to the procedure that sent you here.

MAP5321 Section-3 (Optical Power Meter Setup)

Use this procedure only to do the initial setup of the optical power meter (P/N 18F7005).

1. Power meter On.
2. Set the meter to 1300 nanometers (nm).
3. Zero the meter
4. Set the meter to display the dBm scale.

   Note: Do not hold down a push-button for more than one-half second. When held down for more than approximately three seconds, the push-button generates results different from those needed.
5. Ensure that the black cap is over the biconic receptacle at the top of the power meter.

6. Press Power **On/Off**. AUTO OFF will be displayed and the meter will turn off if no push-button is pressed in ten minutes. Allow a two minute warm-up period.
7. If the meter does not display 1300 nm, press the λ (lambda) symbol push-button repeatedly until 1300 nm is displayed.
8. Press **ZERO**, you will see two displays.
   - A value between 0.30 and 0.70 nW (nanowatts).
   - ZERO will blink after a short time, indicating that the meter is properly set to zero.

   a. If the above indicators do not display and Hi or Lo is displayed after pressing ZERO, press **ZERO** again.
   b. Using a small screwdriver, adjust the trim pot that is next to the biconic receptacle at the top of the meter until a value between .30 and .70 nW is displayed. Set the value as close to .50 nW as possible.
   a. Press **ZERO** again to zero the meter.
9. The meter must also display dBm (decibel, based on one milliwatt). If nW is displayed, press dBm/Watt. Continue with one of the following: "MAP5321 Section-1 (Optical transmitter measurement)" on page 759 or "MAP5321 Section-2 (Optical receiver measurement)" on page 760.

MAP5340 CKD read data failure

You are here to resolve a Data Path failure that has been logged with one of the SRC values listed below. An action to repair hardware or microcode is necessary. The action may require the repair of another serviceable event that needs repair. The failure may have caused customer data to be unreadable. If this occurs the customer must restore the data after the hardware or microcode repair action is complete.

This MAP isolates for the following SRCs:

- SRC **BE35334B**, physical address validation error.
- SRC **BE35334C**, third or later repeat of physical address validation error on the same physical address.
- SRC **BE354970**, second occurrence of physical address validation error on the same physical address.

These are customer data physical address validation errors. Data transferred from a DDM to cache memory did not have the expected physical address. There are two possible causes of this failure:

- Data may have been read from the wrong track, volume or array.
- The data that was read, may have originally been written to the wrong track, volume or array.

MAP5340 Section-1

Locate and repair any related serviceable events that need repair. The following lists the most likely repair activities.

1. Locate and repair any related problems.
2. Have the customer restore the data after the hardware problem has been resolved.

MAP5410 Fibre channel bit error validation

Bit Error Rate Threshold incidents are caused by specific conditions at an interface or along a line which can cause bits to be received or interpreted incorrectly.

Note: Customer disruption may occur if microcode and power boundaries are not in the proper conditions for this service action. Verify that you start all service activities in Chapter 1, "Start here," on page 1.

Bits that are received or interpreted incorrectly are counted. When a specific number is reached (threshold exceeded), the link is operating in a degraded mode. Bit errors are counted by each node attached on a link. You must determine which node(s) in a link have detected a threshold exceeded condition to identify the link or nodes causing the incident.

MAP5410 Section-1

1. Determine what type of error was reported by the customer. Was the customer-reported error a "Bit Error Threshold Exceeded " (BER) detected at the ATTACHED node?
   - Yes, go to step 3.
   - No, continue with the next step.
2. Display serviceable events that need repair. Are there any bit error rate serviceable events (SRC=BE35326A) for the failing link?
   - Yes, continue with the next step.
   - No, additional link problem determination is needed. Ensure that all optical link cables are reconnected, then call next level of support.
3. Run the bit error rate test on the desired fibre channel card port:
   a. At the management console, select **Service Applications → Service Focal Point → Service Utilities**. Select the **Storage Facility** click **Selected** on the tool bar, then from the drop down, select **Manage FRUs**. Click **Show I/O Enclosures** button, select the enclosure location, click **Show Host Adapters** button. Select **Host Adapter**, click **Perform Bit Error Rate Test** button.
   b. Select the SA interface to be tested, and follow the instructions on the screen to run the test.

      Did the test run successfully?
      - Yes, close any outstanding Bit Error Rate serviceable events for this link and resume any quiesced links. This call is complete.
      - No, continue with the next step.
4. Determine how many times the Bit-Error-Rate Test has been run. Has this test been run only one time?
   - Yes, clean the fiber optic connectors and run this test again. Use the fiber optic cleaning procedure specified in the fiber optic connector cleaning kit (New P/N 46G6844, Old P/N 5453521). Go to step 3.
   - No, return to the step in "MAP5300 ESCON or fibre channel link fault" on page 748 that sent you here.

MAP5430 Host fibre channel fails to recognize DS8000 LUNs

You are here to resolve a host failure to recognize LUNs configured on a DS8000 Fibre Channel.

Note: Customer disruption may occur if microcode and power boundaries are not in the proper conditions for this service action. Verify that you start all service activities in Chapter 1, “Start here,” on page 1.

MAP5430 Section-1

1. Use the management console to determine the current DS8000 Fibre Channel configuration and connections.
2. Use the customization worksheets from the *IBM System Storage DS8000 Introduction and Planning Guide* to verify the following:
   a. The DS8000 hardware configuration matches the customization worksheet.
   b. The fibre channel host cables are connected to the appropriate fibre channel host card and host bay, see the following figure.

   If you discover mismatches, check with the customer to resolve any differences.

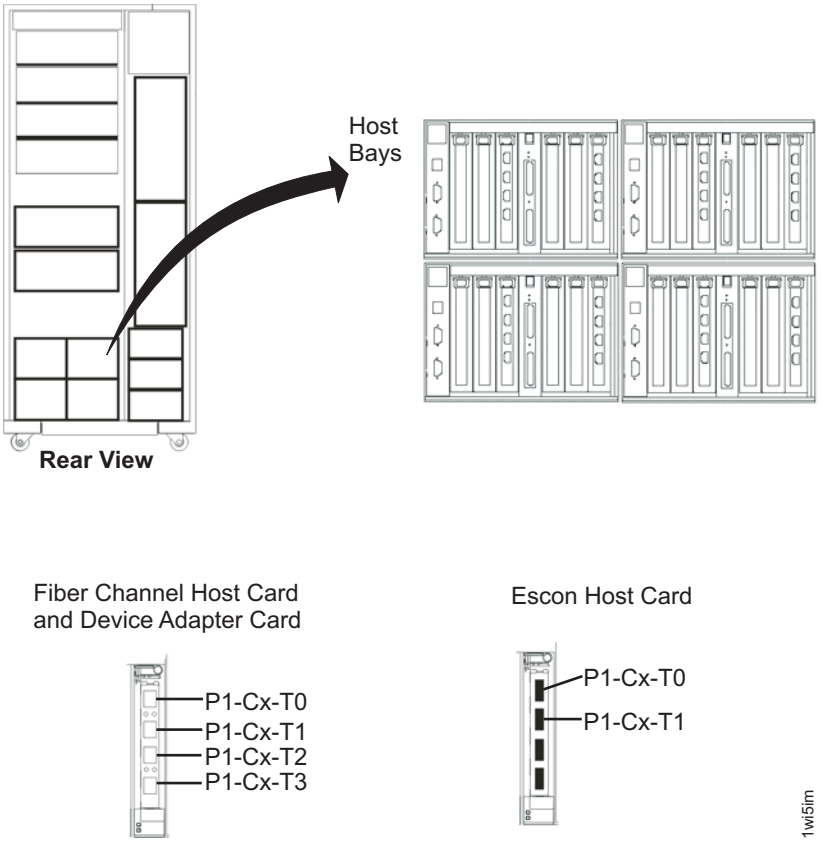


Figure 422. Host bay connector locations

Has the problem been resolved?

- Yes, return to the procedure that sent you here.
- No, continue with the next step.

3. Verify the LUN access setting of the Control Switches:
   a. From the management console, select: **Service Applications** → **Service Focal Point** → **Service Utilities**. Select the **Storage Facility**. At the main menu, click **Selected** → **Enable/Disable Control Switches**.

   Note: If the control switches are changed, the subsystem must be rebooted for the change to take effect.

Is the Fibre Channel LUN Access Control set to "Access_All?"

- Yes, have the customer check with the system administrator to verify that the host fibre configuration is correct.
- No, continue with the next step.

4. Has the problem been resolved?
   - Yes, return to the procedure that sent you here.
   - No, continue with the next step.
5. Have the customer use DS8000 Storage Manager to verify the following:
   a. The proper hosts are defined as being attached to the DS8000.
   b. All the host fibre port configuration is correct and matches the customization worksheets.

   Are the hosts defined correctly?
   - Yes, have the customer check with the system administrator to verify that the host fibre configuration is correct. If there are fibre switches between the host and the DS8000, have the customer verify that any *zoning* within the switch is properly configured. This will allow the desired host to access the DS8000.
   - No, the customer must define the host configuration using the DS8000 Storage Manager.

MAP5440 Fibre host card reports a loss of light

A fibre host card in the storage facility has detected and reported a loss of light from an attached host system. When a storage facility fibre host card detects a loss of light, the problem is normally external to the storage facility. This is reported to the host system as a status condition. A serviceable event is not created for this condition. A separate serviceable event will be created if the fibre host card detects an internal operational error.

Customer disruption can occur if microcode and power boundaries are not in the proper conditions for this service action. Verify that you start all service activities in Chapter 1, "Start here," on page 1.

MAP5440 Section-1

1. Use information from the customer to determine which fibre host card in the storage facility has reported the loss of light.

   Note: A serviceable event is not created for this condition.
2. Repair any related serviceable events for the fibre host card. Refer to "MAP1210 Displaying and repairing a serviceable event" on page 477.
3. Observe the green and yellow LED indicators on that fibre host card. With a loss of light condition, the green LED should be blinking slowly (1 per second) and the yellow LED should be off. A loss of light problem is normally not caused by the storage facility. These problems are normally external to the storage facility. Use the standard fibre channel isolation procedures (not included in this service guide) to restore light to the fiber cable connected to this fibre host card.

MAP6xxx range

Use this section for analyzing management console problems.

MAP6000 Entry point for analyzing management console problems

MAP6000 Section-1

Find the symptom in the table that follows, and perform the action listed.

Table 221. Entry point for analyzing management console problems

Analyzing management console problems	Action
Cannot log in to management console	Go to "MAP6060 Management console login and login problems at the management console server" on page 770
HMC boot stopped with NIC error : ONBOARD NIC FAILED UNSUPPORTED CONFIGURATION UNSUPPORTED NIC PCI	Go to "MAP6070 HMC boot stops with NIC problem" on page 771
Management console did not start, but no other problems were reported.	Go to "MAP6020 Management console problem determination" on page 768
Communication problems with one or more storage facilities.	Go to "MAP7000 Entry point for DS8000 private network problems" on page 855
Communication problem to customer LAN.	Go to "MAP6580 Customer Ethernet connection problem" on page 833
Power problems.	Go to "MAP6520 Management console power problem" on page 817
Management console boot problems.	Go to "MAP6020 Management console problem determination" on page 768
Keyboard/display problem.	Go to "MAP6540 Keyboard/display problem" on page 821
DVD drive problem.	Go to "MAP6550 DVD RAM Drive Problem" on page 830
Disk drive problem.	Go to "MAP6560 Disk drive problem" on page 831
Diskette drive problem.	Go to "MAP6570 Diskette drive problem" on page 832
You need to test the system to verify a problem with any of the following: • display • diskette rive • DVD drive • disk drive • Ethernet LAN	Go to "MAP6530 Testing the management console" on page 820.
Eight character error code beginning with management console received when using the management console graphical user interface.	Go to Chapter 49, "Management console error codes," on page 1471.
Management console does not communicate through the modem.	Go to "MAP6590 Modem problem" on page 838.

Table 221. Entry point for analyzing management console problems (continued)

Analyzing management console problems	Action
All other problems (for example: management console graphical user interface unresponsive, parity errors, power, POST codes, blank display, mouse, or keyboard).	Go to "MAP6020 Management console problem determination" on page 768.
Symptoms not in this list.	Go to "MAP6020 Management console problem determination" on page 768.

MAP6010 Displaying the HMC MAC address for the customer connection

Some customers need to know the Media Access Control (MAC) address of the HMC port they will connect to before the physical connection is made.

The HMC has a total of four Ethernet ports, two integrated as part of the HMC motherboard, and two additional ports on the PCI Ethernet card. See Figure 423 (X335 server) or Figure 424 on page 768 (X336 server).

- eth0 - port for DS8000 private network (not displayed)
- eth1 - port unused
- eth2 - port for customer connection
- eth3 - port for DS8000 private network (not displayed)

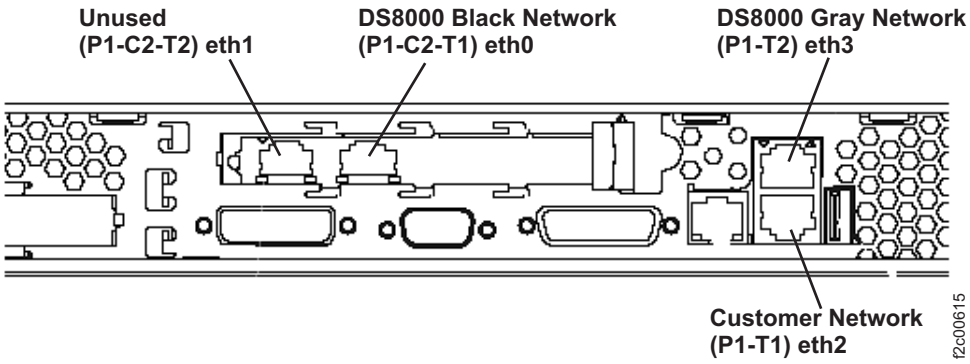


Figure 423. Ethernet connectors on the rear of the X335 management console server

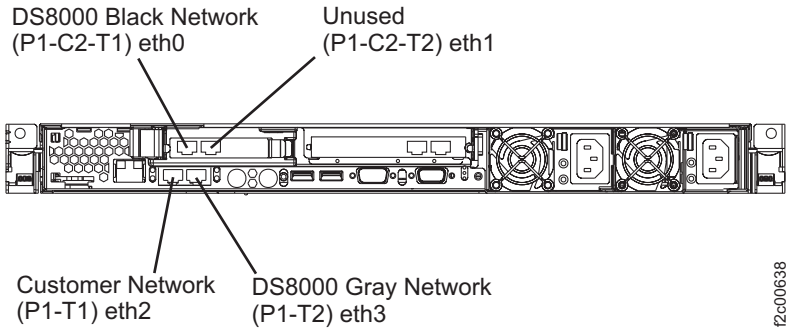


Figure 424. Ethernet connectors on the rear of the X336 management console server

The HMC utility to display the LAN Adapters has been modified to only display the properties for eth1 and eth2. eth0 and eth3 ports are automatically managed by the DS8000 network management processes during install and FRU replacements.

Display the MAC address of the port for customer connection.

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
2. Open **HMC Management**, select **HMC Configuration**.
3. In the right content area, select **Customize Network Settings**. The Customize Network Settings window will be displayed.
4. Click the **LAN Adapters** tab. The customer connection is to the eth2 port. Ethernet eth2 xx:xx:xx:xx:xx:xx (yyy.yyy.yyy.yyy)
   - MAC address = xx:xx:xx:xx:xx:xx
   - TCP/IP address = (yyy.yyy.yyy.yyy)

MAP6020 Management console problem determination

Use this MAP to determine if there is a problem with the management console hardware. This MAP might direct you to procedures in other sections of this service guide or to other service guides.

MAP6020 Section-1

Attention: During problem determination you may be asked to switch off and reboot the management console. Before doing that you must first verify that the customer is not accessing the management console through the ESSNI interface.

Troubleshoot the management console server, and then return to this MAP and go to "MAP6020 Section-2." For troubleshooting, refer to the approrpriate manual that is on the *IBM System Storage DS8000 series Service Documents CDROM*:

- *xSeries 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide*
- *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*

MAP6020 Section-2

1. Did the General Checkout indicate a hardware problem that you were able to repair?
   - Yes, continue with step "MAP6020 Section-4" on page 769.
   - No, continue with the next step.

2. Did the General Checkout indicate a hardware problem that you were *not* able to repair?
   - Yes, call your next level of support for assistance.
   - No, continue with the next step.
3. The system checkout did not indicate a hardware problem. Use the following table to determine the next action based on the symptoms listed.

Symptom	Actions
Management console does not boot but General Checkout did not indicate a hard drive problem.	Reload the management console image. Refer to "MAP6100 Reloading the management console licensed internal code (LIC)" on page 776.
Management console appears to be booting but management console login panel is not displayed.	1. If you suspect a display problem then go to "MAP6540 Keyboard/display problem" on page 821. 2. Reload the management console image. Refer to "MAP6100 Reloading the management console licensed internal code (LIC)" on page 776. 3. If the problem is still occurring then go to "MAP6020 Section-3."
Eight character error code beginning with management console received when using the management console graphical user interface.	Go to MAP 6xxx, Management console Error Code to FRU Index
Symptoms not in this list.	Go to "MAP6020 Section-3."

MAP6020 Section-3

Review the complete Symptom list in "MAP6000 Entry point for analyzing management console problems" on page 766 for analyzing management console problems. If that does not provide any other MAP to use, then call your next level of support for assistance.

MAP6020 Section-4

Reinstall all FRUs that did not fix the problem. You must have performed a repair action to continue. If you have not already done so, verify the repair. Use the checkout procedure for the management console type indicated in "MAP6020 Section-1" on page 768. Return here and continue with "MAP6020 Section-5" when completed.

MAP6020 Section-5

1. Did you exchange a hard disk drive?
   - Yes, restore the management console image to the new disk drive. Refer to "MAP6100 Reloading the management console licensed internal code (LIC)" on page 776.
   - No, continue with the next step.
2. Did you exchange the system board or the system board battery?
   - Yes, refer to the user's guide for the management console type to configure the system board settings or set the date/time.
   - No, continue with the next step.

MAP6020 Section-6

Does the management console communicate with all connected Storage Facilities?

- Yes, **this ends the procedure.**
- No, go to "MAP7000 Entry point for DS8000 private network problems" on page 855.

MAP6060 Management console login and login problems at the management console server

MAP6060 Section-1

1. After power-on, the management console login window prompts for the user ID and the password. The management console is supplied with a predefined user ID of `CE` and the default password `serv1cece`. Both the user ID and password are case sensitive and must be typed exactly as shown. After the successful login, the management console graphical user interface opens. Are you able to log in?
   - Yes, exit this MAP.
   - No, go to the next step.
2. Is the management console login window prompt displayed?
   - Yes, the user ID or password is corrupt. Call the next level of support.
   - No, go to the next step.
3. Is the management console server and display powered on?

   Note: The management console should be left powered on all the time. If the management console is inside of a DS8000 rack, it will receive power as long as the line cord input is present and the UEPO red switch is not tripped. The same is true for the Ethernet switches in the DS8000 rack.

   - Yes, power off the management console server and then power it back on (the power button is on the front of the server, at the right end). See Figure 425 on page 771 (X335 server) or Figure 426 on page 771 (X336 server). If the management console login window prompt is still not displayed, go to "MAP6020 Management console problem determination" on page 768.
   - No, power on the management console server (the power button is on the front of the server, at the right end). See Figure 425 on page 771 (X335 server) or Figure 426 on page 771 (X336 server). Power on the HMC display. If the management console login prompt window is not displayed, return to the beginning of this MAP.

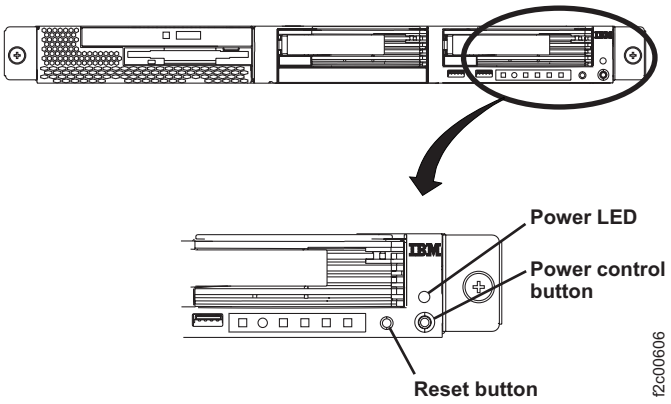


Figure 425. X335 management console server (front view)

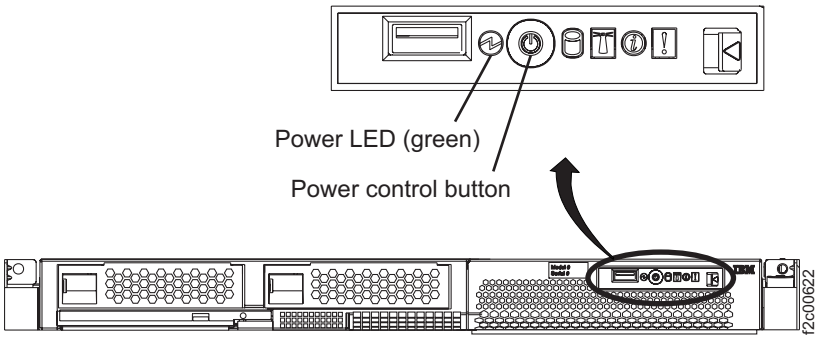


Figure 426. X336 management console server (front view)

MAP6070 HMC boot stops with NIC problem

During the boot-up of the management console various checks are made to ensure that the Ethernet ports are functional. The customer and private network connections use predefined Ethernet ports. The boot is not allowed to proceed if those ports are found to be missing or an incorrect Ethernet card is found to be installed.

MAP6070 Section-1

1. Use Table 222 to determine the next action to take.

Table 222. Message text and action

Message text	Action
********** !!! UNSUPPORTED CONFIGURATION !!! ********** The HMC has (1, 2 or 3) Ethernet port installed on the system. This is NOT a SUPPORTED configuration. The HMC only support 4 Ethernet ports configuration. This must be fixed in order for the HMC to boot....	Did you see one of the other messages listed on a previous boot-up attempt? • Yes, follow the actions listed for the previous message. • No, continue with step 2.

Table 222. Message text and action (continued)

Message text	Action
********** !!! UNSUPPORTED NIC PCI !!! ********** The NIC installed on the system is NOT Supported. Please check the hardware manual for supported NIC PCI. The unsupported NIC need to be replaced with the correct NIC in order for the HMC to boot....	1. It appears that an unsupported NIC PCI (Ethernet) card is installed in the HMC. If you just replaced the PCI Ethernet card, then verify that you ordered and installed the correct part. 2. If you did not just install a new PCI Ethernet card, then do that now.[1, 2]
********** !!! ONBOARD NIC FAILED !!! ********** This MUST be fixed in order for the HMC to boot....	Replace the HMC planar.[1, 3]
None of the above.	Go to "MAP6000 Entry point for analyzing management console problems" on page 766

Notes:

1. Refer to the approrpriate manual that is on the *IBM System Storage DS8000 series Service Documents CDROM*:
   - *xSeries 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide*
   - *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*
2. In the manual, see Chapter 4, "Customer replaceable units."
3. In the manual, see Chapter 5, "Service replaceable units" -> "System board."

2. At the rear of the management console server, observe the LEDs to determine the link status of the Ethernet ports. See Figure 427 on page 773 (X335 server) or Figure 428 on page 773 (X336 server).

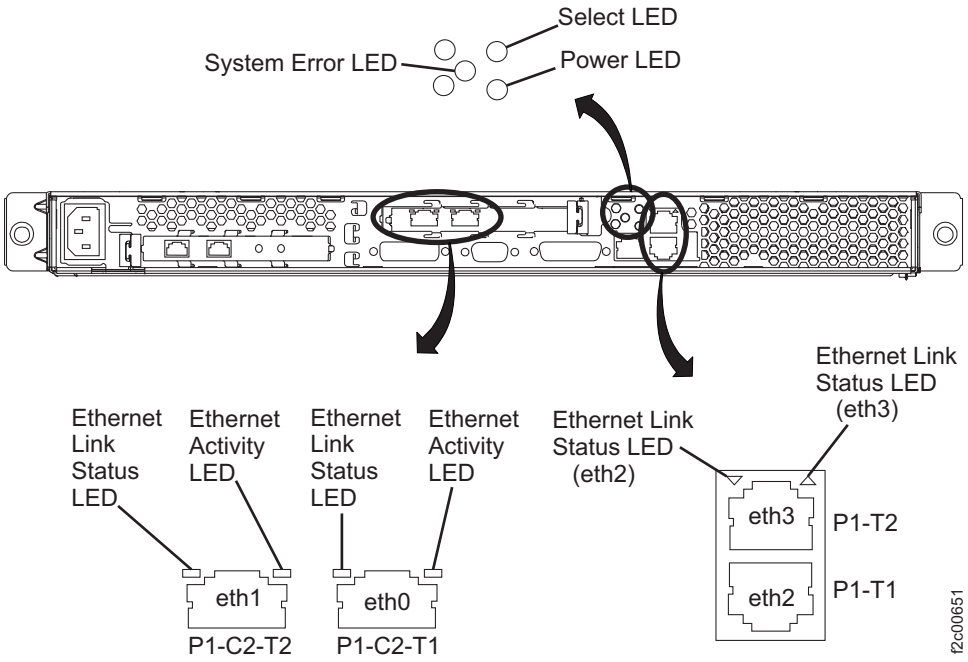


Figure 427. LEDs on the rear of the X335 management console server

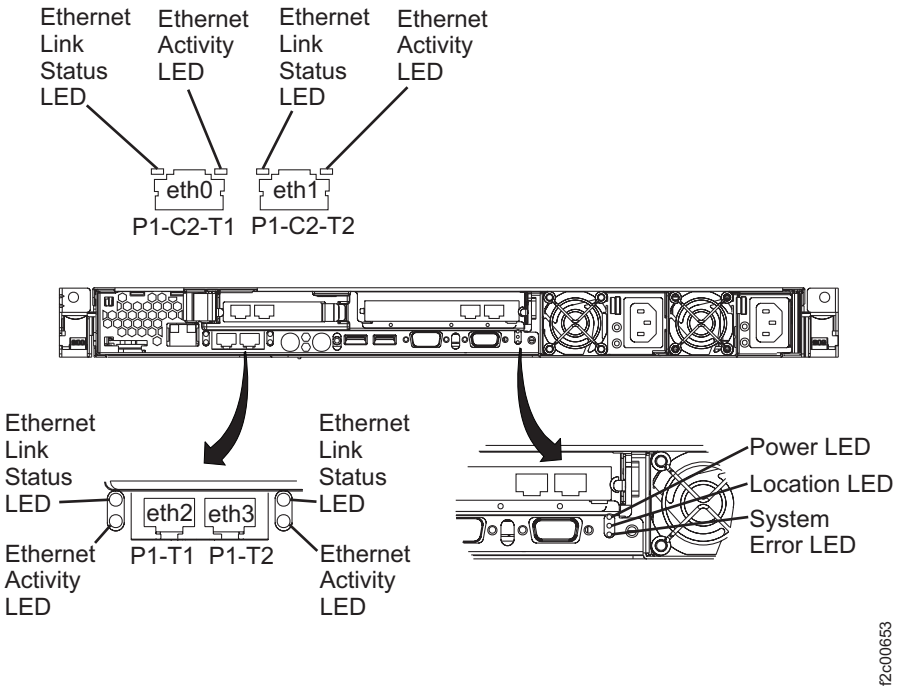


Figure 428. LEDs on the rear of the X336 management console server

a. Find a working port (indicated by a Link Status LED that is on solid or is flashing) and move the Ethernet cable to test any ports that appear to be failing.

b. Replace the PCI Ethernet card or HMC planar as appropriate for any failing ports. Refer to the appropriate manual that is on the *IBM System Storage DS8000 series Service Documents CDROM*:

- *xSeries 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide*
- *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*

To replace the PCI Ethernet card, see Chapter 4, "Customer replaceable units." To replace the HMC planar, see Chapter 5, "Service replaceable units" -> "System board.".

MAP6090 HMC Role selection not displayed as expected

The HMC Role Selection Menu did not appear as expected when the HMC was booted.

Prior to the October 2005 LIC code release:

- at initial install, the HMC role selection screen is displayed for only 3 minutes and then automatically defaults to "Primary" (MC 1).
- the storage facility private network TCP/IP address range is fixed:
  - 172.16.0.0 to 172.16.1.255 (Black network - eth0)
  - 172.17.0.0 to 172.17.1.255 (Gray network - eth3)

After the October 2005 LIC code release:

- at initial install, the HMC role selection screen is displayed until the service representative selects the HMC role
- the TCP/IP address range of the storage facility private network must be selected by the service representative referring to the customer worksheets. The preferred default address range is 172.16.0.0 to 172.16.255.255 (Black network - eth0) and 172.17.0.0 to 172.17.255.255 (Gray network - eth3), but the customer might have selected to use one of three optional address ranges. To find out which address range was selected, see "MAP7005 Determining which private network address range is selected" on page 867.

The HMC Role Selection Menu may not display if the HMC role was previously established. This section provides guidance on how to cause the HMC Role Selection to appear on the next reboot of the management console.

MAP6090 Section-1

1. Is the HMC logic screen displayed?
   - Yes, continue with the next step.
   - No, go to "MAP6020 Management console problem determination" on page 768.
2. Logon to the HMC with user ID `CE`, and password `serv1cece`.
3. Is the LIC code at a level prior to October 2005?
   - Yes, go to step 4.
   - No, go to step 5.
4. Perform the following steps from the WebSM GUI:
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Service Utilities**. The **System Selection and Action Invocation** window is displayed.
   d. Select a listed Storage Facility, click on **Selected** and then **Get HMC**.

Note: If no storage facility is listed, contact your next level of support.

e. Select the HMC, click on **Selected** and then **Query/Activate HMC Role Selection**.

f. Go to step 6.

5. Perform the following steps from the WebSM GUI:
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Service Applications** → **Service Focal Point**.
   c. In the right content area, click**Service Utilities**. The System Selection and Action Invocation window is displayed.
   d. Click **Actions** → **Display Storage Facility Resources**.
   e. Select the HMC. Click **Selected** → **Query/Activate HMC Role Selection**. The current HMC role is displayed along with the option to change it.
6. Is the old HMC role the same as the new HMC role you will select?
   - Yes, go to step 7.
   - No, go to step 8.
7. **IMPORTANT:** To reset all the HMC code objects to prepare for the install, the HMC role must transition from Primary to Secondary or Secondary to Primary at least once. If the role does not transition, the code objects will not be reset.
   - If the HMC role is displayed as Primary (MC 1), then you must change the role to Secondary (MC 2) and then repeat the process one more time to change back to Primary role. Go to step 8 and remember to change the HMC role twice.
   - If the HMC role is displayed as Secondary (MC 2), then you must change the role to Primary (MC 1) and then repeat the process one more time to change back to Secondary role. Go to step 8 and remember to change the HMC role twice.
8. Click **Change HMC Role** and then click **OK**.
9. Click **Yes** to force a reboot of the HMC. Allow up to 5 minutes for the management console to reboot. Does the HMC Role Selection Menu now appear?
   - Yes, return to the procedure that sent you to this MAP.
   - No, continue with the next step.
10. Is the HMC login screen displayed?
    - Yes, repeat steps 2 on page 774 through 5. If the problem persists, contact your next level of support.
    - No, go to "MAP6020 Management console problem determination" on page 768.

MAP60A0 Display the HMC role selection

Determine the HMC role (HMC1 primary or HMC2 secondary) using the HMC utilities.

MAP60A0 Section-1

1. Logon to the management console with the following default user ID and password:

   User ID: `CE`
   Password: `serv1cece`

2. Perform the following steps from the WebSM GUI:
   a. Select **Service Applications → Service Focal Point → Service Utilities**.
   b. Select a listed Storage Facility. On the main menu, click **Selected → Get HMC's**.

      Note: If no Storage Facility is listed, call your next level of support.
   c. Select the HMC. On the main menu, click **Selected → Query/Activate HMC Role Selection**.

MAP6100 Reloading the management console licensed internal code (LIC)

Use this MAP to reinstall the licensed internal code (LIC) for the management console.

MAP6100 Section-1

1. Were you sent here for a boot failure?
   - Yes, the failure might be caused by a corrupt file system. Go to the next step.
   - No, go to step 3.
2. Contact your next level of support so they can dial in and run the FSCK command and attempt to recover the boot drive.

   Was the recovery attempt successful?
   - Yes, exit this MAP.
   - No, go to the next step.
3. Is this the first time that you have been sent to this MAP for this problem?
   - Yes, go to step 5.
   - No, go to the next step.
4. The first time that you used this MAP, was the critical console data backup DVD available and did you use it?
   - Yes, this time you will be sent to MAPs that do not require that you have a critical console data backup DVD. Go to "MAP6100 Section-3 (Critical console data backup DVD is not available)" on page 777.
   - No, recovery cannot be achieved using any MAP. You must contact your next level of support.
5. Is the set of recovery CDs/DVDs for this management console available?

   Note: To identify a set of recovery CDs/DVDs, look in the document enclosure at the front of the DS8000 Rack-1 in the upper left corner. A set of recovery CDs/DVDs should be present (there should only be one set). Look at the CD/DVD labels. The information on the labels should be similar to the information that is shown in "MAP6100 Section-5 Examples of CD/DVD labels in the Recovery and HMC Update kits)" on page 779.
   - Yes, go to the next step.
   - No, go to "MAP6100 Section-4 (Recovery CD/DVD Kit is missing)" on page 778.
6. Locate the critical console data backup DVD disk for this HMC. The DVD disk should be found in the ship group during an install or kept in the HMC DVD-RAM drive after install. If the DVD disk cannot be located, go to step 8 on page 777.

Note: Ensure that the HMC machine type-model-S/N that is on the DVD disk and the HMC server match.

There are two versions of DVD disk:

- New version (pre-printed label): This DVD disk is labeled with the HMC machine type-model-S/N and "HMC Critical Console Data Backup DVD, Keep in HMC DVD-RAM drive". If this version of DVD disk is available, go to step 8.
- Old version (no pre-printed label): This DVD disk should have the HMC machine type-model-S/N hand-printed on it by the service representative. If this version of DVD disk is available, go to the next step.

7. Is the HMC machine type-model-S/N hand-printed on the DVD disk?
   - Yes, go to the next step.
   - No, hand print the HMC machine type-model-S/N and ″HMC Critical Console Data″ on the DVD disk.

     Example: "HMC machine type model S/N: 8837-PLM 75KKTWT8R, HMC Critical Console Data"
8. Is the HMC critical console data backup DVD available?
   - Yes, go to "MAP6100 Section-2 (Critical console data backup DVD is available)."
   - No, go to "MAP6100 Section-3 (Critical console data backup DVD is not available)."

MAP6100 Section-2 (Critical console data backup DVD is available):
Use Table 223 for the bundle level of your recovery DVD/CDs.

Table 223. Recovery bundle level

Bundle Level	Go to:
6.0.0.*xxx*	"MAP6101 MC 1 or MC 2, rebuilding the management console LIC (bundle 6.0.0.xxx), critical console data backup DVD available" on page 780
6.0.500.*xxx* or 6.1.*xxx.xxx*	"MAP6102 MC 1 or MC 2, reloading the management console LIC (bundle 6.0.500.*xxx* or 6.1.*xxx.xxx*), critical console data backup DVD available" on page 782
6.2.*xxx.xxx*	"MAP610A MC 1 or MC 2, reloading the management console LIC (bundle 6.2.*xxx.xxx* or higher), critical console data backup DVD available" on page 803

MAP6100 Section-3 (Critical console data backup DVD is not available)

1. Are there two physical management consoles (MC 1 and MC 2)?
   - Yes, go to the next step.
   - No, go to step 4 on page 778.
2. Is MC 2 powered up and available for use by the customer?

   Note: Because of an ESSNI code problem, some MC 2s have been powered off. If that is your case, answer No to this question.
   - Yes, go to the next step.
   - No, go to step 4 on page 778.

3. What is the bundle level of your recovery CDs?

   Note: Refer to the labels on your recovery CDs.

Table 224. MC 2 available, recovery bundle level

Bundle Level	Go to:
6.0.0.*xxx*	"MAP6107 Two MCs, reloading the management console licensed internal code (bundle 6.0.0.*xxx*) for MC 1 or MC 2, no critical console data backup DVD" on page 795
6.0.500.*xxx* or 6.1.*xxx*.*xxx*	"MAP6108 Two MCs, reloading licensed internal code (6.0.500.*xxx* or 6.1.*xxx*.*xxx*) on MC 1 or MC 2, no critical console data backup DVD" on page 799
6.2.xxx.xxx	"MAP610C Two MCs, reloading licensed internal code (bundle 6.2.*xxx*.*xxx* or higher) on MC 1 or MC 2, no critical console data backup DVD" on page 810

4. What is the bundle level of your recovery CDs?

   Note: Refer to the labels on your recovery CDs.

Table 225. MC 2 not available, recovery bundle level

Bundle Level	Go to:
6.0.0.*xxx*	"MAP6103 No MC 2, rebuilding MC 1 licensed internal code (bundle 6.0.0.*xxx*), no critical console data backup DVD" on page 785
6.0.500.*xxx* or 6.1.*xxx*.*xxx*	"MAP6104 No MC 2, reloading MC 1 licensed internal code (6.0.500.*xxx* or 6.1.*xxx*.*xxx*), no critical console data backup DVD" on page 789
6.2.*xxx*.*xxx*	"MAP610B No MC 2, reloading MC 1 licensed internal code (bundle 6.2.*xxx*.*xxx* or higher), no critical console data backup DVD" on page 806

MAP6100 Section-4 (Recovery CD/DVD Kit is missing)

Contact your next level of support. Here are some things that they might consider:

- Determine if a compatible set of Recovery CDs or DVDs from another storage facility in the account is available at the needed level.
- If the management console LIC code has been updated, it might be possible to order a set of recovery CDs at the level of the update instead of the original level.
- If the critical console data backup DVD is present in the management console DVD-RAM drive, it will contain all the LIC code updates that were applied after the original level of code that the management console was built with. You will need a set of HMC Recovery CDs at the original level that the management console was built with
- If the critical console data backup DVD is not in the management console DVD-RAM drive and is not available, additional procedures must be performed in order to recover that information.

MAP6100 Section-5 Examples of CD/DVD labels in the Recovery and HMC Update kits)

The kits (the Recovery Kit and the HMC Update Kit) include all of the CDs that you need to reload (or update) the code. In Table 226, find the appropriate kit and see the appropriate table that contains examples of the CD labels.

Note: The Recovery Kit Bundle VRMF might not match the HMC Update Kit Bundle VRMF. The Recovery Kit code is used on multiple bundle levels.

Table 226. Directory of tables that contain examples of CD labels

Kit	See
Recovery CDs for Bundle 6.0.0.*xxx*	Table 227
Recovery CDs for Bundle 6.0.500.*xxx* or 6.1.*xxx.xxx*	Table 228
Recovery CDs/DVDs for Bundle 6.2.*xxx.xxx* or higher	Table 229 on page 780

Table 227. Recovery CDs for Bundle 6.0.0.xxx: Example of CD labels

Code is for:	CD label	Description
HMC	HMC Base Recovery CD #1 Version: SQ4_BASE_050413.2	Base operating system and HMC code
HMC	HMC Base Recovery CD #2 Version: SQ4_BASE_050413.2	Base operating system and HMC code
HMC	HMC Base Recovery CD #3 Version: SQ4_BASE_050413.3	Base operating system and HMC code
HMC	HMC Extensions Recovery CD	Unique code support for 2107
HMC	CD Type: HMC_ICAT_GUI HMC Storage Manager Recovery CD	DS Storage Manager support (also known as ICAT), the IBM graphical user interface

Table 228. Recovery CDs for Bundle 6.0.500.xxx or 6.1.xxx.xxx: Example of CD labels

Code is for:	CD label	Description
HMC	HMC Recovery CD #1 HMC Base 1	Base operating system and HMC code
HMC	HMC Recovery CD #2 HMC Base 2	Base operating system and HMC code
HMC	HMC Recovery CD #3 HMC Base 3	Base operating system and HMC code
HMC	HMC Recovery CD #4 HMC Extensions	Unique code support for 2107
HMC	HMC Recovery CD #5 HMC_ICAT_GUI Storage Manager	ICAT GUI support

Table 229. Recovery CDs for Bundle 6.2.xxx.xxx or higher: Example of CD/DVD labels

Code is for:	CD label	Description
HMC	2107/242x HMC Recovery DVD HMC Base 1 Version: *xxxxxxxxx* DVD: #1	Base operating system and HMC code
HMC	HMC Extensions Version: *xxxxxxxxx* CD: #2	Unique code support for 2107/242x
HMC	HMC_ICAT_GUI Version: *xxxxxxxxx* CD: #3	DS Storage Manager support (also known as ICAT), the IBM graphical user interface

MAP6101 MC 1 or MC 2, rebuilding the management console LIC (bundle 6.0.0.xxx), critical console data backup DVD available

Use this MAP to reinstall the management console licensed internal code (LIC).

MAP6101 Section-1

1. Table 230 lists the CDs that you need to reload the HMC code. The CDs are in the HMC Recovery Kit.

   Note: A kit number is on each CD (below the IBM logo, for example KIT: 23R0133). Ensure that all of the CDs have the same kit number.

Table 230. HMC Recovery Kit: CDs required to reload the HMC code (bundle 6.0.0.xxx)

Order of use	CD label	Description	Installation time (approximate)
1	HMC Base Recovery CD #1 Version: SQ4_BASE_050413.2[1]	Base operating system and base HMC code	18 minutes
2	HMC Base Recovery CD #2 Version: SQ4_BASE_050413.2[1]	Base operating system and base HMC code	8 minutes
3	HMC Base Recovery CD #3 Version: SQ4_BASE_050413.3[1]	Base operating system and base HMC code	4 minutes
4	HMC Extensions Recovery CD	2107-unique HMC code	2 minutes
Notes			
[1] - The version number shown is an example.			

2. Shut down and power off the management console. For more information, see "MAP6640 Shutting down, rebooting, and logging off the management console" on page 843.
3. At the rear of the management console server, disconnect the following three Ethernet cables. See Figure 429 on page 781 (X335 server) or Figure 430 on page 781 (X336 server).
   - DS8000 network cable, black (eth0)
   - DS8000 network cable, gray (eth3)
   - Customer network cable (eth2)

Later, after you have reloaded the HMC code and all of the network settings have been restored, you will reconnect the cables.

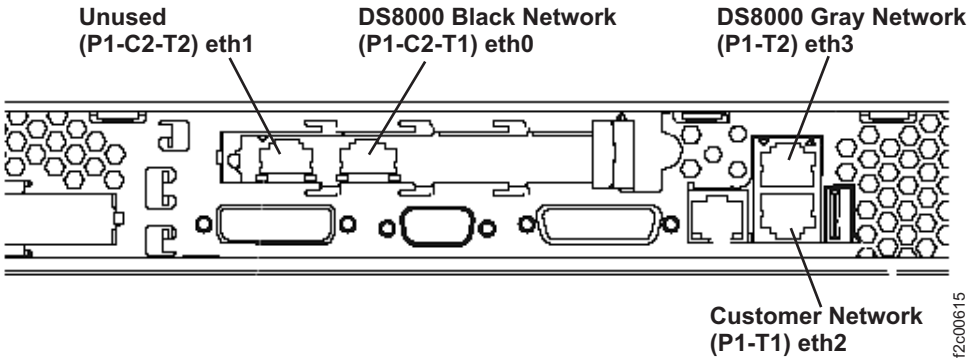


Figure 429. Ethernet connectors on the rear of the X335 management console server

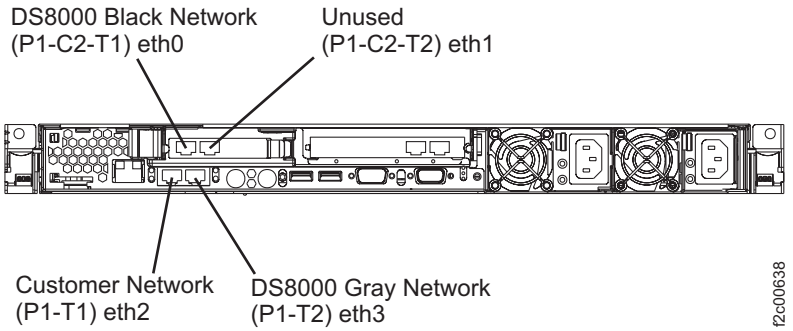


Figure 430. Ethernet connectors on the rear of the X336 management console server

4. Power on the management console and immediately insert the HMC Base Recovery CD #1. The management console powers on, boots from the CD, and then displays the **Hardware Management Console - Hard Disk Install / Upgrade** screen. This takes about two minutes.

   Note: If the CD does not boot, use the *X335/X336 Hardware Maintenance Manual and Troubleshooting Guide* to isolate the problem. The guide is on the DS8000 documentation CD.
5. Press F8 to continue the Install/Recovery process.
6. The **Hard Disk Restore/Reload** screen is immediately displayed. Ensure that it includes the following text and then press F1:

   ```
   Press F1 to continue with the RESTORE / RELOAD process. Press ESC to exit
   the process.
   ```

7. In about 18 minutes, the CD is ejected and the message **Phase 1 of the Restore process is Complete** is displayed. Follow the on-screen instructions to insert the HMC Base Recovery CD #2. Press Enter.
8. In about 8 minutes the CD is ejected and the following screen is displayed.

```
Please select one of the following options:
1 -- Install additional software from CD media
2 -- Finish the installation at a later time
Please enter your selection:
```

Type 1 and press Enter. When prompted, insert the HMC Base Recovery CD #3. Press Enter.

9. In about 4 minutes, the CD is ejected and the following screen is displayed.

```
Please select one of the following options:
1 -- Install additional software from CD media
2 -- Finish the installation at a later time
Please enter your selection:
```

Type 1 and press Enter. When prompted, insert the HMC Extensions Recovery CD. Press Enter.

10. In about 2 minutes, the following screen is displayed.

Note: Some bundle levels will not eject the CD. To manually open the media tray and remove the CD, insert a paper clip through the pinhole in the DVD-RAM drive.

```
Please select one of the following options:
1 -- Restore critical console data from DVD media
     Only select this option if you are performing a Hard Disk Recover.
2 -- Finish the installation
Please enter your selection:
```

11. Insert the critical console data backup DVD into the DVD-RAM drive.
12. Type 1 to restore critical console data and press Enter. The HMC automatically reboots, is updated from the information on the DVD, and displays the login screen.
13. Log on to the management console with user ID `CE` and password `serv1cece`.

    Was the logon successful?

    - Yes, go to the next step.
    - No, begin problem isolation at Chapter 1, “Start here,” on page 1
14. At the rear of the management console server, reconnect the three Ethernet cables that you disconnected in step 3 on page 780 (the DS8000 black network cable eth0, the DS8000 gray network cable eth3, and the customer network cable eth2).
15. Reboot the management console (HMC).
16. Ensure both of the DS8000 private network connections (Interface eth0 and Interface eth3) are working properly. Use the Network Topology Tool to ensure that the LPAR nodes are displayed. See “MAP7000 Entry point for DS8000 private network problems” on page 855.
17. Ensure that the customer can access the DS8000 Storage Manager application and then exit this MAP.

MAP6102 MC 1 or MC 2, reloading the management console LIC (bundle 6.0.500.*xxx* or 6.1.*xxx.xxx*), critical console data backup DVD available

Use this MAP to reinstall the licensed internal code (bundle 6.0.500.*xxx* or 6.1.*xxx.xxx*) for the management console when a critical console data backup DVD is available.

MAP6102 Section-1

1. Ensure that you were sent here from "MAP6100 Reloading the management console licensed internal code (LIC)" on page 776.
2. Table 231 lists the CDs that you need to reload the HMC code. The CDs are in the HMC Recovery Kit.

   Note: A kit number is on each CD (below the IBM logo, for example KIT: 23R0133). Ensure that all of the CDs have the same kit number.

Table 231. HMC Recovery Kit: CDs required to reload the HMC code (bundle 6.0.500.xxx or higher)

Media disk	CD label	Description	Installation time (approximate)
1	HMC Recovery CD #1 HMC Base 1	Base operating system and base HMC code	18 minutes
2	HMC Recovery CD #2 HMC Base 2	Base operating system and base HMC code	8 minutes
3	HMC Recovery CD #3 HMC Base 3	Base operating system and base HMC code	4 minutes
4	HMC Recovery CD #4 HMC Extensions	Unique code support for 2107	2 minutes
5	HMC Recovery CD #5 HMC_ICAT_GUI Storage Manager	DS Storage Manager code (also known as ICAT), the IBM graphical user interface	7 minutes

3. Shut down and power off the management console. For more information, see "MAP6640 Shutting down, rebooting, and logging off the management console" on page 843.
4. At the rear of the management console server, disconnect the following three Ethernet cables. See Figure 431 (X335 server) or Figure 432 on page 784 (X336 server).
   - DS8000 network cable, black (eth0)
   - DS8000 network cable, gray (eth3)
   - Customer network cable (eth2)

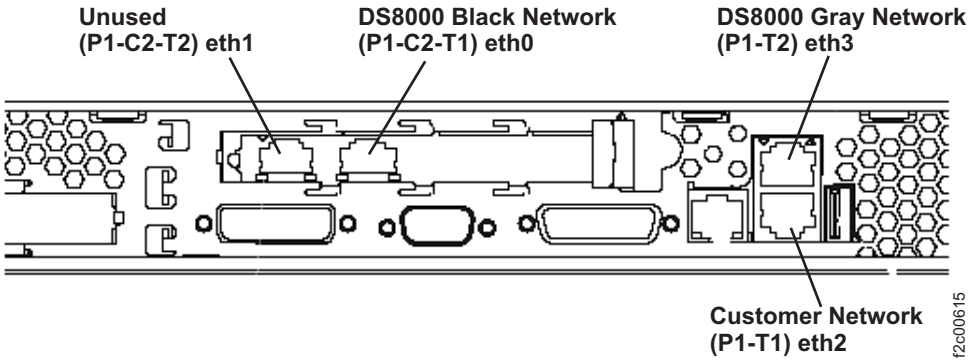


Figure 431. Ethernet connectors on the rear of the X335 management console server

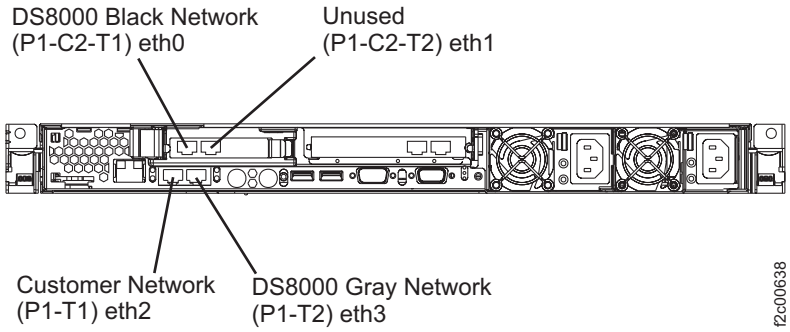


Figure 432. Ethernet connectors on the rear of the X336 management console server

5. Power on the management console and immediately insert HMC Recovery CD #1. The management console powers on, boots from the CD, and then displays the **Hardware Management Console - Hard Disk Install / Upgrade** screen. This takes about two minutes.

   Note: If the CD does not boot, use the *X335/X336 Hardware Maintenance Manual and Troubleshooting Guide* to isolate the problem. The guide is on the DS8000 documentation CD.
6. Press F8 to continue the Install/Recovery process.
7. The **Hard Disk Restore/Reload** screen is immediately displayed. Ensure that it includes the following text and then press F1:

   ```
   Press F1 to continue with the RESTORE / RELOAD process. Press ESC to exit
   the process.
   ```

8. In about 18 minutes, the CD is ejected and the message **Phase 1 of the Restore process is Complete** is displayed. Follow the on-screen instructions to insert HMC Recovery CD #2. Press Enter.
9. In about 8 minutes the CD is ejected and the following screen is displayed.

   ```
   Please select one of the following options:
   1 -- Install additional software from CD media
   2 -- Finish the installation at a later time
   Please enter your selection:
   ```

   Type 1 and press Enter. When prompted, insert HMC Recovery CD #3. Press Enter.
10. In about 4 minutes, the CD is ejected and the following screen is displayed.

    ```
    Please select one of the following options:
    1 -- Install additional software from CD media
    2 -- Finish the installation at a later time
    Please enter your selection:
    ```

    Type 1 and press Enter. When prompted, insert the HMC Recovery CD #4. Press Enter.
11. In about 2 minutes, the CD is ejected and the following screen is displayed.

    ```
    Please select one of the following options:
    1 -- Install additional software from CD media
    2 -- Finish the installation at a later time
    Please enter your selection:
    ```

    Type 1 and press Enter. When prompted, insert the HMC Recovery CD #5. Press Enter.

12. In about 7 minutes, the CD is ejected and the following screen is displayed.

```
Please select one of the following options:
1 -- Restore critical console data from DVD media
     Only select this option if you are performing a Hard Disk Recover.
2 -- Finish the installation
Please enter your selection:
```

    Go to the next step to enter your selection.
13. Insert the critical console data backup DVD into the DVD-RAM drive.
14. Type 1 to restore critical console data and press Enter. The HMC automatically reboots, is updated from the information on the DVD, and displays the login screen.
15. Log on to the management console with user ID `CE` and password `serv1cece`.

    Was the logon successful?
    - Yes, go to the next step.
    - No, begin problem isolation at Chapter 1, "Start here," on page 1
16. At the rear of the management console server, reconnect the three Ethernet cables that you disconnected in step 4 on page 783 (the DS8000 black network cable eth0, the DS8000 gray network cable eth3, and the customer network cable eth2).
17. Reboot the management console (HMC).
18. Ensure both of the DS8000 private network connections (Interface eth0 and Interface eth3) are working properly. Use the Network Topology Tool to ensure that the LPAR nodes are displayed. See "MAP7000 Entry point for DS8000 private network problems" on page 855.
19. Ensure that the customer can access the DS8000 Storage Manager application and then exit this MAP.

MAP6103 No MC 2, rebuilding MC 1 licensed internal code (bundle 6.0.0.*xxx*), no critical console data backup DVD

Use this MAP to reload the management console licensed internal code (bundle 6.0.0.*xxx*) when a critical console data backup DVD is not available.

MAP6103 Section-1

1. Ensure that you were sent here from "MAP6100 Reloading the management console licensed internal code (LIC)" on page 776.

   Note: All of the storage facilities that are managed by this HMC will need to be power-cycled as part of the ″HMC genesis″ process that will occur at the end of this procedure.
2. Will the customer allow you to power-cycle each managed storage facility as part of this procedure?
   - Yes, continue at the next step.
   - No, stop and call the next level of support.
3. Table 232 on page 786 lists the four CDs that you need to reload the HMC code. The CDs are in the HMC Recovery Kit.

   Note: A kit number is on each CD, below the IBM logo (for example KIT: 23R0133). Ensure that all of the CDs have the same kit number.

Table 232. HMC Recovery Kit for Bundle 6.0.0.xxx: CDs required to reload the HMC code

Order of use	CD label	Description	Installation time (approximate)
1	HMC Base Recovery CD #1 Version: SQ4_BASE_050413.2[1]	Base operating system and base HMC code	18 minutes
2	HMC Base Recovery CD #2 Version: SQ4_BASE_050413.2[1]	Base operating system and base HMC code	8 minutes
3	HMC Base Recovery CD #3 Version: SQ4_BASE_050413.3[1]	Base operating system and base HMC code	4 minutes
4	HMC Extensions Recovery CD	Unique code support for 2107	2 minutes
Notes			
[1] - The version number shown is an example.			

4. Do you have a copy of the most recent version of the customer configuration worksheet?

   Note: The customer configuration worksheet should be stored in the Rack-1 document enclosure.

   - Yes, go to step 6.
   - No, you must retrieve the configuration information. Go to the next step.
5. Can you successfully log on to the HMC that you are repairing?
   - Yes, perform the procedure in "MAP6105 Display and record the HMC customer configuration and network settings information" on page 794, return here, and then go to the next step.
   - No, you must contact the customer to get a new copy of the information before continuing at the next step.
6. Determine the level of code for the LIC bundle that is currently installed on this HMC by logging in to the HMC that you are repairing.

   Can you login successfully?
   - Yes, go to the next step.
   - No, go to step 8.
7. Display the level of HMC code.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Licensed Internal Code Maintenance → HMC Code Update**.
   c. In the right content area, the Status section displays the level of HMC code.
   d. Go to step 9.
8. Consider the following information when trying to determine the level of HMC code and then go to the next step:
   - If this HMC has VPN network access to download code bundles, a set of Update CDs might not be stored in Rack-1. Even if a set of Update CDs is stored in Rack-1, the code level of those CDs might not match the code level that is installed.
   - If this HMC does not have VPN network access, one or more sets of Update CDs might be stored in Rack-1.

- Refer to customer account records that track the installed level of code bundles.
- Call the next level of support to see if they can determine the code level by referring to call home MRPD reports, PE packages, or other means.

9. Shut down and power off the management console. See "MAP6640 Shutting down, rebooting, and logging off the management console" on page 843.
10. At the rear of the management console server, disconnect the following three Ethernet cables. See Figure 433 (X335 server) or Figure 434 (X336 server).
    - DS8000 network cable, black (eth0)
    - DS8000 network cable, gray (eth3)
    - Customer network cable (eth2)

    Later, after you have reloaded the HMC code and all of the network settings have been restored, you will reconnect the cables.

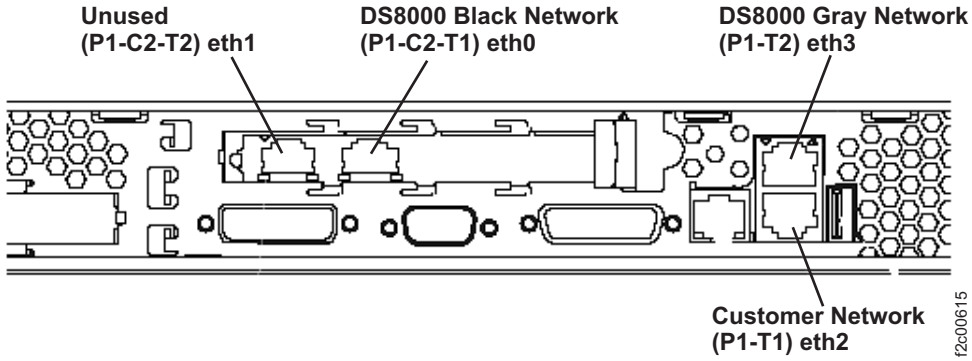


Figure 433. Ethernet connectors on the rear of the X335 management console server

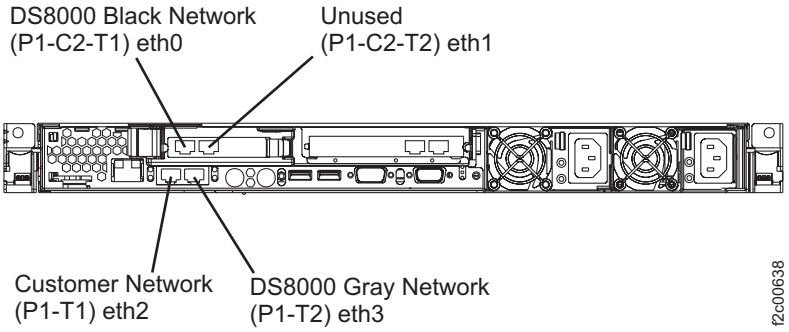


Figure 434. Ethernet connectors on the rear of the X336 management console server

11. Power on the management console and immediately insert the HMC Base Recovery CD #1. The management console powers on, boots from the CD, and then displays the **Hardware Management Console - Hard Disk Install / Upgrade** screen. This takes about two minutes.

    Note: If the HMC does not boot from the CD, use the *X335/X336 Hardware Maintenance Manual and Troubleshooting Guide* to isolate the problem.. The guide is on the DS8000 service documentation CD. (The CD is part of the ship group).

12. Press F8 to continue the Install/Recovery process.
13. The **Hard Disk Restore/Reload** screen is immediately displayed. Ensure that it includes the following text and then press F1:

```
Press F1 to continue with the RESTORE / RELOAD process.
Press ESC to exit the process.
```

14. In about 18 minutes, the CD is ejected and the message **Phase 1 of the Restore process is Complete** is displayed. Follow the on-screen instructions to insert the HMC Base Recovery CD #2. Press Enter.
15. In about 8 minutes, the CD is ejected and the following screen is displayed.

```
Please select one of the following options:
1 -- Install additional software from CD media
2 -- Finish the installation at a later time
Please enter your selection:
```

    Type 1 and press Enter. When prompted, insert the HMC Base Recovery CD #3. Press Enter.
16. In about 4 minutes, the CD is ejected and the following screen is displayed.

```
Please select one of the following options:
1 -- Install additional software from CD media
2 -- Finish the installation at a later time
Please enter your selection:
```

    Type 1 and press Enter. When prompted, insert the HMC Extensions Recovery CD. Press Enter.
17. In about 2 minutes, the following screen is displayed.

```
Please select one of the following options:
1 -- Restore critical console data from DVD media
     Only select this option if you are performing a Hard Disk Recover.
2 -- Finish the installation
Please enter your selection:
```

    Note: Some bundle levels will not eject the CD. To manually open the media tray and remove the CD, insert a paper clip through the pinhole in the DVD-RAM drive.
18. Type 2 to finish the installation and then press Enter.
19. The management console reboots and the following screen is displayed:

```
       WELCOME TO THE
   HMC ROLE SELECTION MENU
ENTER A MENU OPTION FROM LIST
 1) ASSIGN HMC AS PRIMARY
 2) ASSIGN HMC AS SECONDARY
99) EXIT
```

    a. Ensure **MC 1** is on the label on the front of the keyboard/display tray.
    b. Type 1 and then press Enter.
    c. When prompted, type Yes to confirm and then press Enter.
    d. When prompted, type the appropriate keyboard selection menu number and then press Enter.

        Note: If you do not make a selection within one minute, it will default to menu option 1 and then continue to the management console logon screen.

20. Log on to the management console with user ID `CE` and password `serv1cece`.
    Was the logon successful?
    - Yes, go to the next step.
    - No, begin problem isolation at Chapter 1, "Start here," on page 1.
21. Use "MAP6106 Restoring the HMC customer communication and network settings" on page 794 to restore the HMC communication and customer resources settings, return here, and then go to the next step.
22. Reboot the HMC to activate the settings. See "MAP6640 Shutting down, rebooting, and logging off the management console" on page 843.
23. At the rear of the management console server, reconnect ONLY the customer network cable (eth2). See Figure 433 on page 787 (X335 server) or Figure 434 on page 787 (X336 server).
24. Earlier in this MAP, you determined the level of code (LIC bundle) that needs to be reinstalled on this HMC.

    Note: If you are not sure whether the code level of the managed storage facilities matches the code level of the update CDs, call the next level of support. Most HMC bundle levels are downward compatible if one or more managed storage facilities are still at an older bundle level.

    Does the bundle level of the recovery CD set that you used to rebuild the HMC boot match the bundle level of the HMC before it was rebuilt?
    - Yes, go to step 26.
    - No, go to the next step.
25. Use the CDA process to update the HMC LIC code now. The HMC will be rebooted as part of the CDA process.

    Note: Do not use the CDA pre-verify process. It will fail because the private network Ethernet cables are still disconnected from the HMC.
26. At the rear of the management console server, reconnect the black DS8000 network cable (eth0) and the gray DS8000 network cable (eth3). See Figure 433 on page 787 (X335 server) or Figure 434 on page 787 (X336 server).
27. Call the next level of support so they can dial in and perform an "HMC genesis."

    Note: All of the storage facilities that are managed by this HMC will automatically be power-cycled during "HMC genesis."
28. Ensure both of the DS8000 private network connections (Interface eth0 and Interface eth3) are working properly. Use the Network Topology Tool to ensure that the LPAR nodes are displayed. See "MAP7000 Entry point for DS8000 private network problems" on page 855.

MAP6104 No MC 2, reloading MC 1 licensed internal code (6.0.500.*xxx* or 6.1.*xxx.xxx*), no critical console data backup DVD

Use this MAP to reinstall the management console licensed internal code (LIC) when a critical console backup DVD is not available.

MAP6104 Section-1

1. Ensure that you were sent here from "MAP6100 Reloading the management console licensed internal code (LIC)" on page 776.

Note: All of the storage facilities that are managed by this HMC will need to be power-cycled as part of the ″HMC genesis″ process that will occur at the end of this procedure.

2. Will the customer allow you to power-cycle each managed storage facility as part of this procedure?
   - Yes, continue at the next step.
   - No, stop and call the next level of support.
3. Table 233 lists the five CDs that you need to reload the HMC code. The CDs are in the HMC Recovery Kit.

   Note: A kit number is on each CD, below the IBM logo (for example KIT: 23R0133). Ensure that all of the CDs have the same kit number.

Table 233. HMC Recovery Kit: CDs required to reload the HMC code (bundle 6.0.500.xxx or higher)

Media disk	CD label	Description	Installation time (approximate)
1	HMC Recovery CD #1 HMC Base 1	Base operating system and base HMC code	18 minutes
2	HMC Recovery CD #2 HMC Base 2	Base operating system and base HMC code	8 minutes
3	HMC Recovery CD #3 HMC Base 3	Base operating system and base HMC code	4 minutes
4	HMC Recovery CD #4 HMC Extensions	Unique code support for 2107	2 minutes
5	HMC Recovery CD #5 HMC_ICAT_GUI Storage Manager	DS Storage Manager (also known as ICAT), the IBM graphical user interface	7 minutes

4. Do you have a copy of the most recent version of the customer configuration worksheet?

   Note: The customer configuration worksheet should be stored in the Rack-1 document enclosure.
   - Yes, go to step 6.
   - No, go to the next step.
5. Can you successfully log on to the HMC that you are repairing?
   - Yes, perform the procedure in “MAP6105 Display and record the HMC customer configuration and network settings information” on page 794, record the needed information, return here, and then go to the next step.
   - No, you must contact the customer to get a new copy of the information before continuing at the next step.
6. Determine the level of code for the LIC bundle that is currently installed on this HMC by logging in to the HMC that you are repairing. Can you login successfully?
   - Yes, go to the next step.
   - No, go to step 8.
7. Display the level of HMC code.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).

b. Open **Licensed Internal Code Maintenance → HMC Code Update**.
c. In the right content area, the Status section displays the level of HMC code.
d. Go to step 9.

8. Consider the following information when trying to determine the level of HMC code and then go to the next step:
   - If this HMC has VPN network access to download code bundles, a set of Update CDs might not be stored in Rack-1. Even if a set of Update CDs is stored in Rack-1, the code level of those CDs might not match the code level that is installed.
   - If this HMC does not have VPN network access, one or more sets of Update CDs might be stored in Rack-1.
   - Refer to customer account records that track the installed level of code bundles.
   - Call the next level of support to see if they can determine the code level by referring to call home MRPD reports, PE packages, or other means.
9. Shut down and power off the management console. See "MAP6640 Shutting down, rebooting, and logging off the management console" on page 843.
10. At the rear of the management console server, disconnect the following three Ethernet cables. See Figure 435 (X335 server) or Figure 436 on page 792 (X336 server).
    - DS8000 network cable, black (eth0)
    - DS8000 network cable, gray (eth3)
    - Customer network cable (eth2)

    Later, after you have reloaded the HMC code and all of the network settings have been restored, you will reconnect the cables.

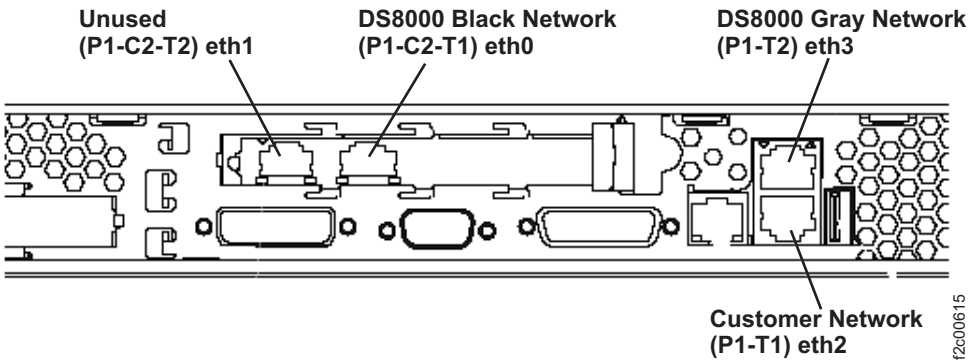


Figure 435. Ethernet connectors on the rear of the X335 management console server

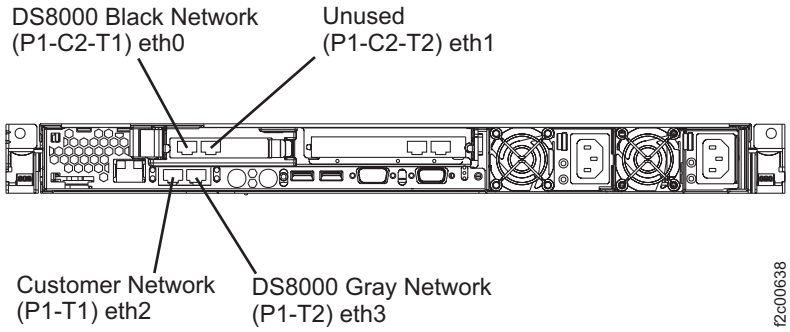


Figure 436. Ethernet connectors on the rear of the X336 management console server

11. Power on the management console and immediately insert the HMC Base Recovery CD #1. The management console powers on, boots from the CD, and then displays the **Hardware Management Console - Hard Disk Install / Upgrade** screen. This takes about two minutes.

    Note: If the HMC does not boot from the CD, use the *X335/X336 Hardware Maintenance Manual and Troubleshooting Guide* to isolate the problem.. The guide is on the DS8000 service documentation CD. (The CD is part of the ship group).

12. Press F8 to continue the Install/Recovery process.
13. The **Hard Disk Restore/Reload** screen is immediately displayed. Ensure that it includes the following text and then press F1:

```
Press F1 to continue with the RESTORE / RELOAD process.
Press ESC to exit the process.
```

14. In about 18 minutes, the CD is ejected and the message **Phase 1 of the Restore process is Complete** is displayed. Follow the on-screen instructions to insert the HMC Base Recovery CD #2. Press Enter.
15. In about 8 minutes, the CD is ejected and the following screen is displayed.

```
Please select one of the following options:
1 -- Install additional software from CD media
2 -- Finish the installation at a later time
Please enter your selection:
```

    Type 1 and then press Enter. When prompted, insert the HMC Base Recovery CD #3. Press Enter.

16. In about 4 minutes, the CD is ejected and the following screen is displayed.

```
Please select one of the following options:
1 -- Install additional software from CD media
2 -- Finish the installation at a later time
Please enter your selection:
```

    Type 1 and then press Enter. When prompted, insert the HMC Base Recovery CD #4. Press Enter.

17. In about 2 minutes, the CD is ejected and the following screen is displayed.

```
Please select one of the following options:
1 -- Install additional software from CD media
2 -- Finish the installation at a later time
Please enter your selection:
```

Type 1 and then press Enter. When prompted, insert the HMC Base Recovery CD #5. Press Enter.

18. In about 2 minutes, the following screen is displayed.

```
Please select one of the following options:
1 -- Restore critical console data from DVD media
     Only select this option if you are performing a Hard Disk Recover.
2 -- Finish the installation
Please enter your selection:
```

Note: Some bundle levels will not eject the CD. To manually open the media tray and remove the CD, insert a paper clip through the pinhole in the DVD-RAM drive.

19. Type 2 to finish the installation and then press Enter.
20. The management console reboots and the following screen is displayed:

```
       WELCOME TO THE
   HMC ROLE SELECTION MENU
ENTER A MENU OPTION FROM LIST
 1) ASSIGN HMC AS PRIMARY
 2) ASSIGN HMC AS SECONDARY
99) EXIT
```

    a. Ensure **MC 1** is on the label on the front of the keyboard/display tray.
    b. Type 1 and then press Enter.
    c. When prompted, type Yes to confirm and then press Enter.
    d. When prompted, type the appropriate keyboard selection menu number and then press Enter.

       Note: If you do not make a selection within one minute, it will default to menu option 1 and then continue to the management console logon screen.

21. Log on to the management console with user ID `CE` and password `serv1cece`.

    Was the logon successful?

    - Yes, go to the next step.
    - No, begin problem isolation at Chapter 1, “Start here,” on page 1.

22. Use “MAP6106 Restoring the HMC customer communication and network settings” on page 794 to restore the HMC communication and customer resources settings, return here, and then go to the next step.
23. Reboot the HMC to activate the settings. See “MAP6640 Shutting down, rebooting, and logging off the management console” on page 843.
24. At the rear of the management console server, reconnect ONLY the customer network cable (eth2). See Figure 435 on page 791 (X335 server) or Figure 436 on page 792 (X336 server).
25. Earlier in this MAP, you determined the level of code (LIC bundle) that needs to be reinstalled on this HMC.

    Note: If you are not sure whether the code level of the managed storage facilites matches the code level of the update CDs, call the next level of support. Most HMC bundle levels are downward compatible if one or more managed storage facilities are still at an older bundle level.

    Does the bundle level of the recovery CD set that you used to rebuild the HMC boot match the bundle level of the HMC before it was rebuilt?

    - Yes, go to step 27.

- No, go to the next step.

26. Use the CDA process to update the HMC LIC code now. The HMC will be rebooted as part of the CDA process.

    Note: Do not use the CDA pre-verify process. It will fail because the private network Ethernet cables are still disconnected from the HMC.

27. At the rear of the management console server, reconnect the black DS8000 network cable (eth0) and the gray DS8000 network cable (eth3). See Figure 435 on page 791 (X335 server) or Figure 436 on page 792 (X336 server).
28. Call the next level of support so they can dial in and perform an ″HMC genesis″.

    Note: All of the storage facilities that are managed by this HMC will automatically be power-cycled during ″HMC genesis″.

29. Ensure both of the DS8000 private network connections (Interface eth0 and Interface eth3) are working properly. Use the Network Topology Tool to ensure that the LPAR nodes are displayed. See “MAP7000 Entry point for DS8000 private network problems” on page 855.

MAP6105 Display and record the HMC customer configuration and network settings information

Use this MAP to display information about the HMC customer configuration and network settings and then record this information on paper.

MAP6105 Section-1

1. You were sent here to display and record the HMC customer configuration and network settings that need to be restored because the customer Communications Resources worksheets cannot be found.
2. Perform the following two procedures to determine the settings that need to be restored. Display each of the settings and record them on paper, then return here and go to the next step:
   - “Power on and initial configuration of the external management console” on page 106
   - “Completing the installation of the external management console” on page 112
3. Return to the procedure that sent you here.

MAP6106 Restoring the HMC customer communication and network settings

Use this MAP to restore the HMC customer communication and network settings.

MAP6106 Section-1

1. You have been sent here to restore the customer communications and network settings for the HMC boot drive that has had all code reloaded. The same procedure used during install of an external or internal storage facility HMC can be used here also.
2. Locate the most recent customer worksheet (or the temporary worksheet that you created using “MAP6105 Display and record the HMC customer configuration and network settings information”).
3. Perform the following two procedures to configure and test the HMC and then return here and go to the next step:

- "Power on and initial configuration of the external management console" on page 106
- "Completing the installation of the external management console" on page 112

4. Return to the procedure that sent you here.

MAP6107 Two MCs, reloading the management console licensed internal code (bundle 6.0.0.*xxx*) for MC 1 or MC 2, no critical console data backup DVD

Use this MAP to reinstall the management console licensed internal code (bundle 6.0.0.*xxx*) on MC 1 or MC 2 when a critical console data backup DVD is not available.

MAP6107 Section-1

1. Ensure that you were sent here from "MAP6100 Reloading the management console licensed internal code (LIC)" on page 776.
2. Table 234 lists the four CDs that you need to reload the HMC code. The CDs are in the HMC Recovery Kit.

   Note: A kit number is on each CD, below the IBM logo (for example, KIT: 23R0133). Ensure that all of the CDs have the same kit number.

Table 234. HMC Recovery Kit: CDs required to reload the HMC code (bundle 6.0.0.xxx)

Order of use	CD label	Description	Installation time (approximate)
1	HMC Base Recovery CD #1 Version: SQ4_BASE_050413.2[1]	Base operating system and base HMC code	18 minutes
2	HMC Base Recovery CD #2 Version: SQ4_BASE_050413.2[1]	Base operating system and base HMC code	8 minutes
3	HMC Base Recovery CD #3 Version: SQ4_BASE_050413.3[1]	Base operating system and base HMC code	4 minutes
4	HMC Extensions Recovery CD	Unique code support for 2107	2 minutes
Notes			
[1] - The version number shown is an example.			

3. Do you have a copy of the most recent version of the customer configuration worksheet?

   Note: The customer configuration worksheet should be stored in the Rack-1 document enclosure.

   - Yes, go to step 5.
   - No, go to the next step.

4. Can you successfully log on to the HMC that you are repairing?
   - Yes, perform the procedure in "MAP6105 Display and record the HMC customer configuration and network settings information" on page 794 to display and record the needed information. Then return here and go to the next step.
   - No, you must contact the customer to get a new copy of the information before continuing to the next step.

5. Determine the level of code for the LIC bundle that is currently installed on this HMC by logging in to the HMC that you are repairing.

   Can you login successfully?

   - Yes, go to the next step.
   - No, go to step 7.

6. Display the level of HMC code.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Licensed Internal Code Maintenance → HMC Code Update**.
   c. In the right content area, the Status section displays the level of HMC code.
   d. Go to step 8.
7. Consider the following information when trying to determine the level of HMC code and then go to the next step:
   - If this HMC has VPN network access to download code bundles, a set of Update CDs might not be stored in Rack-1. Even if a set of Update CDs is stored in Rack-1, the code level of those CDs might not match the code level that is installed.
   - If this HMC does not have VPN network access, one or more sets of Update CDs might be stored in Rack-1.
   - Refer to customer account records that track the installed level of code bundles.
   - Call the next level of support to see if they can determine the code level by referring to call home MRPD reports, PE packages, or other means.
8. Shut down and power off the management console. See "MAP6640 Shutting down, rebooting, and logging off the management console" on page 843.
9. At the rear of the management console server, disconnect the following three Ethernet cables. See Figure 437 (X335 server) or Figure 438 on page 797 (X336 server).
   - DS8000 network cable, black (eth0)
   - DS8000 network cable, gray (eth3)
   - Customer network cable (eth2)

   Later, after you have reloaded the HMC code and all of the network settings have been restored, you will reconnect the cables.

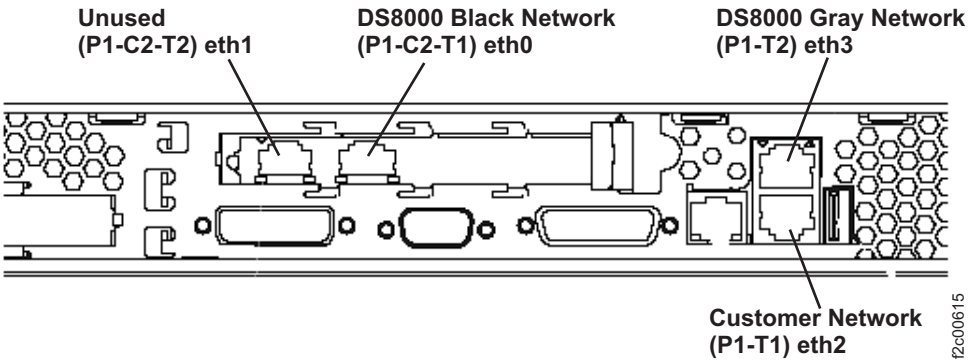


Figure 437. Ethernet connectors on the rear of the X335 management console server

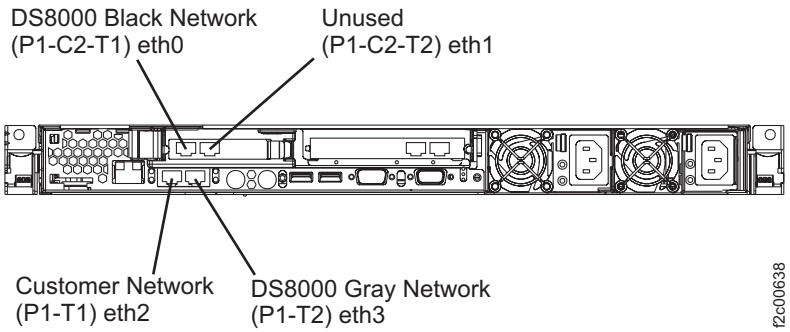


Figure 438. Ethernet connectors on the rear of the X336 management console server

10. Power on the management console and immediately insert HMC Recovery CD #1. The management console powers on, boots from the CD, and then displays the **Hardware Management Console - Hard Disk Install / Upgrade** screen. This takes about two minutes.

    Note: If the management console does not boot from the CD, use the*X335/X336 Hardware Maintenance Manual and Troubleshooting Guide* to isolate the problem. The guide is on the DS8000 service documentation CD. (The CD is part of the ship group).

11. Press F8 to continue the Install/Recovery process.
12. The **Hard Disk Restore/Reload** screen is immediately displayed. Ensure that it includes the following text and then press F1:

    ```
    Press F1 to continue with the RESTORE / RELOAD process.
    Press ESC to exit the process.
    ```

13. In about 18 minutes, the CD is ejected and the message **Phase 1 of the Restore process is Complete** is displayed. Follow the on-screen instructions to insert the HMC Recovery CD #2. Press Enter.
14. In about 8 minutes, the CD is ejected and the following screen is displayed:

    ```
    Please select one of the following options:
    1 -- Install additional software from CD media
    2 -- Finish the installation at a later time
    Please enter your selection:
    ```

    Type 1 and press Enter. When prompted, insert the HMC Base Recovery CD #3. Press Enter.

15. In about 4 minutes, the CD is ejected and the following screen is displayed.

    ```
    Please select one of the following options:
    1 -- Install additional software from CD media
    2 -- Finish the installation at a later time
    Please enter your selection:
    ```

    Type 1 and press Enter. When prompted, insert the HMC Extensions Recovery CD. Press Enter.

16. In about 2 minutes, the following screen is displayed:

    Note: Some bundle levels will not eject the CD. To manually open the media tray and remove the CD, insert a paper clip through the pinhole in the DVD-RAM drive.

```
Please select one of the following options:
1 -- Restore critical console data from DVD media
     Only select this option if you are performing a Hard Disk Recover.
2 -- Finish the installation
Please enter your selection:
```

17. Type 2 to finish the installation and press Enter.
18. The management console reboots and the following screen is displayed:

```
      WELCOME TO THE
   HMC ROLE SELECTION MENU
ENTER A MENU OPTION FROM LIST
 1) ASSIGN HMC AS PRIMARY
 2) ASSIGN HMC AS SECONDARY
99) EXIT
```

    - Ensure **MC 1** is on the label on the front of the keyboard/display tray.
    - Type 1 and press Enter.
    - When prompted, type Yes to confirm and then press Enter.
    - When prompted, type the keyboard selection menu number that is appropriate and press Enter.

      Note: If you do not make a selection within one minute, it will default to menu option 1 and then continue to the management console logon screen.

19. Log on to the management console with user ID `CE` and password `serv1cece`.

    Was the logon successful?

    - Yes, go to the next step.
    - No, begin problem isolation at Chapter 1, "Start here," on page 1.

20. Use "MAP6106 Restoring the HMC customer communication and network settings" on page 794 to restore the HMC communication and customer resources settings. Then return here and go to the next step.
21. Call the next level of support. They will dial into the HMC that is not being repaired and remove the old "node information" for the HMC that is being repaired. The HMC command line procedure is outlined in a PE database document.
22. At the rear of the management console server, reconnect the three Ethernet cables that you disconnected in step 9 on page 796.
23. Ensure both of the DS8000 private network connections (Interface eth0 and Interface eth3) are working properly. Use the Network Topology Tool to ensure that the LPAR nodes are displayed. See "MAP7000 Entry point for DS8000 private network problems" on page 855.
24. The DS Storage Manager code (also known as ICAT), the IBM graphical user interface, that allows the customer to access the storage manager must be installed. The CDA process is used to ensure the HMC LIC bundle matches the level on the storage facility and also to load the DS Storage Manager code.
    - Determine the bundle level of code that is installed on the storage facility. Check the Rack-1 document enclosure (front upper left) to see if any LIC code update kits have been installed beyond the original level of code that is on the HMC Recovery CD.
    - Use the normal code update CDA process to acquire the needed bundle level and then install it.

Note: DO NOT RUN the CDA pre-verify as it might fail because the storage facility might be at a higher bundle level than the HMC after the recovery CDs were installed. After the HMC code has been updated the CDA pre-verify should run clean.

MAP6108 Two MCs, reloading licensed internal code (6.0.500.*xxx* or 6.1.*xxx.xxx*) on MC 1 or MC 2, no critical console data backup DVD

Use this MAP to reinstall the management console licensed internal code (6.0.500.*xxx* or 6.1.*xxx.xxx*) on MC 1 or MC 2 when a critical console data backup DVD is not available.

MAP6108 Section-1

1. Ensure that you were sent here from "MAP6100 Reloading the management console licensed internal code (LIC)" on page 776.
2. Table 235 lists the five CDs that you need to reload the HMC code. The CDs are in the HMC Recovery Kit.

   Note: A kit number is on each CD, below the IBM logo (for example, KIT: 23R0133). Ensure that all of the CDs have the same kit number.

Table 235. HMC Recovery Kit: CDs required to reload the HMC code (bundle 6.0.500.xxx or higher)

Media disk	CD label	Description	Installation time (approximate)
1	HMC Recovery CD #1 HMC Base 1	Base operating system and base HMC code	18 minutes
2	HMC Recovery CD #2 HMC Base 2	Base operating system and base HMC code	8 minutes
3	HMC Recovery CD #3 HMC Base 3	Base operating system and base HMC code	4 minutes
4	HMC Recovery CD #4 HMC Extensions	Unique code support for 2107	2 minutes
5	HMC Recovery CD #5 HMC_ICAT_GUI Storage Manager	DS Storage Manager code (also known as ICAT), the IBM graphical user interface	7 minutes

3. Do you have a copy of the most recent version of the customer configuration worksheet?

   Note: The worksheet should be stored in the Rack-1 document enclosure.

   - Yes, go to step 5.
   - No, go to the next step.
4. Can you successfully log on to the HMC that you are repairing?
   - Yes, perform the procedure in "MAP6105 Display and record the HMC customer configuration and network settings information" on page 794 to display and record the needed information. Then return here and go to the next step.
   - No, you must contact the customer to get a new copy of the information before continuing to the next step.

5. Determine the level of code for the LIC bundle that is currently installed on this HMC by logging in to the HMC that you are repairing. Can you login successfully?
   - Yes, go to the next step.
   - No, go to step 7.
6. Display the level of HMC code.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Licensed Internal Code Maintenance → HMC Code Update**.
   c. In the right content area, the Status section displays the level of HMC code.
   d. Go to step 8.
7. Consider the following information when trying to determine the level of HMC code and then go to the next step:
   - If this HMC has VPN network access to download code bundles, a set of Update CDs might not be stored in Rack-1. Even if a set of Update CDs is stored in Rack-1, the code level of those CDs might not match the code level that is installed.
   - If this HMC does not have VPN network access, one or more sets of Update CDs might be stored in Rack-1.
   - Refer to customer account records that track the installed level of code bundles.
   - Call the next level of support to see if they can determine the code level by referring to call home MRPD reports, PE packages, or other means.
8. Shut down and power off the management console. See "MAP6640 Shutting down, rebooting, and logging off the management console" on page 843.
9. At the rear of the management console server, disconnect the following three Ethernet cables. See Figure 439 (X335 server) or Figure 440 on page 801 (X336 server).
   - DS8000 network cable, black (eth0)
   - DS8000 network cable, gray (eth3)
   - Customer network cable (eth2)

   Later, after you have reloaded the HMC code and all of the network settings have been restored, you will reconnect the cables.

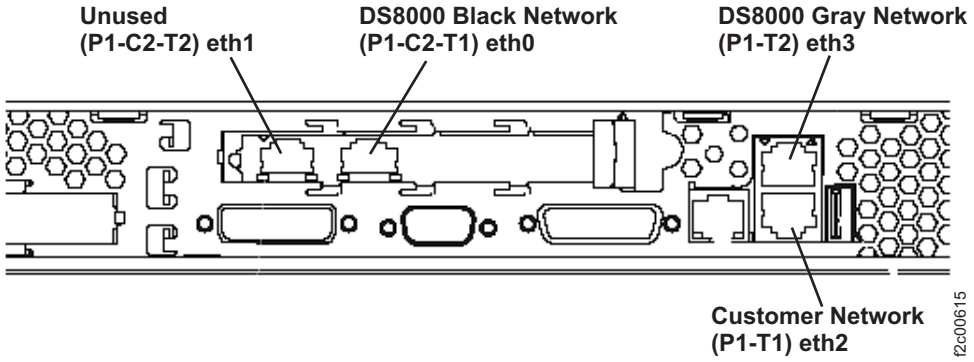


Figure 439. Ethernet connectors on the rear of the X335 management console server

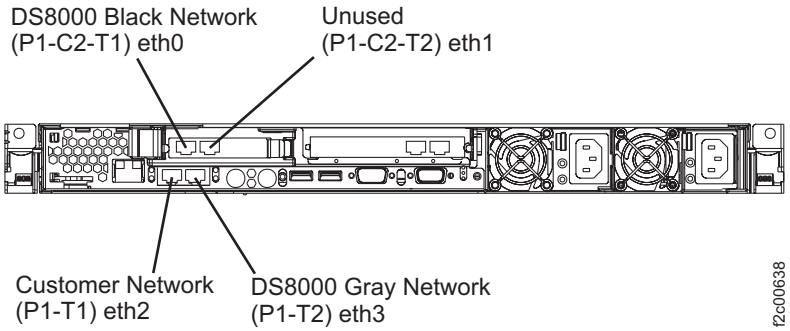


Figure 440. Ethernet connectors on the rear of the X336 management console server

10. Power on the management console and immediately insert HMC Recovery CD #1. The management console powers on, boots from the CD, and then displays the **Hardware Management Console - Hard Disk Install / Upgrade** screen. This takes about two minutes.

    Note: If the management console does not boot from the CD, use the *X335/X336 Hardware Maintenance Manual and Troubleshooting Guide* to isolate the problem. The guide is on the DS8000 service documentation CD. (The CD is part of the ship group).

11. Press F8 to continue the Install/Recovery process.
12. The **Hard Disk Restore/Reload** screen is immediately displayed. Ensure that it includes the following text and then press F1:

    ```
    Press F1 to continue with the RESTORE / RELOAD process.
    Press ESC to exit the process.
    ```

13. In about 18 minutes, the CD is ejected and the message **Phase 1 of the Restore process is Complete** is displayed. Follow the on-screen instructions to insert the HMC Recovery CD #2. Press Enter.
14. In about 8 minutes, the CD is ejected and the following screen is displayed:

    ```
    Please select one of the following options:
    1 -- Install additional software from CD media
    2 -- Finish the installation at a later time
    Please enter your selection:
    ```

    Type 1 and press Enter. When prompted, insert the HMC Base Recovery CD #3. Press Enter.
15. In about 4 minutes, the CD is ejected and the following screen is displayed:

    ```
    Please select one of the following options:
    1 -- Install additional software from CD media
    2 -- Finish the installation at a later time
    Please enter your selection:
    ```

    Type 1 and press Enter. When prompted, insert the HMC Recovery CD #4. Press Enter.
16. In about 2 minutes the CD is ejected and the following screen is displayed.

    ```
    Please select one of the following options:
    1 -- Install additional software from CD media
    2 -- Finish the installation at a later time
    Please enter your selection:
    ```

Type 1 and press Enter. When prompted, insert the HMC Base Recovery CD #5. Press Enter.

17. In about 2 minutes, the following screen is displayed:

    Note: Some bundle levels will not eject the CD. To manually open the media tray and remove the CD, insert a paper clip through the pinhole in the DVD-RAM drive.

```
Please select one of the following options:
1 -- Restore critical console data from DVD media
     Only select this option if you are performing a Hard Disk Recover.
2 -- Finish the installation
Please enter your selection:
```

    Type 2 to finish the installation and then press Enter.

18. The management console reboots and the following screen is displayed:

```
       WELCOME TO THE
   HMC ROLE SELECTION MENU
ENTER A MENU OPTION FROM LIST
 1) ASSIGN HMC AS PRIMARY
 2) ASSIGN HMC AS SECONDARY
99) EXIT
```

    - Ensure **MC 1** is on the label on the front of the keyboard/display tray.
    - Type 1 and press Enter.
    - When prompted, type Yes to confirm and then press Enter.
    - When prompted, type the keyboard selection menu number that is appropriate and press Enter.

      Note: If you do not make a selection within one minute, it will default to menu option 1 and then continue to the management console logon screen.

19. Log on to the management console with user ID `CE` and password `serv1cece`.

    Was the logon successful?

    - Yes, go to the next step.
    - No, begin problem isolation at Chapter 1, “Start here,” on page 1.

20. Use “MAP6106 Restoring the HMC customer communication and network settings” on page 794 to restore the HMC communication and customer resources settings. Then return here and go to the next step.
21. Call the next level of support. They will dial into the HMC that is not being repaired and remove the old ″node information″ for the HMC that is being repaired. The HMC command line procedure is outlined in a PE database document.
22. At the rear of the management console server, reconnect the three Ethernet cables that you disconnected in step 9 on page 800.
23. Ensure both of the DS8000 private network connections (Interface eth0 and Interface eth3) are working properly. Use the Network Topology Tool to ensure that the LPAR nodes are displayed. See “MAP7000 Entry point for DS8000 private network problems” on page 855.
24. Determine the bundle level of the storage facility.
25. If the MC is not at the same bundle level as the storage facility:
    - Check the Rack-1 document enclosure (front upper left) to see if any LIC code update kits have been installed beyond the original level of code that is on the HMC Recovery CD.

- Use the normal code update CDA process to acquire the needed bundle level and then install it.

  Note: DO NOT RUN the CDA pre-verify as it might fail because the storage facility might be at a higher bundle level than the HMC after the recovery CDs were installed. After the HMC code has been updated, the CDA pre-verify should run clean.

MAP610A MC 1 or MC 2, reloading the management console LIC (bundle 6.2.*xxx.xxx* or higher), critical console data backup DVD available

Use this MAP to reinstall the licensed internal code (bundle 6.2.*xxx.xxx* or higher) for the management console when a critical console data backup DVD is available.

MAP610A Section-1

1. Ensure that you were sent here from "MAP6100 Reloading the management console licensed internal code (LIC)" on page 776.
2. Table 236 lists the three CDs/DVDs that you need to reload the HMC code. The CDs/DVDs are in the HMC Recovery Kit.

   Note: A kit number is on each CD or DVD (below the IBM logo; for example, KIT: 23R0133). Ensure that all of the CDs/DVDs have the same kit number.

Table 236. HMC Recovery Kit: CDs/DVDs required to reload the HMC code (bundle 6.0.500.xxx or higher)

Media disk	CD or DVD label	Description	Installation time (approximate)
1	2107 HMC Recovery DVD HMC Base 1 Version: *xxxxxxxxx* DVD: #1	Base operating system and base HMC code	30 minutes
2	HMC Extensions Version: *xxxxxxxxx* CD: #2	Unique code support for 2107	2 minutes
3	HMC_ICAT_GUI Version: *xxxxxxxxx* CD: #3	DS Storage Manager code (also known as ICAT), the IBM graphical user interface	7 minutes

3. Shut down and power off the management console. For more information, see "MAP6640 Shutting down, rebooting, and logging off the management console" on page 843.
4. At the rear of the management console server, disconnect the following three Ethernet cables. See Figure 441 on page 804 (X335 server) or Figure 442 on page 804 (X336 server).
   - DS8000 network cable, black (eth0)
   - DS8000 network cable, gray (eth3)
   - Customer network cable (eth2)

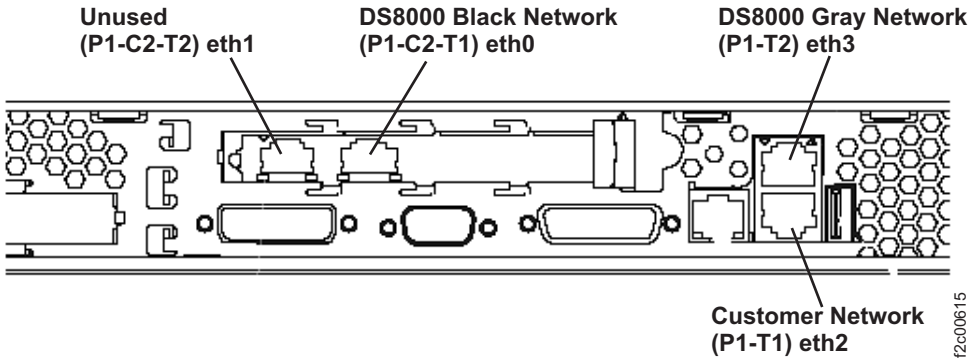


Figure 441. Ethernet connectors on the rear of the X335 management console server

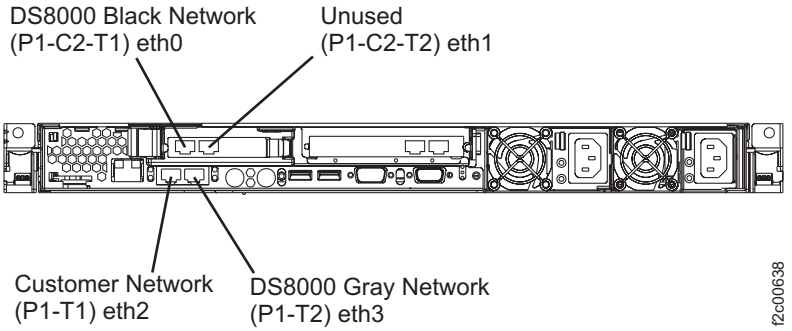


Figure 442. Ethernet connectors on the rear of the X336 management console server

5. Power on the management console and immediately insert HMC Recovery DVD #1. The management console powers on, boots from the DVD, and then displays the **Hardware Management Console - Hard Disk Install / Upgrade** screen. This takes about two minutes.

   Note: If the DVD does not boot, use the *X335/X336 Hardware Maintenance Manual and Troubleshooting Guide* to isolate the problem. The guide is on the DS8000 service documentation CD.
6. Press F8 to continue the Install/Recovery process.
7. The **Hard Disk Restore/Reload** screen is immediately displayed. Ensure that it includes the following text and then press F1:

   ```
   Press F1 to continue with the RESTORE / RELOAD process. Press ESC to exit
   the process.
   ```

8. In about 30 minutes, the DVD is ejected and the following screen is displayed.

   ```
   Please select one of the following options:
   1 -- Install additional software from CD media
   2 -- Finish the installation at a later time
   Please enter your selection:
   ```

   Type 1 and press Enter. When prompted, insert the HMC Extensions CD #2 and then press Enter.
9. In about 2 minutes, the CD is ejected and the following screen is displayed.

```
Please select one of the following options:
1 -- Install additional software from CD media
2 -- Finish the installation at a later time
Please enter your selection:
```

Type 1 and press Enter. When prompted, insert the HMC_ICAT_GUI CD #3 and then press Enter.

10. In about 7 minutes, the CD is ejected and the following screen is displayed.

```
Please select one of the following options:
1 -- Restore critical console data from DVD media
     Only select this option if you are performing a Hard Disk Recover.
2 -- Finish the installation
Please enter your selection:
```

Go to the next step to enter your selection.

11. Insert the critical console data backup DVD into the DVD-RAM drive.
12. Type 1 to restore critical console data and press Enter. The HMC automatically reboots, is updated from the information on the DVD, and displays the login screen.
13. Log on to the management console with user ID `CE` and password `serv1cece`.

    Was the logon successful?

    - Yes, go to the next step.
    - No, begin problem isolation at Chapter 1, "Start here," on page 1.
14. At the rear of the management console server, reconnect the three Ethernet cables that you disconnected in step 4 on page 803 (the DS8000 black network cable eth0, the DS8000 gray network cable eth3, and the customer network cable eth2).
15. Reboot the management console (HMC).
16. Ensure both of the DS8000 private network connections (Interface eth0 and Interface eth3) are working properly. Use the Network Topology Tool to ensure that the LPAR nodes are displayed. See "MAP7000 Entry point for DS8000 private network problems" on page 855.
17. Determine the bundle level of code that is installed on the storage facility.
18. If the MC is not at the same bundle level as the storage facility:
    - Check the Rack-1 document enclosure (front upper left) to see if any LIC code update kits have been installed beyond the original level of code that is on the HMC Recovery CD.
    - Use the normal code update CDA process to acquire the needed bundle level and then install it.

      Note: Do ***not*** run the CDA pre-verify as it might fail because the storage facility might be at a higher bundle level than the HMC after the recovery CDs were installed. After the HMC code has been updated, the CDA pre-verify should run clean.
19. Ensure that the customer can access the DS8000 Storage Manager application and then exit this MAP.

MAP610B No MC 2, reloading MC 1 licensed internal code (bundle 6.2.*xxx.xxx* or higher), no critical console data backup DVD

Use this MAP to reinstall the management console licensed internal code (LIC) when a critical console backup DVD is not available.

MAP610B Section-1

1. Ensure that you were sent here from "MAP6100 Reloading the management console licensed internal code (LIC)" on page 776.

   Note: All of the storage facilities that are managed by this HMC will need to be power-cycled as part of the "HMC genesis" process that will occur at the end of this procedure.

2. Will the customer allow you to power-cycle each managed storage facility as part of this procedure?
   - Yes, go to the next step.
   - No, stop and call the next level of support.
3. Table 237 lists the three CDs/DVDs that you need to reload the HMC code. The CDs/DVDs are in the HMC Recovery Kit.

   Note: A kit number is on each CD/DVD (below the IBM logo; for example, KIT: 23R0133). Ensure that all of the CDs/DVDs have the same kit number.

Table 237. HMC Recovery Kit: CDs/DVDs required to reload the HMC code (bundle 6.2.xxx.xxx or higher)

Media disk	CD or DVD label	Description	Installation time (approximate)
1	2107 HMC Recovery DVD HMC Base 1 Version: *xxxxxxxxx* DVD: #1	Base operating system and base HMC code	30 minutes
2	HMC Extensions Version: *xxxxxxxxx* CD: #2	Unique code support for 2107	2 minutes
3	HMC_ICAT_GUI Version: *xxxxxxxxx* CD: #3	DS Storage Manager code (also known as ICAT), the IBM graphical user interface	7 minutes

4. Do you have a copy of the most recent version of the customer configuration worksheet?

   Note: The customer configuration worksheet should be stored in the Rack-1 document enclosure.
   - Yes, go to step 6 on page 807.
   - No, go to the next step.
5. Can you successfully log on to the HMC that you are repairing?
   - Yes, perform the procedure in "MAP6105 Display and record the HMC customer configuration and network settings information" on page 794, record the needed information, return here, and then go to the next step.

- No, you must contact the customer to get a new copy of the information before continuing to the next step.

6. Determine the level of code for the LIC bundle that is currently installed on this HMC by logging in to the HMC that you are repairing. Can you log in successfully?
   - Yes, go to the next step.
   - No, go to step 8.
7. Display the level of HMC code.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Licensed Internal Code Maintenance → HMC Code Update**.
   c. In the right content area, the Status section displays the level of HMC code.
   d. Go to step 9.
8. Consider the following information when trying to determine the level of HMC code and then go to the next step:
   - If this HMC has VPN network access to download code bundles, a set of Update CDs might not be stored in Rack-1. Even if a set of Update CDs is stored in Rack-1, the code level of those CDs might not match the code level that is installed.
   - If this HMC does not have VPN network access, one or more sets of Update CDs might be stored in Rack-1.
   - Refer to customer account records that track the installed level of code bundles.
   - Call the next level of support to see if they can determine the code level by referring to call home MRPD reports, PE packages, or other means.
9. Shut down and power off the management console. See "MAP6640 Shutting down, rebooting, and logging off the management console" on page 843.
10. At the rear of the management console server, disconnect the following three Ethernet cables. See Figure 443 on page 808 (X335 server) or Figure 444 on page 808 (X336 server).
    - DS8000 network cable, black (eth0)
    - DS8000 network cable, gray (eth3)
    - Customer network cable (eth2)

    Later, after you have reloaded the HMC code and all of the network settings have been restored, you will reconnect the cables.

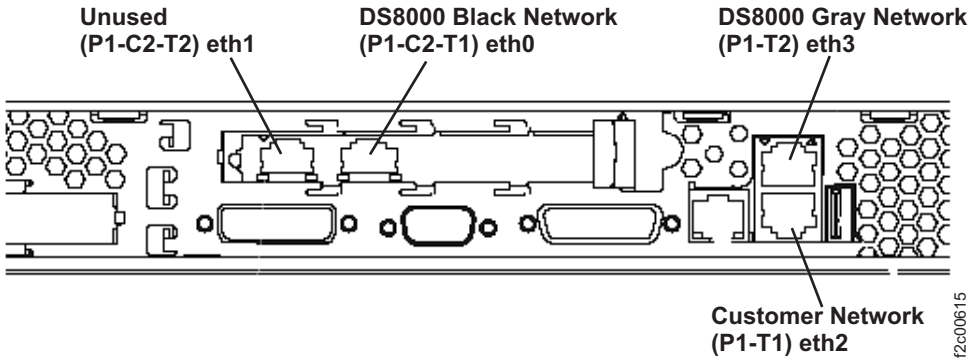


Figure 443. Ethernet connectors on the rear of the X335 management console server

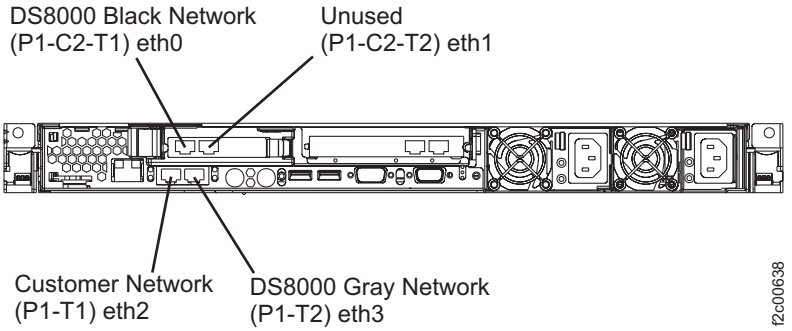


Figure 444. Ethernet connectors on the rear of the X336 management console server

11. Power on the management console and immediately insert the HMC Base Recovery DVD #1. The management console powers on, boots from the DVD, and then displays the **Hardware Management Console - Hard Disk Install / Upgrade** screen. This takes about two minutes.

    Note: If the HMC does not boot from the DVD, use the *X335/X336 Hardware Maintenance Manual and Troubleshooting Guide* to isolate the problem. The guide is on the DS8000 service documentation CD (the CD is part of the ship group).
12. Press F8 to continue the Install/Recovery process.
13. The **Hard Disk Restore/Reload** screen is immediately displayed. Ensure that it includes the following text and then press F1:

    ```
    Press F1 to continue with the RESTORE / RELOAD process.
    Press ESC to exit the process.
    ```

14. In about 30 minutes, the DVD is ejected and the following screen is displayed.

    ```
    Please select one of the following options:
    1 -- Install additional software from CD media
    2 -- Finish the installation at a later time
    Please enter your selection:
    ```

    Type 1 and press Enter. When prompted, insert the HMC Extensions CD #2 and then press Enter.
15. In about 2 minutes, the CD is ejected and the following screen is displayed.

```
Please select one of the following options:
1 -- Install additional software from CD media
2 -- Finish the installation at a later time
Please enter your selection:
```

Type 1 and press Enter. When prompted, insert the HMC_ICAT_GUI CD #3 and then press Enter.

16. In about 7 minutes, the following screen is displayed.

```
Please select one of the following options:
1 -- Install additional software from CD media
2 -- Finish the installation at a later time
Please enter your selection:
```

Note: Some bundle levels will not eject the CD. To manually open the media tray and remove the CD, insert a paper clip through the pinhole in the DVD-RAM drive.

Type 2 to finish the installation and then press Enter.

17. The management console reboots and the following screen is displayed:

```
       WELCOME TO THE
   HMC ROLE SELECTION MENU
ENTER A MENU OPTION FROM LIST
 1) ASSIGN HMC AS PRIMARY
 2) ASSIGN HMC AS SECONDARY
99) EXIT
```

a. Ensure **MC 1** is on the label on the front of the keyboard/display tray.
b. Type 1 and then press Enter.
c. When prompted, type Yes to confirm and then press Enter.
d. When prompted, type the appropriate keyboard selection menu number and then press Enter.

Note: If you do not make a selection within one minute, it will default to menu option 1 and then continue to the management console logon screen.

18. Log on to the management console with user ID `CE` and password `serv1cece`.

Was the logon successful?

- Yes, go to the next step.
- No, begin problem isolation at Chapter 1, “Start here,” on page 1.

19. Use “MAP6106 Restoring the HMC customer communication and network settings” on page 794 to restore the HMC communication and customer resources settings, return here, and then go to the next step.
20. Reboot the HMC to activate the settings. See “MAP6640 Shutting down, rebooting, and logging off the management console” on page 843.
21. At the rear of the management console server, reconnect ONLY the customer network cable (eth2). See Figure 443 on page 808 (X335 server) or Figure 444 on page 808 (X336 server).
22. Earlier in this MAP, you determined the level of code (LIC bundle) that needs to be reinstalled on this HMC.

Note: If you are not sure whether the code level of the managed storage facilites matches the code level of the update CDs, call the next level of support. Most HMC bundle levels are downward compatible if one or

more managed storage facilities are still at an older bundle level.
Does the bundle level of the recovery CD set that you used to rebuild the HMC boot match the bundle level of the HMC before it was rebuilt?

- Yes, go to step 24.
- No, go to the next step.

23. Use the CDA process to update the HMC LIC code now. The HMC will be rebooted as part of the CDA process.

    Note: Do not use the CDA pre-verify process. It will fail because the private network Ethernet cables are still disconnected from the HMC.

24. At the rear of the management console server, reconnect the black DS8000 network cable (eth0) and the gray DS8000 network cable (eth3). See Figure 443 on page 808 (X335 server) or Figure 444 on page 808 (X336 server).
25. Call the next level of support so they can dial in and perform an "HMC genesis."

    Note: All of the storage facilities that are managed by this HMC will automatically be power-cycled during "HMC genesis."

26. Ensure both of the DS8000 private network connections (Interface eth0 and Interface eth3) are working properly. Use the Network Topology Tool to ensure that the LPAR nodes are displayed. See "MAP7000 Entry point for DS8000 private network problems" on page 855.

MAP610C Two MCs, reloading licensed internal code (bundle 6.2.*xxx.xxx* or higher) on MC 1 or MC 2, no critical console data backup DVD

Use this MAP to reinstall the management console licensed internal code (bundle 6.2.*xxx.xxx* or or higher) on MC 1 or MC 2 when a critical console data backup DVD is not available.

MAP610C Section-1

1. Ensure that you were sent here from "MAP6100 Reloading the management console licensed internal code (LIC)" on page 776.
2. Table 238 lists the three CDs/DVDs that you need to reload the HMC code. The CDs/DVDs are in the HMC Recovery Kit.

   Note: A kit number is on each CD or DVD (below the IBM logo; for example, KIT: 23R0133). Ensure that all of the CDs/DVDs have the same kit number.

Table 238. HMC Recovery Kit: CDs/DVDs required to reload the HMC code (bundle 6.0.500.xxx or higher)

Media disk	CD or DVD label	Description	Installation time (approximate)
1	2107 HMC Recovery DVD HMC Base 1 Version: xxxxxxxxx DVD: #1	Base operating system and base HMC code	30 minutes
2	HMC Extensions Version: *xxxxxxxxx* CD: #2	Unique code support for 2107	2 minutes

Table 238. HMC Recovery Kit: CDs/DVDs required to reload the HMC code (bundle 6.0.500.xxx or higher) (continued)

Media disk	CD or DVD label	Description	Installation time (approximate)
3	HMC_ICAT_GUI Version: *xxxxxxxxx* CD: #3	DS Storage Manager (also known as ICAT), the IBM graphical user interface	7 minutes

3. Do you have a copy of the most recent version of the customer configuration worksheet?

   Note: The worksheet should be stored in the Rack-1 document enclosure.
   - Yes, go to step 5.
   - No, go to the next step.
4. Can you successfully log on to the HMC that you are repairing?
   - Yes, perform the procedure in "MAP6105 Display and record the HMC customer configuration and network settings information" on page 794 to display and record the needed information. Then return here and go to the next step.
   - No, you must contact the customer to get a new copy of the information before continuing to the next step.
5. Determine the level of code for the LIC bundle that is currently installed on this HMC by logging in to the HMC that you are repairing. Can you log in successfully?
   - Yes, go to the next step.
   - No, go to step 7.
6. Display the level of HMC code.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Licensed Internal Code Maintenance → HMC Code Update**.
   c. In the right content area, the Status section displays the level of HMC code.
   d. Go to step 8.
7. Consider the following information when trying to determine the level of HMC code and then go to the next step:
   - If this HMC has VPN network access to download code bundles, a set of Update CDs might not be stored in Rack-1. Even if a set of Update CDs is stored in Rack-1, the code level of those CDs might not match the code level that is installed.
   - If this HMC does not have VPN network access, one or more sets of Update CDs might be stored in Rack-1.
   - Refer to customer account records that track the installed level of code bundles.
   - Call the next level of support to see if they can determine the code level by referring to call home MRPD reports, PE packages, or other means.
8. Shut down and power off the management console. See "MAP6640 Shutting down, rebooting, and logging off the management console" on page 843.

9. At the rear of the management console server, disconnect the following three Ethernet cables. See Figure 445 (X335 server) or Figure 446 (X336 server).
   - DS8000 network cable, black (eth0)
   - DS8000 network cable, gray (eth3)
   - Customer network cable (eth2)

   Later, after you have reloaded the HMC code and all of the network settings have been restored, you will reconnect the cables.

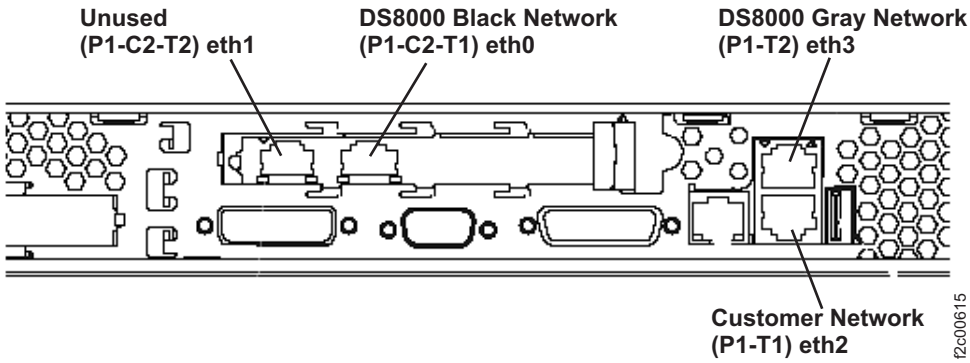


Figure 445. Ethernet connectors on the rear of the X335 management console server

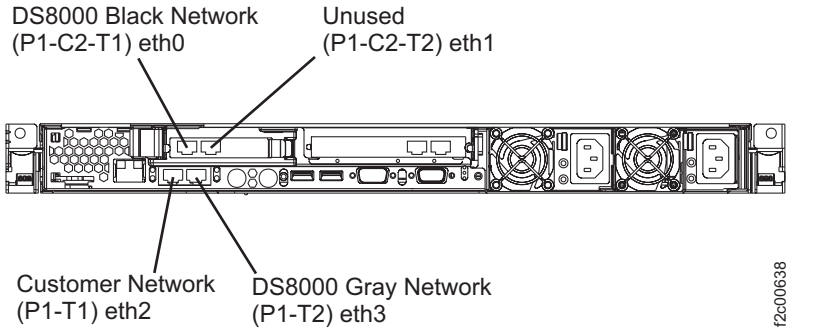


Figure 446. Ethernet connectors on the rear of the X336 management console server

10. Power on the management console and immediately insert HMC Base Recovery DVD #1. The management console powers on, boots from the DVD, and then displays the **Hardware Management Console - Hard Disk Install / Upgrade** screen. This takes about two minutes.

    Note: If the management console does not boot from the DVD, use the *X335/X336 Hardware Maintenance Manual and Troubleshooting Guide* to isolate the problem. The guide is on the DS8000 service documentation CD. (The CD is part of the ship group).
11. Press F8 to continue the Install/Recovery process.
12. The **Hard Disk Restore/Reload** screen is immediately displayed. Ensure that it includes the following text and then press F1:

```
Press F1 to continue with the RESTORE / RELOAD process.
Press ESC to exit the process.
```

13. In about 30 minutes, the DVD is ejected and the following screen is displayed.

```
Please select one of the following options:
1 -- Install additional software from CD media
2 -- Finish the installation at a later time
Please enter your selection:
```

Type 1 and press Enter. When prompted, insert the HMC Extensions CD #2 and then press Enter.

14. In about 2 minutes, the CD is ejected and the following screen is displayed:

```
Please select one of the following options:
1 -- Install additional software from CD media
2 -- Finish the installation at a later time
Please enter your selection:
```

Type 1 and press Enter. When prompted, insert the HMC_ICAT_GUI CD #3 and then press Enter.

15. In about 7 minutes, the following screen is displayed:

```
1 -- Restore critical console data from DVD media
     Only select this option if you are performing a Hard Disk Recover.
2 -- Finish the installation
Please enter your selection:
```

Note: Some bundle levels will not eject the CD. To manually open the media tray and remove the CD, insert a paper clip through the pinhole in the DVD-RAM drive.

Type 2 to finish the installation and then press Enter.

16. The management console reboots and the following screen is displayed:

```
       WELCOME TO THE
   HMC ROLE SELECTION MENU
ENTER A MENU OPTION FROM LIST
 1) ASSIGN HMC AS PRIMARY
 2) ASSIGN HMC AS SECONDARY
99) EXIT
```

a. Ensure **MC 1** is on the label on the front of the keyboard/display tray.
b. Type 1 and then press Enter.
c. When prompted, type Yes to confirm and then press Enter.
d. When prompted, type the keyboard selection menu number that is appropriate and then press Enter.

Note: If you do not make a selection within one minute, it will default to menu option 1 and then continue to the management console logon screen.

17. Log on to the management console with user ID `CE` and password `serv1cece`.

Was the logon successful?

- Yes, go to the next step.
- No, begin problem isolation at Chapter 1, “Start here,” on page 1.

18. Use “MAP6106 Restoring the HMC customer communication and network settings” on page 794 to restore the HMC communication and customer resources settings. Then return here and go to the next step.

19. Call the next level of support. They will dial into the HMC that is not being repaired and remove the old "node information" for the HMC that is being repaired. The HMC command line procedure is outlined in a PE database document.
20. At the rear of the management console server, reconnect the three Ethernet cables that you disconnected in step 9 on page 812.
21. Ensure both of the DS8000 private network connections (Interface eth0 and Interface eth3) are working properly. Use the Network Topology Tool to ensure that the LPAR nodes are displayed. See "MAP7000 Entry point for DS8000 private network problems" on page 855.
22. Determine the bundle level of code that is installed on the storage facility.
23. If the MC is not at the same bundle level as the storage facility:
    - Check the Rack-1 document enclosure (front upper left) to see if any LIC code update kits have been installed beyond the original level of code that is on the HMC Recovery CD.
    - Use the normal code update CDA process to acquire the needed bundle level and then install it.

      Note: Do ***not*** run the CDA pre-verify as it might fail because the storage facility might be at a higher bundle level than the HMC after the recovery CDs were installed. After the HMC code has been updated, the CDA pre-verify should run clean.

MAP6110 Changing the management console customer network configuration

This MAP provides guidance on how to change the management console customer network configuration. This procedure can be performed concurrent with host access to the attached storage facilities. However the customer will lose access to the management console during the procedure.

MAP6110 Section-1

Note: Before continuing, ensure that the customer is not accessing the management console.

1. Obtain a copy of the customization worksheets from the customer.
2. Logon to the management console with the user ID `CE` and the default password `serv1cece`.
3. Perform the following to update the customer network configuration.
    a. Select **HMC Management** → **HMC Configuration** → **Customize Network Settings**.
    b. Enter the Console Name and Domain Name from the customization worksheets. If the settings were changed, then click on **Apply** and **OK** but do not reboot at this time.
    c. Click on the **LAN adapters** tab, select **eth2** and click on **Details**. Set the IP configuration, refer to the customization worksheets. Click on **OK** to exit the panel.
    d. Click on the **Name Services** tab. Use Remove/Add to modify the DNS information per the customization worksheets. Click on **OK** and then **OK** again to save the settings and exit the panel but do not reboot at this time.
    e. Click on the **Routing** tab. Perform an Add/Delete or Change the customer's Gateways based on the customization worksheets. Set the Gateway Device to eth2. Click **Apply** and **OK** to Exit.

4. Reboot the management console as follows:
   a. From the task bar, click on **Console**.
   b. Select **Exit**, and then click **Exit Now**.
   c. From the selection box select Reboot Console.
   d. Click **OK**.
5. To test the communication from the customer network to the management console, ask the customer to attempt to connect to the DS8000 Storage Manager server in the HMC. If the customer is unable to access the management console, then verify that the settings in step 3 are correct.

MAP6120 Attaching the management console to the customer network

This MAP provides guidance on how to attach the management console customer network. The HMC will normally be connected to the customer network during Installation. This MAP is intended for use when the customer decides to do that at a later time. This procedure can be performed concurrent with host access to the attached storage facilities.

MAP6120 Section-1

1. Obtain a copy of the customization worksheets from the customer.
2. Logon to the management console with user ID `CE` and the default password `serv1cece`.
3. Perform the following steps to verify or set the customer network configuration:
   a. Select **HMC Management** → **HMC Configuration** → **Customise Network Settings**.
   b. Enter the Console Name and Domain Name from the customization worksheets. If the settings were changed, then click on **Apply** and **OK** but do not reboot at this time.
   c. Click on the **LAN adapters** Tab, select **eth2** and click on **Details**. Set the IP configuration, refer to the customization worksheets. Click on **OK** to exit the panel.
   d. Click on the **Name Services** tab. Use Remove/Add to modify the DNS information per the customization worksheets. Click on **OK** and then **OK** again to save the settings and exit the panel but do not reboot at this time.
   e. Click on the **Routing** tab. Perform an Add/Delete or Change the customers Gateways based on the customization worksheets. Click **Apply** and **OK** to Exit.
4. Shutdown and power off the management console by performing the following steps:
   a. From the task bar, click on **Console**.
   b. Select **Exit**, and then click **Exit Now**.
   c. From the selection box, select **Shutdown**.
   d. Click **OK**.
   e. Wait until the following message is displayed on the monitor: `Master Resource Control: runlevel 0 has been reached.`
   f. Press the white Power Control button on the management console server. The server will power off and the green Power LED will begin flashing.
5. Route and connect the customer Ethernet cable.

a. Locate the customer-supplied Ethernet cable.
b. Route the Ethernet cable through the tailgate and up to the rear of the management console server.
c. Connect the cable to the customer network (Ethernet) connector (eth2) on the management console server. See Figure 447 (X335 server) or Figure 448 (X336 server).

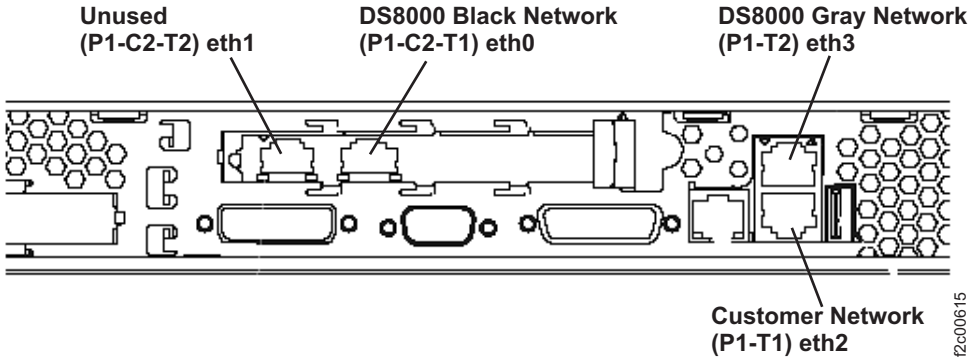


Figure 447. Ethernet connectors on the rear of the X335 management console server

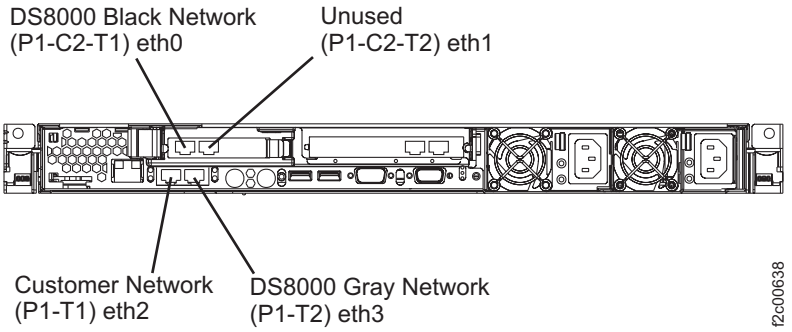


Figure 448. Ethernet connectors on the rear of the X336 management console server

6. Press the power control button to power on the management console server.
7. Is a firewall set up between the HMC and the customer network?
   - Yes, to allow access for DSCLI and DS/8000 Storage Manager, ensure that the customer opened the following TCP/IP ports :1718, 1720, 1722, 1750, 1755 and 8451 - 8455. Continue with the next step.
   - No, continue with the next step.
8. Test the communication from the customer network to the Management Console. Ask customer to attempt to connect to the DS8000 Storage Manager server in the HMC. If the customer is unable to access the Management Console, the verify that the settings in steps 3 and 7 are correct. If problem still exist then go to “MAP6730 Customer access to management console problem” on page 851
9. Will the customer allow an ’Internet VPN’ connection to be used for Call Home?
   - Yes, continue with the next step.
   - No, continue with step 9.

10. Perform the following steps to configure the 'Internet VPN' connection for Call Home.
    a. Select **Service Applications → Remote Support → > Customize Outbound Connectivity**.
    b. Click on the **Internet VPN** tab.
    c. Click on **Allow a VPN using an existing Internet connection**.
    d. Click on **OK**.
    e. Ensure that the customer has configured any firewalls to allow internet access as follows:

       IP Addresses:
       207.25.252.196 - IBM Boulder VPN Server
       129.42.160.16 - IBM Rochester VPN Server
       207.25.252.198 - IBM VPN Test Server

       Ports and Protocols:
       Protocol ESP Port 500
       Protocol UDP Port 500
       Protocol UDP Port 4500

    f. Click on **Test** to test the Call Home via Internet VPN. If the test fails then go to "MAP1301 Isolating Call Home/remote services failure" on page 520.

MAP6520 Management console power problem

Use this procedure to isolate management console power problems.

MAP6520 Section-1

1. Observe the power LEDs on the front and rear of the management console server. Refer to the figures that follow.

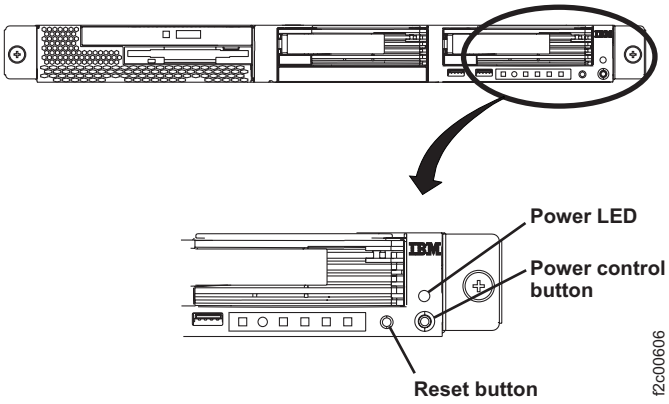


Figure 449. X335 management console server (front view)

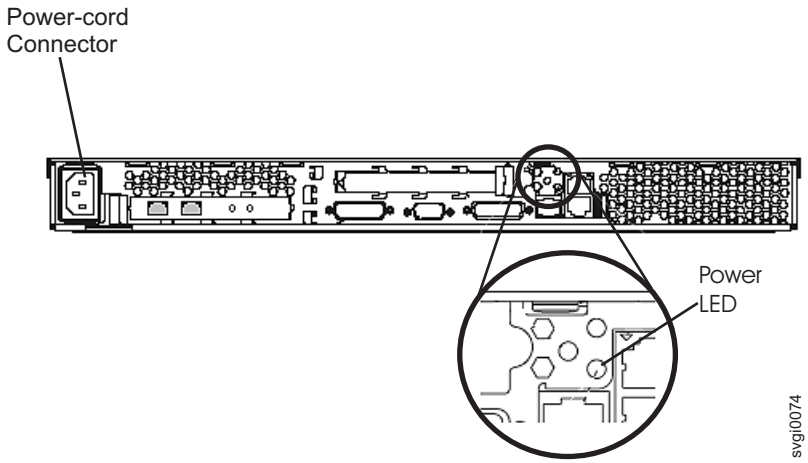


Figure 450. The Power LED on the rear of the X335 management console server

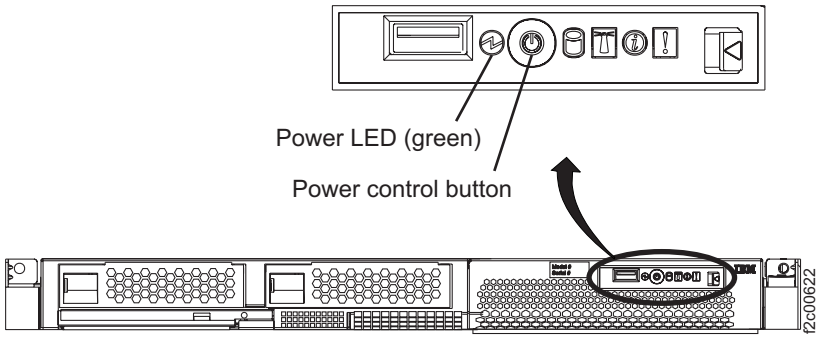


Figure 451. X336 management console server (front view)

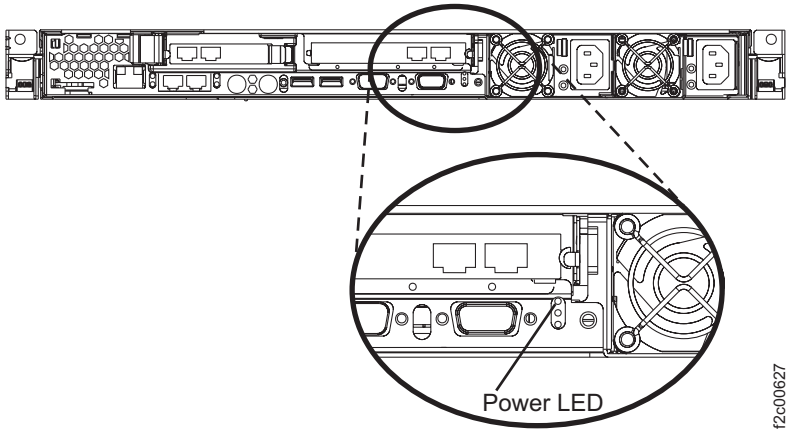


Figure 452. The Power LED on the rear of the X336 management console server

2. Take the appropriate action based on the state of the power LEDs that is specified in Table 239 on page 819.

Table 239. State of the power LEDs on the management console server

State of the power LEDs		Indication	Action
Front	**Rear**		
Off	Off	Input power is not present at the power supply or the power supply itself has failed.	For internal HMC, go to "MAP6520 Section-2." For external HMC, go to "MAP6520 Section-4" on page 820.
On	On	The power supply is working correctly.	Return to the MAP or Section that sent you here.
Off	On	The power supply or the operator information panel (card) has failed.	Use the appropriate maintenance manual to repair the management console server.[1]
On	Off	The power supply or the system board has failed.	Use the appropriate maintenance manual to repair the management console server.[1]
Flashing	Flashing	The management console server is in Standby mode.	Press the power control button on the front of the management console server to start it. Return to the MAP or Section that sent you here.

Notes:

1. Refer to the appropriate manual that is on the *IBM System Storage DS8000 series Service Documents CDROM*:
   - *xSeries 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide*
   - *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*

MAP6520 Section-2

Use this section to determine if input power is not present at the management console server power supply or if the management console server power supply itself has failed.

1. At the front of the rack, on each primary power supply (PPS), locate the six vertical LEDs that are to the left of the fans.
2. Are the AC INPUT GOOD indicator and the UEPO LOOP GOOD indicator both lit on one or both of the PPSs?
   - Yes, go to "MAP6520 Section-3" on page 820.
   - No, go to the next step.
3. Take the appropriate action based on the state of the LEDs that is specified in Table 240.

Table 240. State of the LEDs on the PPSs

AC INPUT GOOD	UEPO LOOP GOOD	Action
Off	Off	Input power fault, go to "MAP2110 Isolating problems using visual symptoms" on page 566.
On	Off	UEPO fault, go to "MAP21E0 UEPO Loop Good LED should be on" on page 594.

MAP6520 Section-3

1. Temporarily connect a standard PC power cord between the internal management console server and an external convenience outlet. Check the power LEDs on the front and rear of the management console server. Are the LEDs on?
   - Yes, go to the next step.
   - No, it appears that the management console server power supply has failed. To resolve the problem, use the appropriate manual that is on the *IBM System Storage DS8000 series Service Documents CDROM*:
     - *xSeries 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide*
     - *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*
2. Ensure that the J9 cable is properly connected to both of the PPSs. If you do not find a problem, replace the power distribution cable/assembly which links the PPSs to the management console server, display/keyboard, and the Ethernet switches.

MAP6520 Section-4

1. Is there a visual problem with the power distribution system/cables in the customer-provided rack?
   - Yes, exit this MAP and have the customer repair the rack.
   - No, go to the next step.
2. Temporarily connect a standard PC power cord between the internal management console server and an external convenience outlet. Check the power LEDs on the front and rear of the management console server. Are the LEDs on?
   - Yes, go to the next step.
   - No, it appears that the management console server power supply has failed. To resolve the problem, use the appropriate manual that is on the *IBM System Storage DS8000 series Service Documents CDROM*:
     - *xSeries 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide*
     - *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*
3. The management console server is receiving power when it is connected to an external convenience outlet, but it is not receiving power when it is connected to the rack power cable. Work with the customer to resolve the problem with the rack power.

MAP6530 Testing the management console

This MAP tests each of the base parts of the management console. If a failure is detected, you will be instructed to fix the failing part and then close out the service call. This section describes diagnostics tests for the management console. Use the information in this section when you are directed to test the management console to isolate a problem or verify a repair.

Attention: To run management console diagnostics you will need to switch off and reboot the management console. Before doing that you must first verify that the customer is not accessing the management console through the ESSNI interface.

Diagnostic Procedures

You should have been directed here to test a specific part of the management console. See "System Unit Testing" below for the following problem areas:

- Display
- Keyboard
- Mouse
- Floppy Drive
- CD-RW
- DASD (disk drive)
- Memory
- Power
- Run All Selected
- SCSI
- Ethernet

System Unit Testing

This section provides information to help you use the PC Doctor diagnostics (from diskette or read-only memory (ROM) on the system board) to test the PC hardware parts of the management console.

Use the following procedure to determine how to start the PC Doctor diagnostics.

1. Open the appropriate maintenance manual for the management console server. The manual is on the *IBM System Storage DS8000 series Service Documents CDROM*:
   - *xSeries 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide*, or
   - *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*
2. Refer to "Chapter 3. Diagnostics".
3. Open the appropriate section:
   - X335: "Diagnostic programs and error messages", "Starting the diagnostic programs"
   - X336: "Diagnostic programs, error codes, and messages", "Starting the diagnostic programs"
4. Start the diagnostic program.
5. Select Extended or Basic Tests for a list of devices to test.
6. Select the task that contains the devices or tests and follow the instructions. If you were instructed to Run All Selected, continue with that selection.
7. If the diagnostics reports a failure on the PC hardware, use the maintenance manual to isolate and repair the problem.
8. If the diagnostics do not report a failure, the management console PC hardware is functioning correctly. If you still have a problem, go to "MAP6020 Management console problem determination" on page 768.

MAP6540 Keyboard/display problem

Use this procedure to resolve problems with the keyboard or display.

MAP6540 Section-1

1. Do you have a problem with the keyboard or pointing device?
   - Yes, go to "MAP6540 Section-2" on page 823.
   - No, go to the next step.
2. Use the following table to determine the problem and action.

What you see...	Suggested Action	Reference
Screen is blank and power indicator is off	• Ensure that the power cord is firmly connected and that the monitor is on	
"No Connection, Check Signal Cable " message	• Ensure that the signal cable is firmly connected to your computer system or video board. • Ensure that your computer system is turned on.	
"Video mode not supported" message	• Check the maximum resolution and the frequency on the video port of your computer system. • Compare these values with the data in the Display Modes Timing Chart.	"MAP6540 Section-7" on page 828
The image is too light or too dark	• Adjust the Brightness and Contrast	"Brightness" in "On-screen menu functions and adjustments" on page 825
Horizontal bars appear to flicker, jitter, or shimmer on the image	• Adjust the Phase function.	"Phase" in "On-screen menu functions and adjustments" on page 825
Vertical bars appear to flicker, jitter, or shimmer on the image	• Adjust the Frequency function and then adjust the Phase function.	"Frequency" and "Phase" in "On-screen menu functions and adjustments" on page 825
Screen is blank and power indicator light blinks every 0.5 or 1 second	• The monitor is using its power management system. • Move the computer system's mouse or press a key on the keyboard.	"MAP6540 Section-9" on page 830
Image is not stable and may appear to vibrate	• Check that the display resolution and frequency from your computer system or video board is an available mode for your monitor. On your computer system check: Control Panel / Display / Settings	"MAP6540 Section-7" on page 828

What you see...	Suggested Action	Reference
	• Your monitor supports multiscan display functions within the following frequency domain:	
	Horizontal frequency: Vertical frequency: Maximum refresh rate: 1024 x 768 @ 75 Hz	30 kHz - 61 kHz 50 Hz - 75 Hz 1024 x 768 @ 75 Hz
Image is not centered on the screen	• Adjust the horizontal and vertical position.	"H-Position" and "V-Position" in "On-screen menu functions and adjustments" on page 825

MAP6540 Section-2

1. Is the management console unresponsive to keyboard or pointing device input? For example, characters do not appear when typed or the cursor does not move.
   - Yes, go to the next step.
   - No, there does not seem to be a keyboard/pointing device problem. If the problem is intermittent, then order and replace the keyboard/pointing device and go to step 5. Otherwise, return to the procedure that sent you here.
2. At the rear of the management console, verify that the cables from the keyboard/pointing device are properly connected to the cable from the system unit and that the keyboard/display cable is securely connected to the system unit. Did you resolve the problem?
   - Yes, this is the end of the procedure.
   - No, go to the next step.
3. Do you have a spare keyboard or mouse available to verify that the system unit is not at fault? Any PC keyboard or mouse with the same connectors will be OK.
   - Yes, go to the next step.
   - No, order and replace the keyboard/pointing device and go to step 5.
4. Depending on whether you have a keyboard or pointing device problem, plug in the temporary keyboard or mouse to the connector on the keyboard display cable at the rear.

   Note: The keyboard uses the turquoise connector and the pointing device uses the green connector. Is the management console now responsive to keyboard or pointing device input?
   - Yes, order and replace the keyboard/pointing device. This is the end of the procedure.
   - No, go to step 6.
5. Is the management console now responsive to keyboard or pointing device input?
   - Yes, this is the end of the procedure.
   - No, go to step 6.
6. You are here because you have replaced the keyboard assembly but still have problems. Go to "MAP6020 Management console problem determination" on page 768. Possible FRUs are:
   - Cable - keyboard/pointing device connectors to rear of management console.
   - Management console system planar.

- Management console software problem.

MAP6540 Section-3

The monitor's self-test feature allows you to check whether it is functioning properly.

If your monitor and computer system are properly connected but the monitor screen remains dark and the power indicator is blinking, run the monitor self-test by performing the following steps.

1. Turn off both your computer system and monitor.
2. Unplug the video cable from the back of the computer system.
3. Turn on the monitor. If the monitor is functioning properly, you will see a message "No Input Signal. Check connection". This message also displays during normal operation if the video cable becomes disconnected or damaged.
4. Turn off your monitor and reconnect the video cable. Turn on both your computer system and the monitor. If your monitor screen remains blank after using the previous procedures, check your video controller and computer system because your monitor is functioning properly.

MAP6540 Section-4

When you open the On-Screen Menu, make adjustments and then leave the adjustment window for three seconds. These changes will be automatically saved in a user area in the monitor.

User areas are reserved according the signal frequency from your computer system. The monitor can save adjustments for up to 5 user modes. It has 12 factory preset or preload modes, one for each signal frequency as listed in "MAP6540 Section-7" on page 828. If you have made no adjustments, the On-Screen Menu disappears and the monitor does not save anything. To exit without saving the changes you have, press the **EXIT** button before the 2 seconds lapse.

MAP6540 Section-5

The features described here can be accessed quickly, at the touch of one button. Once you finish making adjustments to a feature, press the **EXIT** button to switch off the menu, or simply allow the On-Screen Menu to time out and disappear automatically.

Auto adjustment:

Even though your computer system can recognize your new monitor, the auto adjustment function will optimize the display settings for use with your computer system.

To activate the automatic screen adjustments for your monitor, press the **AUTO** button as described in "MAP6540 Section-8" on page 829. The automatic adjustment display appears and the slidebar moves to indicate progress during the auto adjustment procedure.

Notes:

1. For Auto Adjustment to function correctly, the monitor must display a full screen, colored image such as the Windows® desktop.
2. Even though Auto Adjustment sets most image adjustments automatically, distortions may remain depending on the video board performance. After using Auto Adjustment, it is recommended that you perfect the image by using the On-Screen Menu functions.

Brightness:

Use the brightness button to adjust the brightness of the monitor's display.

1. With the menu off, push the +- or -+ button to display the brightness screen, as described in "MAP6540 Section-8" on page 829.
2. Push the -+ button to increase the brightness; push the +- button to decrease the brightness.

MAP6540 Section-6

Use the following sections to access and adjust the On-Screen menu system.

Accessing the menu system:

1. With the On-Screen Menu off, press the **MENU** button, as described in "MAP6540 Section-8" on page 829. This action opens and displays the main function menu.
2. Use the +- and -+ buttons to move between the function icons. As you move from one icon to another, the function name changes to reflect the function or group of functions represented by that icon. See Table 241 to view a complete list of all the functions available for the monitor.
3. To activate the highlighted function, push the **MENU** once and then use the +- and -+ buttons to move to sub-menus, or according to the indicators on the menu, to make your changes.
4. After you select a function, use the +- and -+ buttons to make the adjustments. The setting sidebar moves and the numeric value indicator changes to reflect your adjustments.

   Note: The numeric value indicator is provided as a point of reference only and does not reflect any measurable value.
5. To select another function, press the **EXIT** button once or twice to return to the main menu. To exit from the On-Screen Menu, press the **EXIT** one to three times.

On-screen menu functions and adjustments:
Use the following table for a description of the icons.

Table 241. On-Screen icons and menu descriptions

Icon	Menus and Sub-menus	Function Descriptions	
		<---	--->
	PC Menu		
	Brightness	Decreases brightness.	Increases brightness.

Table 241. On-Screen icons and menu descriptions (continued)

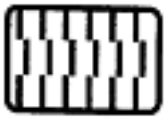
Icon	Menus and Sub-menus	Function Descriptions	
		<---	--->
	Contrast	Decreases color difference between foreground and background, and between colors.	Increases color difference between foreground and background, and between colors.
	Phase	Decreases the horizontal frequency.	Increases the horizontal frequency.
	Frequency	Decreases the vertical frequency.	Increases the vertical frequency.
	H-Position	Moves the screen image left.	Moves the screen image right.
	V-Position	Moves the screen image downwards.	Moves the screen image upwards.
	Sharpness	Makes image sharper.	Makes image softer.
	Color Temperature	Press --> key to choose color temperature.	
	Press MENU to select colors: • Red • Green • Blue • User Color Reset	Decreases the selected color temperature. No	Increases the selected color temperature. Yes

Table 242. OSD menu descriptions

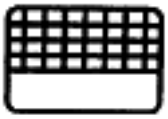
Icon	Menus and Sub-menus	Function Descriptions	
		<---	--->
 OSD	OSD Menu		
	H-Position	Moves OSD menu left.	Moves OSD menu right.
	V-Position	Moves OSD menu downwards.	Moves OSD menu upwards.
	OSD Time-out	Decreases the number of seconds the OSD menu remains on screen.	Increases the number of seconds the OSD menu remains on screen.
	Language	Selects the OSD menu language.	

Table 243. Utility menu descriptions

Icon	Menus and Sub-menus	Function Descriptions	
		<---	--->
 Utility	Utility Menu		
	Dynamic brightness	Off by default.	

Table 243. Utility menu descriptions (continued)

Icon	Menus and Sub-menus	Function Descriptions	
		<---	--->
	Information	Displays frequency and resolution information.	
	Reset	No	Yes - Resets the display.
	Half tone	Off - Displays normal colors.	On - Displays half tone colors.
 Auto		Automatically configures the display for the detected resolution.	

MAP6540 Section-7

If the signal from the monitor equals the standard signal mode, the screen is adjusted automatically.

If the signal from the monitor does not equal to the standard signal mode, adjust the mode by referring to the videocard user guide because the screen might not display or only the power LED might be on. For the display modes listed below, the screen image has been optimized during manufacture. Table 244 shows the preset timing modes.

Table 244. Monitor preset timing modes

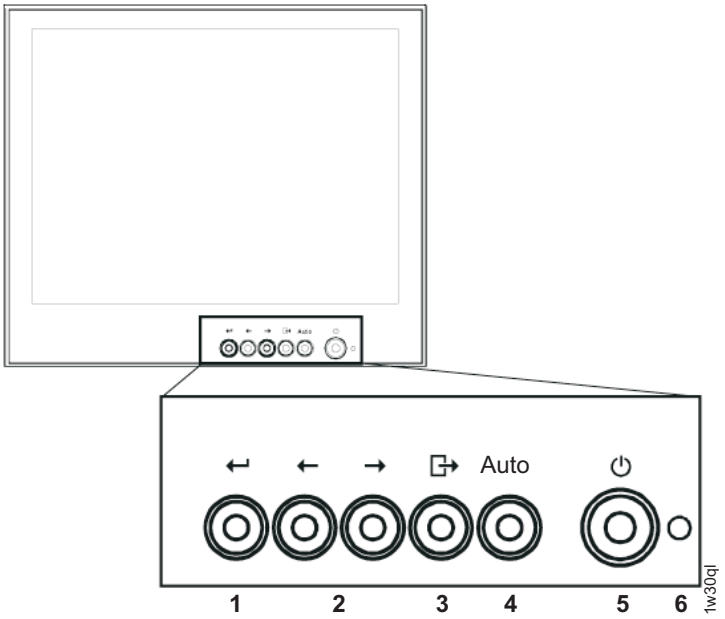
Mode	Resolution	Total	Horizontal Frequency	Polarity	Vertical Frequency	Polarity	Pixel Clock
VGA	720 x 400	900 x 449	31.47 KHz	N	70.0Hz	P	28.322MHz
	640 x 480	800 x 525	31.47 KHz	N	60.0Hz	N	25.175MHz
	640 x 480	864 x 525	35.00KHz	N	66.7Hz	N	30.240MHz
	640 x 480	832 x 520	37.86KHz	N	72.8Hz	N	31.500Mhz
	640 x 480	840 x 500	37.50KHz	N	75.0Hz	N	31.500Mhz
	640 x 480	832 x 509	43.27 KHz	N	85.0Hz	N	36.000Mhz
SVGA	800 x 600	1024 x 625	35.16Khz	N/P	56.3Hz	N/P	36.000Mhz
	800 x 600	1056 x 628	37.88Khz	P	60.3Hz	P	40.000Mhz
	800 x 600	1040 x 666	48.08Khz	P	72.2Hz	P	50.000Mhz
	800 x 600	1056 x 625	46.87Khz	P	75.0Hz	P	49.50Mhz

Table 244. Monitor preset timing modes (continued)

Mode	Resolution	Total	Horizontal Frequency	Polarity	Vertical Frequency	Polarity	Pixel Clock
	800 x 600	1048 x 631	53.67Khz	P	85.1Hz	P	56.250Mhz
	832 x 600	1152 x 667	49.73Khz	N	74.6Hz	N	57.284Mhz
XGA	1024 x 768	1344 x 806	48.36Khz	N	60.0Hz	N	65.000Mhz
	1024 x 768	1328 x 806	56.48Khz	N	70.1Hz	N	75.000Mhz
	1024 x 768	1312 x 800	60.02Khz	P	75.0Hz	P	78.750Mhz
	1024 x 768	1376 x 808	68.67Khz	P	85.0Hz	P	94.500Mhz
SXGA	1280 x 1024	1708 x 1056	64.00Khz	N	60.0Hz	N	108.000Mhz

MAP6540 Section-8

Adjust the characteristics of the display image by using the control buttons on the front of the monitor.



While you use these buttons, an On-screen Menu system shows you the numeric values of the various parameters.

Table 245. Description of display user control buttons

No.	Name	Description
1	MENU	• Opens the On-Screen Menu system and sub-menus • Selects the highlighted button
2	<-- and --> Brightness	• Moves the selector between menus and sub-menus on the On-Screen Menu • Decreases or increases values of the selected function • Directly adjusts the brightness level if pressed while the On-Screen Menu is off (See "MAP6540 Section-5" on page 824).

Table 245. Description of display user control buttons (continued)

No.	Name	Description
3	EXIT	• Exits from menus and sub-menus • Exits from the On-Screen Menu system
4	AUTO	• Activates the Auto Adjustment function
5	Power button	• Turns the monitor on and off
6	Power indicator	• Glows green during normal operation • Blinks green while the monitor is in a power-saving mode or if the signal cable becomes disconnected

MAP6540 Section-9

The monitor has a built-in power management system called PowerSaver. This saves energy by switching your monitor into a low-power mode when it has not been used for a certain amount of time. The available modes are "Normal Operation," "Standby," "Sleep," and "Deep Sleep."

PowerSaver operates with a VESA DPMS compliant video card installed in your computer system. Use a software utility installed on your computer system to set up this feature. See Table 246 for information about power-saving modes.

Table 246. Monitor power saving modes

State	Normal Operation	Power-Saving Function mode (EPA/NUTEK)		
		Standby Mode	Sleep Mode Position A1	Deep Sleep Mode Position A2
Horizontal Sync	Active	Inactive	Action	Inactive
Vertical Sync	Active	Active	Inactive	Inactive
Video	Active	Blanked	Blanked	Blanked
Power Indicator	Green	Green	Green Blinking (0.5 sec interval)	Green Blinking (1 sec interval)
Power Consumption	25W (Norm.)	Fewer than 3W	Fewer than 3W	Fewer than 3W

MAP6550 DVD RAM Drive Problem

Use this procedure to test the DVD drive in the PC for the management console.

MAP6550 Section-1

1. Clean the media disk as follows:
   a. Hold the disk by its edges. Do not touch the surface.
   b. Use a soft, dry cloth to remove dust and fingerprints from the surface. Wipe the media disk from the center to the outside.
   c. Reinsert the media disk, with the label-side facing up. Continue with the next step.
2. Retry the failing task using the original media. Does the failure occur again?
   - Yes, go to step 3.
   - No, **this ends the procedure.**
3. Reboot the management console and then retry the failing task. Does the failure occur again?

- Yes, go to step 4.
- No, **this ends the procedure**.

4. Leave the original media in the drive. Test the DVD-RAM drive using the information in "MAP6530 Testing the management console" on page 820. Select **Extended**, then **DVD-RAM Drive**. When the test is complete, return here and continue with the next step.
5. Did the DVD-RAM test fail while testing with the original media?
   - Yes, continue with the next step.
   - No, the failure is no longer occurring. **This ends the procedure.**
6. Exchange the original media with a new one.

   Note: If you are replacing DVD-RAM media, the new media must be formatted. If possible, use another management console to format. Refer to "MAP65B0 Format a DVD-RAM disc for backup/restore" on page 841.

   a. Repeat the DVD-RAM drive test.
   b. Select DVD-RAM Drive problem area.
7. Did the DVD-RAM test fail while testing with the new media?
   - Yes, continue with the next step.
   - No, the original media was defective. **This ends the procedure.**
8. Verify the following:
   a. All DVD-RAM drive data and power cables are secure.
   b. The DVD-RAM drive is jumpered as Master and is cabled to the Secondary IDE Bus.

      If the diagnostics continue to fail, exchange the DVD-RAM drive. When complete, run the DVD-RAM test again.

      Note: If there are any jumpers or tab settings on the new drive, ensure they have the same settings as the old drive.

      Did the DVD-RAM Drive test continue to fail?
      - Yes, continue with the next step.
      - No, the original DVD-RAM drive was defective. **This ends the procedure.**
9. Continue exchanging FRUs from the FRU list and running the DVD-RAM drive tests.
   - If the FRUs fix the problem, **this ends the procedure.**
   - If you cannot isolate the problem, contact your next level of support.

MAP6560 Disk drive problem

Use this procedure to test the disk drive in the PC for the management console.

MAP6560 Section-1

1. Use the information in "MAP6530 Testing the management console" on page 820 to test the PC. Select **Extended**, then **Fixed Disks**. Use the on screen options to run all the tests to the hard drive. Return here when the test is complete.
2. Did the disk drive test fail?
   - Yes, continue with the next step.
   - No, go to step 6 on page 832.

3. Exchange the FRUs called by the diagnostics one at a time. For FRU removal and replacement instructions, refer to the Hardware Maintenance Manual for the management console type.

   When each FRU is exchanged, test the repair using the information in "MAP6530 Testing the management console" on page 820.

   Retest the Hard Disk Drive. Did the disk drive test fail?

   - Yes, call for assistance.
   - No, continue with the next step.
4. If you exchanged the disk drive and there are jumpers or tab settings on the new disk drive, ensure they are set the same as the old drive. If there is a SCSI cable-terminating resistor device, ensure it is secured to the cable and, if necessary, reattached to its original location on the PC. Continue with the next step.
5. If you exchanged the disk drive, restore the management console image to the new disk drive. Refer to *Reloading the Hardware Management Console Image*.
6. Use the information in "MAP6530 Testing the management console" on page 820. Select **Run All Selected**.
   - If the tests fail, go to "MAP6020 Management console problem determination" on page 768 to isolate the problem.
   - If the tests run without errors, turn off the PC power and then turn on the power. Ensure that the system boots and the management console screen displays.

MAP6570 Diskette drive problem

Use this procedure to test the diskette drive in the PC for the management console.

MAP6570 Section-1

1. Turn on the PC power and test the diskette drive using the information in "MAP6530 Testing the management console" on page 820. Select **Extended**, then **Diskette Drive**.

   Note: Do not test with the diskette on which the errors occurred. Use a new diskette.

   When the test is complete, continue with the next step.
2. Did the diskette test fail while testing with a new diskette?

   Note: Answer Yes if you were not able to run the test because of the diskette errors.

   - Yes, continue with the next step.
   - No, go to step 5.
3. Exchange the diskette drive. When complete, run the diskette test again.

   Did the diskette test fail again?

   - Yes, continue with the next step.
   - No, the original diskette drive was failing. **This ends the procedure.**
4. Continue exchanging FRUs from the FRU list and running tests. If the FRUs fix the problem, **this ends the procedure.** If you cannot resolve the problem, call your next level of support for assistance.
5. Did the original failure occur while writing to a diskette?
   - Yes, continue with the next step.
   - No, go to step 7 on page 833.

6. Retry the original task using a new diskette.
   - If the failure occurs again, go to step 8.
   - If no failure occurs, the original diskette was failing. **This ends the procedure.**
7. Recreate the information on the diskette or get a new diskette with the information. Retry the original task.
   - If the failure occurs again, continue with the next step.
   - If no failures occur, the original diskette was failing. **This ends the procedure.**
8. Test the diskette drive, using the information in "MAP6530 Testing the management console" on page 820. Select **System Unit** problem area and the test of Diskette Drive.
   - If the test fails, isolate the problem using the procedures found in the appropriate management console hardware maintenance manual.
   - If the test does not – or if you cannot – isolate the problem, call your next level of support for assistance.

MAP6580 Customer Ethernet connection problem

Use this procedure to analyze problems with management console (HMC) Ethernet connection to the customer LAN.

Use "MAP7000 Entry point for DS8000 private network problems" on page 855 to analyze problems with the DS8000 private network.

MAP6580 Section-1

1. Is the customer able to connect to the HMC through the customer network?
   - Yes, there does not seem to be a basic network connection problem. If the customer is experiencing problems with ESSNI, CLI or other applications then go to "MAP6730 Customer access to management console problem" on page 851.
   - No, go to the next step.
2. At the rear of the management console server, verify that the customer Ethernet cable is properly connected to the customer network connector (eth2). See Figure 453 on page 834 (X335 server) or Figure 454 on page 834 (X336 server).

   Did you find and correct a problem with the Ethernet cable?
   - Yes, ask the customer to retry the operation. If problems still persist, then go to the next step.
   - No, go to the next step.

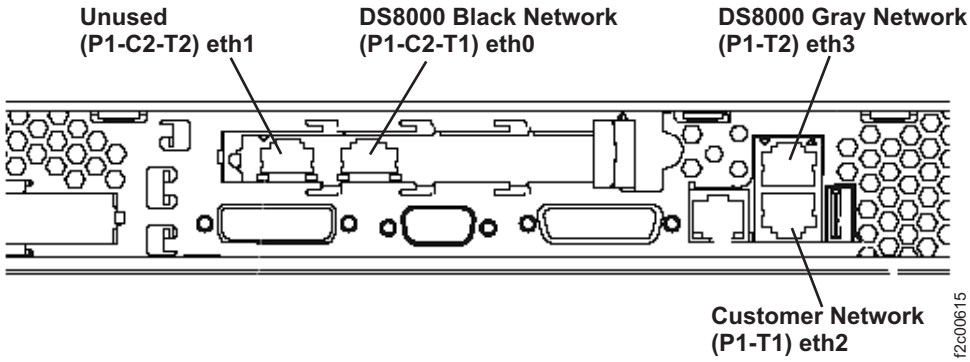


Figure 453. Ethernet connectors on the rear of the X335 management console server

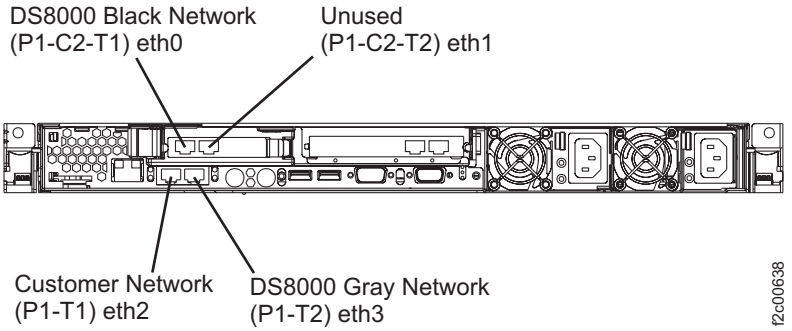


Figure 454. Ethernet connectors on the rear of the X336 management console server

3. At the rear of the management console server, observe the link status LED at the customer network connector (eth2). See Figure 455 on page 835 (X335 server) or Figure 456 on page 835 (X336 server). The LED is lit when the Ethernet controller receives a LINK pulse from the hub.

   Is the link status LED lit?

   - Yes, go to "MAP6580 Section-2" on page 836.
   - No, go to the next step.

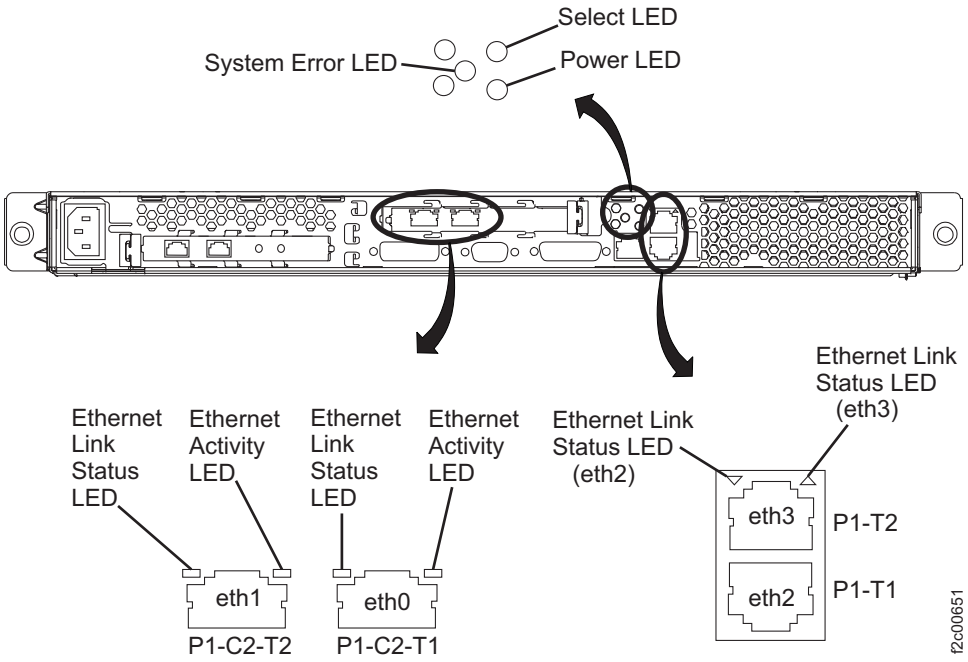


Figure 455. LEDs on the rear of the X335 management console server

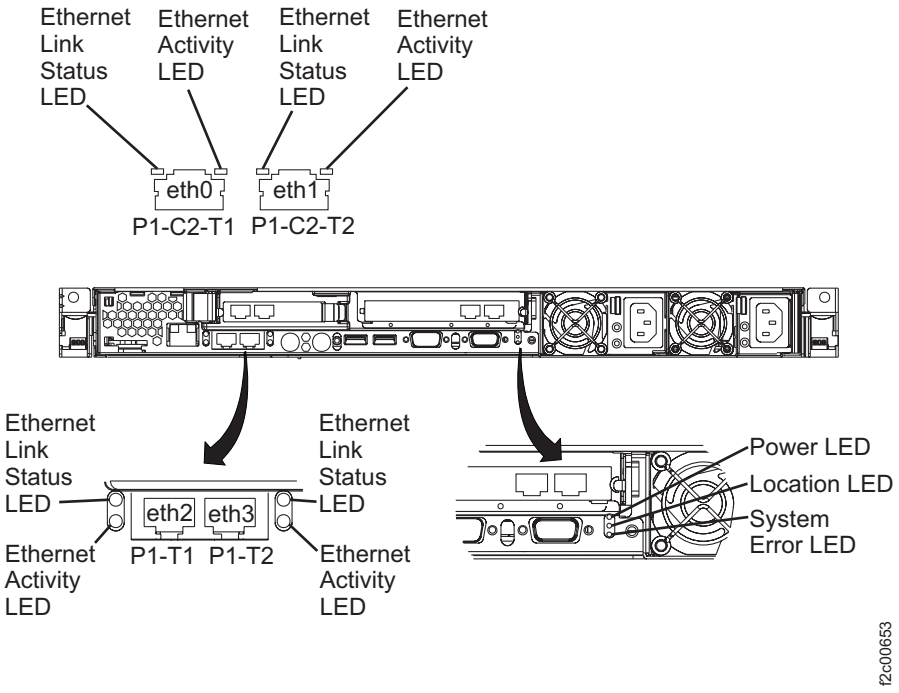


Figure 456. LEDs on the rear of the X336 management console server

4. Move the customer Ethernet cable from connector PI-C1-T1 (eth0) to P1-C2-T2 (eth1). See Figure 453 on page 834 (X335 server) or Figure 454 on page 834 (X336 server).

   Is the link status LED on P1-C2-T2 (eth1) lit?

   - Yes, move the customer Ethernet cable back to P1-C1-T1 (eth0) and go to step 7.

- No, go to the next step.

5. Work with the customer to check the following:
   a. The other end of the Ethernet cable is plugged correctly to the customer-supplied switch or hub.
   b. The switch or hub is functioning correctly.
   c. The port on the hub is working correctly. (Ask the customer to move the cable to a different port and retry the operation.)
   d. The customer supplied Ethernet cable is working correctly. (Swap the cable and verify if the problem still exists.)
6. Did you resolve a problem with the customer network or cable?
   - Yes, ask the customer to retry the operation. If the customer test still fails, go to "MAP6580 Section-2."
   - No, go to "MAP6580 Section-3" on page 838.
7. Reset the customer Ethernet port on the HMC. Perform the following:
   a. On the HMC WebSM panel select **Service Applications → Service Focal Point → Service Utilities**.
   b. Select a **Storage Facility**, click on **Selected** and choose **Get Storage Plex**.
   c. Select the **Storage Plex**, click on **Selected** and choose **Restart Network**.
   d. Select **eth2** and confirm the selection.
   e. Click on **OK** when the Request returns.
8. Observe the link status LED at the customer network port (eth2). See Figure 455 on page 835 (X335 server) or Figure 456 on page 835 (X336 server).

   Is the link status LED lit?
   - Yes, ask the customer to retry the operation. If problems still persist, then go to "MAP6580 Section-2."
   - No, go to "MAP6580 Section-3" on page 838.

MAP6580 Section-2

1. Reset the customer Ethernet port on the HMC. Perform the following:
   a. On the HMC WebSM panel select **Service Applications → Service Focal Point → Service Utilities**.
   b. Select a **Storage Facility**, click on **Selected** and choose **Get Storage Plex**.
   c. Select the **Storage Plex**, click on **Selected** and choose **Restart Network**.
   d. Select **eth2** and confirm the selection.
   e. Click on **OK** when the Request returns.
2. Ask the customer to retry the operation. Does the problem still occur?
   - Yes, go to the next step.
   - No, the problem is resolved.
3. Verify that the network settings are correct.
   a. On the HMC WebSM panel select: **HMC Management → HMC Configuration → Customize Network Settings**.
   b. Use the customer supplied customization worksheets to check that the settings are correct for **eth2**.

   CAUTION:
   Do not change network settings for the other Ethernet ports.
4. Did you find a problem with the network settings?

- Yes, change the settings to the desired values and ask the customer to retry the operation. If problems still persist, then go to the next step. **Note:** This will required that the HMC is rebooted. Ensure that the customer is not accessing the management console through the ESSNI interface.
- No, go to the next step.

5. Test the connectivity from the HMC to the customer network.
   a. Ask the customer to supply an IP address for a working device that can be contacted on their network. (If the HMC is connected through a gateway or firewall, try that first.)
   b. Select **HMC Management** → **HMC Configuration** → **Test Network Connectivity**.
   c. Enter the customer supplied IP address in the pop up window for the ping utility and click **OK**.
   d. Allow 10 seconds and then click on **Stop**.
      - Successful communication will result in a series of messages to indicate that data was received.
      - Unsuccessful communication will result in no data being received or a timeout message.
6. Was the communication test successful?
   - Yes, go to the next step.
   - No, go to "MAP6580 Section-3" on page 838.
7. Ask the customer to attempt to 'ping' the HMC IP address from a computer on their network. If the HMC connects through a gateway or firewall then attempt to ping the HMC from a device on the same side of the gateway as the HMC. Was the 'ping' successful?
   - Yes, go to step 9.
   - No, go to the next step.
8. Verify the following:
   a. The network settings were correct on the customization worksheets.
   b. If a gateway or firewall is being used then ensure that the ping test still fails on the HMC side of the gateway.
   c. If not problem was identified then go to "MAP6580 Section-3" on page 838.
9. Ask the customer to 'ping' the HMC host name. Was the 'ping' test successful?
   - Yes, there does not appear to be an HMC network connectivity problem.
     – If the customer is experiencing problems with ESSNI, CLI, or other applications, go to Chapter 1, "Start here," on page 1 and look for the symptoms described.
     – In the appropriate maintenance manual for the management console server, refer to **Chapter 3. Diagnostics** → **Troubleshooting the Ethernet controller** → **Ethernet controller troubleshooting chart**. The manual is on the *IBM System Storage DS8000 series Service Documents CDROM*:
       - *xSeries 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide*, or
       - *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*
     – If the customer is still experiencing problems in accessing the HMC, contact your next level of support for assistance.
   - No, there appears to be a problem with resolution of the HMC host name.
     – Verify that the host name was entered correctly in step 3 on page 836.

– Ask the customer to check that their DNS server is configured and working correctly.

MAP6580 Section-3

1. Run the Ethernet diagnostics. Go to "MAP6530 Testing the management console" on page 820. Return here when the test is completed.

   Notes:

   a. This task requires that the HMC be rebooted. Ensure that the customer is not accessing the HMC through the ESSNI interface.
   b. A wrap plug (FRU 60G3981) is used with the diagnostic tests.

2. Did the diagnostics find an error with the Ethernet controller?
   - Yes, go to "MAP6580 Section-4."
   - No, it appears that there is a network problem that is external to the HMC. In the appropriate maintenance manual for the management console server, refer to **Chapter 3. Diagnostics → Troubleshooting the Ethernet controller** to troubleshoot problems with the Ethernet controller. Work with the customer or next level of support to resolve the problem. The manual is on the *IBM System Storage DS8000 series Service Documents CDROM*:
     – *xSeries 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide*, or
     – *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*

MAP6580 Section-4

1. Replace the system board (HMC planar) in the management console server. Refer to **Chapter 5. Service replaceable units** in the appropriate maintenance manual for the management console server. The manual is on the *IBM System Storage DS8000 series Service Documents CDROM*:
   - *xSeries 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide*, or
   - *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*
2. Ask the customer to retry the operation. If problems still persist, contact your next level of support.

MAP6590 Modem problem

Use this procedure to resolve problems with the management console connection.

MAP6590 Section-1

1. Verify that the modem and phone line are functioning properly by performing the following steps.
   a. From the management console, go to **Service applications → Remote support → Customize Outbound Connectivity**
   b. Select the **Local Model** tab.
   c. Select the first listed phone number and click on **Test**.
   d. Click on **Start** to initiate the test.
   e. Monitor the Test Status to verify that the call is completed successfully. If the call is completed successfully, the modem is functioning correctly. Is the installed modem currently functioning on the management console?
      - Yes, the problem is not in the modem. **This ends the procedure.**

- No, go to step 2.

2. From the **Customize Outbound Connectivity** selection, review the configuration settings for the modem. Are the settings correct?
   - Yes, go to step 4.
   - No, to go step 3.
3. Correct the management console configuration arguments. Go to step 1 on page 838.
4. Perform the following checks:
   a. On the modem card at the rear of the management console server, verify that the customer telephone line is connected to the modem connector (RJ-11 phone line). See Figure 457 (X335 server) or Figure 458 (X336 server).
   b. Trace the telephone cable back to the customer's telephone line connector and ensure that it is connected.
   c. Work with the customer to verify that the telephone line is working correctly.

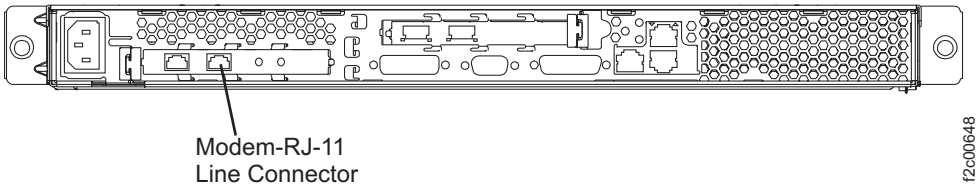


Figure 457. The modem connector (RJ-11 phone line) on the rear of the X335 management console server

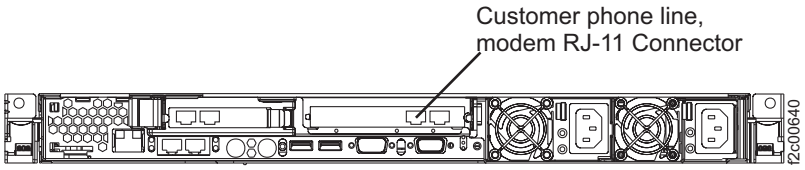


Figure 458. The modem connector (RJ-11 phone line) on the rear of the X336 management console server

5. Did you find a problem with the telephone line or connections?
   - Yes, correct the telephone line or connection problem. Go to step 1 on page 838.
   - No, go to "MAP6590 Section-2."

MAP6590 Section-2:

In this section, you will power off the management console in order to replace the modem card.

1. Ensure that the customer is not currently accessing the management console, such as to perform the logical configuration function or to perform the copy service function.
2. Replace the modem card in location P1-C1 on the rear of the management console server.
   a. In the following steps, refer to the appropriate maintenance manual for the management console server. The manual is on the *IBM System Storage DS8000 series Service Documents CDROM*:

- *xSeries 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide*, or
- *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*

b. Power off the server. (Refer to the "General Information " section).

c. Replace the modem. (Refer to the "Customer replaceable units" section).

d. Power on the server. (Refer to the "General Information " section).

3. Return to "MAP6590 Section-1" on page 838, step 1 to verify the modem connection.
4. Is the problem resolved?
   - Yes, **this ends the procedure.**
   - No, call your next level of support.

MAP65A0 Problem creating HMC critical console backup DVD

The manual or automatic process to write the HMC critical console backup DVD encountered a problem.

1. Is the HMC critical console backup DVD disc is in the HMC DVD-RAM drive?
   - Yes, go to the next step.
   - No, insert the disc and retry the operation. Exit this MAP.
2. Is the disc a DVD-RAM disc that has been formatted?

   Note: The disk should be properly labeled for the 2107/242x critical console backup.
   - Yes, go to the next step.
   - No, insert the proper disc and retry the operation. Exit this MAP.
3. Remove the disc, reinsert it in the drive, and then immediately observe the activity LED for the DVD-RAM drive. See Figure 459 (X335 server) or Figure 460 (X336 server).

   Is the LED flashing?
   - Yes, go to the next step.
   - No, it appears that the disc is not being read by the drive. Perform the procedure in "MAP6550 DVD RAM Drive Problem" on page 830. If the drive passes the diagnostic test, there might be a problem with the code. Contact your next level of support.

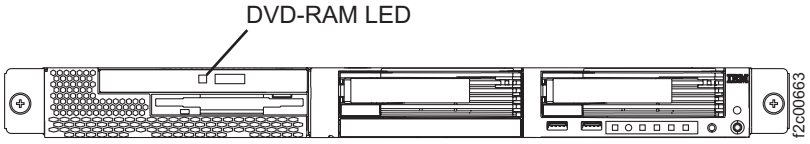


Figure 459. The DVD-RAM LED on the front of the X335 management console server

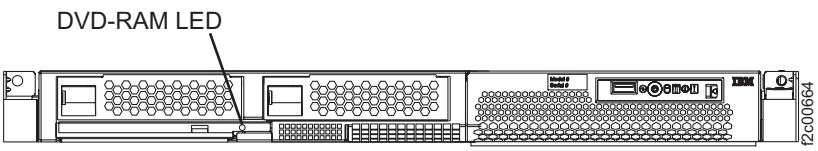


Figure 460. The DVD-RAM LED on the front of the X336 management console server

4. Insert a different DVD-RAM disc and retry the operation.

Does it still fail?

- Yes, it appears that the disc is not being read by the drive. Perform the procedure in "MAP6550 DVD RAM Drive Problem" on page 830. If the drive passes the diagnostic test, there might be a problem with the code. Contact your next level of support.
- No, the original disc is faulty or it is not formatted correctly. Exit this MAP.

MAP65B0 Format a DVD-RAM disc for backup/restore

Use this procedure to format a DVD-RAM disc for the management console.

MAP65B0 Section-1

Note: DVD-RAM disc media from IBM should come preformatted properly for use as a backup/restore disc. If the disc needs to be reformatter, or if you must use a non-IBM disc, then use the following step to format the disc.

Format a DVD-RAM disc for use as a backup/restore disc.

1. In the HMC Navigation area, under the Management Environment, expand the HMC (identified by the host name).
2. Open **Licensed Internal Code Maintenance → HMC Code Update**.
3. In the right content area, select **Format Removable Media**.
4. At the Format Media screen, select the **Format DVD-RAM** radio button and click **OK**.
5. At the Format DVD-RAM screen, select the **Backup/restore** radio button and click **Format**.

MAP6600 Resetting the managed system connection from the management console

Use this procedure to reset the managed system connection from the management console.

MAP6600 Section-1

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
2. Click **Server and Partition → Server Management**.
3. In the right content area, right-click the server to which you want to reset the connection and choose **Reset or Remove Connection**.

   Attention: DO NOT select **Remove Connection**. Adding the system back requires assistance from your next level of support.
4. Click **Reset Connection**.
5. Click **OK**.

MAP6610 Checking for an IP address conflict

This MAP provides guidance on how to verify there is not a managed system IP address conflict.

MAP6610 Section-1

Perform these steps to check for an IP conflict:

1. On the management console, right click on the desktop and select **terminal → rshterm**.

2. In the terminal, issue this command: lssyscfg -r sys -F type_model serial_num ipaddr

   A list of managed systems names and their IP address (or hostname) will appear. For example:

   9117-570 13AAB80 172.16.255.253

   9117-570 13AAAF0 172.16.254.255
3. Check to see if there are duplicates.

MAP6620 Rebuilding managed system information

The Rebuild Managed System action is used to extract the configuration information from the managed system and rebuild the information on the management console.

You cannot start other tasks while the management console rebuilds the managed system. This process can take several minutes.

MAP6620 Section-1

To rebuild the managed system information on the management console, perform the following steps:

1. In the contents area, select the managed system.
2. From the menu, click **Selected**.
3. Click **Rebuild Managed System**.

After you select Rebuild Managed System, the current system information displays.

MAP6630 Recovering partition data on a CEC enclosure

This procedure provides guide on how to recover profile data on a CEC enclosure if the data becomes damaged.

Contact your next level of support if you were sent to this MAP. The WebSM options used in this procedure are not enabled for the IBM service representative WebSM sign on. Profile data recovery should not be performed without a full understanding of the reason for the problem and the implications of restoring the data.

The profile data includes information on logical partitions, partition profiles, and system profiles. If the profile data on the CEC enclosure becomes damaged, the CEC enclosure is in *Recovery* state.

Note: A CEC enclosure refer to one of the two processor complex in a storage facility.

MAP6630 Section-1

This procedure recovers the profile data in the service processor by copying it from the HMC.

Note: This is not a concurrent procedure. When the data is restored, the CEC enclosure powers on to Partition Standby.

Complete the following steps to restore profile data.

1. In the Contents area, select the managed system.
2. From the menu, select **Selected** → **Profile Data** → **Restore**.

3. Select the profile information that you want to restore from the list of backup files.
4. Select the **Full restore from the selected backup file** restore option.
5. Click **OK**.
6. Wait up to 10 minutes for the CEC enclosure to reach standby state as displayed by the HMC.
7. Return to "MAP6650 Correcting the CEC enclosure operating state" and continue.

MAP6640 Shutting down, rebooting, and logging off the management console

Perform the steps in this section to log off the management console.

Before rebooting or shutting down the management console, ensure that the customer is not currently accessing the management console to perform logical configuration or copy service functions.

MAP6640 Section-1

1. In the main menu, click **Console** → **Exit**. At this point, you can select to save the state of the console for the next session by selecting the check box next to the option.

   Note: When you exit from the management console session locally, you can select to shut down, reboot, or log off your session. The following is a description of each option:

   Shutdown Console
   Powers off the management console

   Reboot Console
   Shuts down the management console and then reboots it to the login prompt

   Logout
   Returns the user to the login prompt without shutting down the management console
2. Click **Exit now**.

MAP6650 Correcting the CEC enclosure operating state

Use these procedures to put the CEC enclosure back to a correct state.

MAP6650 Section-1

Correcting the CEC enclosure operating state.

Use Table 247 to select the current state:

Table 247. CEC enclosure states

State	Action
No Connection	"MAP6650 Section-2" on page 844
Incomplete State	"MAP6650 Section-3" on page 844
Recovery State	"MAP6650 Section-4" on page 845
Error State	Contact your next level of support.

MAP6650 Section-2

No Connection state

In the No Connection state, the management console is not connected, or the interaction with the CEC enclosure failed. Perform the following steps:

1. Go to "MAP7000 Entry point for DS8000 private network problems" on page 855. Return here when you have completed all the steps.
2. Is the problem now resolved?
   - Yes, all actions in this MAP are now complete.
   - No, continue with the next step.
3. Go to "MAP6600 Resetting the managed system connection from the management console" on page 841. Return here when you have completed all the steps.
4. Is the problem now resolved?
   - Yes, all action in this MAP are now complete.
   - No, call your next level of support.

   Note: The next level of support will first search for any known problems or fixes. They may then ask you to deactivate and power down the failing CEC enclosure and perform a service processor card pinhole reset.

MAP6650 Section-3

Incomplete state

In the Incomplete state, the management console failed to get all of the necessary information from the CEC enclosure. Perform the steps that follow.

1. Go to "MAP6620 Rebuilding managed system information" on page 842. Return here when you have completed all the steps.
2. Is the problem now resolved?
   - Yes, all actions in this MAP are now complete.
   - No, continue with the next step.
3. Ensure that the customer is not currently accessing the CEC enclosure to perform logical configuration of copy service functions before you continue with the next step.
4. Reboot the management console. Choose from the following options:
   - If the state goes to *Recovery*, go to "MAP6650 Section-4" on page 845.
   - If the state remains *Incomplete*, perform the following steps:
     a. If there are two management consoles installed on this complex, ensure that no one is entering commands from the other management console.
     b. Repeat step 1. If it still fails, continue with the next step.
5. Verify that the management console and service processor card are properly communicating through the private network. Go to "MAP7000 Entry point for DS8000 private network problems" on page 855. Return here and continue if the problem is not resolved.
6. Reset the service processor card. Go to "MAP4810 Resetting the service processor card (FSP)" on page 700. Return here and continue with the next step.
7. Allow up to ten (10) minutes for the service processor card to initiate program load (IPL) and for communication to be established with the management console. Use the Service Utilities to activate the CEC enclosure as follows: **Service Applications** → **Service Focal Point** → **Service Utilities**. Select the

storage facility and click **Selected**. Select **Activate/Deactivate Resources**. Select the failing processor complex (or managed system). Select **Activate** and confirm the action.

8. Go to "MAP6650 Section-4." Return here and continue if the problem is not resolved.
9. Restore the profile data. Go to "MAP6630 Recovering partition data on a CEC enclosure" on page 842. Return here and continue if the problem is not resolved.
10. If the problem persists, contact your next level of support.

MAP6650 Section-4

Recovery state.

In the *Recovery* state, the save area in the service processor is not synchronized with the management console database. Perform the following steps.

1. Restore the profile data. Go to "MAP6630 Recovering partition data on a CEC enclosure" on page 842. Return here and continue if the problem is not resolved.
2. After you restore the profile data, choose the option that describes what happened.
   - If the state changed to *Standby*, go to "MAP6650 Section-5"
   - If the state changed to *Incomplete*, go to "MAP6650 Section-3" on page 844.
   - If the state changed to *No Connection*, go to "MAP6650 Section-2" on page 844.
   - If the restore failed, reset the service processor. Go to "MAP4810 Resetting the service processor card (FSP)" on page 700. Return here and continue with the next step.
3. Allow up to 10 minutes for the FSP to IPL and for communication to be established with the management console.
4. Go to "MAP6650 Section-5."

MAP6650 Section-5

1. Do a psuedo FRU replace of the service processor card. Do not physically disconnect any cables or physically remove the service processor card when directed. You are using the Exchange FRU procedure to ensure all the service processor card settings are correct, the FRU verification tests run error free, and then to return the CEC enclosure to customer use.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Open **Service Applications** → **Service Focal Point**.
   c. In the right content area, select **Exchange Parts**, a window appears displaying a list of storage facilities.
   d. Select a storage facility, click **Selected** (on top tool bar), and then select **Exchange CEC Components**. A window will appear displaying CEC enclosures.
   e. Click the **Show FRUs** button. A window will appear listing the CEC enclosure FRUs. Select the Service Processor Card and then click the **Exchange FRU** button.
2. Is the problem now resolved?
   - Yes, all actions in this MAP are now completed.
   - No, contact your next level of support.

MAP6660 Operation procedures that do not apply to DS8000

MAP6660 Section-1

You have been sent here from a generic link to display information or procedures for the detected condition. However, this information or procedure is not applicable for DS8000.

Return to the procedure that sent you here. If that procedure provides no additional actions, then call your next level of support.

MAP6670 Viewing information about the managed system

View information about the managed system's configuration and capabilities. Any user can view managed system properties.

MAP6670 Section-1

1. View information about the managed system.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by host name).
   b. Click **Server and Partition** → **Server Management**.
2. View the managed system's properties.
   a. In the right content area, select the managed system.
   b. On the main menu, choose **Selected** → **Properties**.
   c.

      The management console displays the following:
      - the system's name
      - logical partition capability
      - state
      - serial number
      - model and type
      - policy information.

      A system that is powered on using the Partition Standby option displays the previously listed information, as well as the following:
      - available and assigned processors
      - memory
      - I/O drawers and slots
      - power-on parameters
      - reference codes
      - policy information.

      The Processor tab displays information that is helpful when performing Dynamic Logical Partitioning processor tasks. Use the Processor tab to view the following information:
      - processor status
      - processor state
      - if a processor is assigned to a logical partition
      - if processors are disabled and therefore cannot be used by any logical partition.

MAP6680 Backing up HMC critical console data

The backup function saves the management console data that is stored on the management console hard disk to DVD.

Back up the management console after you have made changes to the management console.

MAP6680 Section-1

The archived data should be used only in conjunction with a reinstallation of the management console from the product CDs. For information about how to reinstall the management console, refer to "MAP6100 Reloading the management console licensed internal code (LIC)" on page 776.

Complete the following steps to back up the management console.

1. Once the backup to DVD process is started, it will take from 20 minutes to 2 hours for the information to be gathered and written to the DVD.
2. In the Navigation area, open **Licensed Internal Code Maintenance**, then open **HMC Code Update**.
3. In the Contents area, select **Backup Critical Console Data**.
4. The Backup Display screen displays, select **Back up to DVD on local system**.
5. The Backup Critical Data to DVD screen displays, insert the blank formatted DVD, typing the comment is optional, then click **OK**.
6. Did the backup complete successfully?
   - Yes, exit this MAP and return to the procedure that sent you here.
   - No, go to the next step.
7. Did you get a Platform Management Error for ensuring the media is inserted correctly?
   - Yes, the DVD media may not be formatted yet. Return to the HMC Code Update screen and select **Format Removable Media**, then select **Format DVD**, then select **Backup/restore cartridge** and click **Format**. When the format is complete, return to step 1 of this MAP.
   - No, call the next level of support.

MAP6690 Viewing recent management console activity

To view a log of recent management console activity, you can view console events. Each event has an associated time stamp.

The following is a sample of the events recorded:

- When a logical partition was activated
- When a system was powered on
- When a logical partition was shut down
- Results of a scheduled operation

To view console events, you must be a member of one of the following roles:

- super administrator
- service representative
- operator
- product engineer

MAP6690 Section-1

To view console events, perform the following steps:

1. In the Navigation area, click the **HMC Management** icon.
2. In the Contents area, click the **HMC Configuration** icon.
3. In the Contents area, select **View Console Events**.

MAP66B0 Password management

MAP66B0 Section-1

1. After power-on, the HMC login window prompts for the user ID and the password.
2. The following user IDs and default passwords are pre-defined. If requested by the customer, the default passwords can be changed. Both the user ID and password are case sensitive and must be typed exactly as shown.

User ID	Default password	Additional notes
CE	serv1cece	
PE	servicepe	This user ID is intended for use by IBM Product Engineering only. After entering the user ID and password the user is provided with an HMC generated key code. The user will then be prompted to enter an access code.
customer	cust0mer	

3. After the successful login, the HMC WebSM graphical user interface appears.

MAP66C0 Managed system states displayed by the HMC

The state of the managed system is displayed in the right content area of the management console window under the State label.

MAP66C0 Section-1

1. Display the states of the server (CEC enclosure) and Partitions (LPARs).

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
2. Expand **Server and Partition** and click **Server Management**.
3. In the right content area, expand the Servers and the Partitions to see all status in the State column, as shown in Figure 461 on page 849.

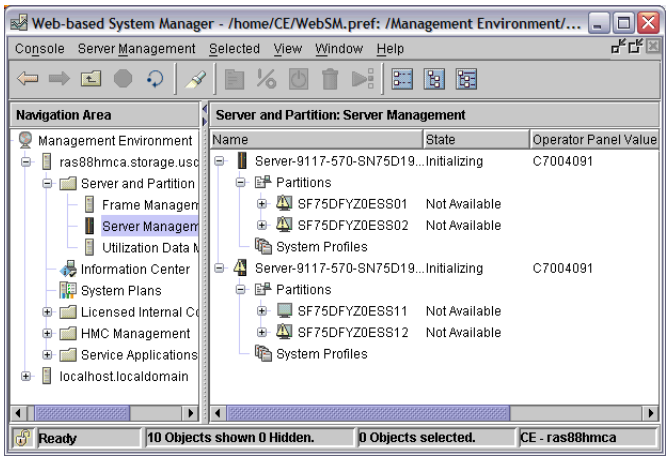


Figure 461. Server and Partition: Server Management

4. Refer to Table 248 for the State definitions.

Table 248. Managed system power on states

State	Description
Error	The managed system's operating system or hardware is experiencing errors. To recover this state, go to "MAP6650 Correcting the CEC enclosure operating state" on page 843.
Error - Dump in Progress	The managed system has started a system dump.
Error - Terminated	The power-on operation failed.
Incomplete	The management console did not receive all of the necessary information from the managed system. To recover this state, go to "MAP6650 Correcting the CEC enclosure operating state" on page 843.
Initializing	The managed system is powering on.
No Connection	The management console cannot contact the managed system. To recover this state, go to "MAP6650 Correcting the CEC enclosure operating state" on page 843.
Not Available	The partition is powered off.
On Demand Recovery	The old capacity card has been replaced; enter the activation code.
Operating	The managed system is powered on and functioning normally.
Power off	The managed system is powered off.
Recovery	The partition data and profile data stored in the managed system is damaged. To recover this state, go to "MAP6650 Correcting the CEC enclosure operating state" on page 843.
Standby	The managed system has been powered on using the partition standby power-on option.

MAP6700 Viewing vital product data

Use this procedure to view the vital product data.

This procedure should only be used when directed by the next level of support.

You can view manufacturer's vital product data (VPD) stored from the system boot prior to the one in progress now.

MAP6700 Section-1

1. On the ASMI Welcome pane, specify your user ID and password, and click **Log In.**
2. In the navigation area, expand **System Information** and select **Vital Product Data**.
3. A list of field replaceable units (FRUs) that exist on the system and their descriptions are displayed. Select a single FRU or multiple FRUs from this list that you would like to view.
4. Click **Display Details** to display the details for selected FRUs, or click **Display all details** to display details for all VPD entries.

MAP6710 Viewing progress indicator from previous boot

Use the procedure in this section to view the progress indicator that displayed in the control panel during the previous failed boot.

To perform this operation, your authority level must be one of the following:

- General
- Administrator
- Authorized service provider

During a successful boot, the previous progress indicator is cleared. If this option is selected after a successful boot, nothing displays.

The progress indicator information is stored in nonvolatile memory. If the system is powered off using the power-on button on the control panel, this information is retained. If the AC power is disconnected from the system, this information is lost.

MAP6710 Section-1

1. On the ASMI Welcome pane, specify your user ID and password, and click **Log In**.
2. In the navigation area, expand **System Information**.
3. Select **Previous Boot Progress Indicator**. The results are displayed in the right pane.

MAP6720 Viewing progress indicator history

Use this section to view progress codes that appeared in the control panel display during the last boot. The codes display in reverse chronological order.

To perform this operation, you must have one of the following authority levels:

- General
- Administrator
- Authorized service provider

MAP6720 Section-1

1. On the ASMI Welcome pane, specify your user ID and password, and click **Log In**.
2. In the navigation area, expand **System Information**.
3. Select **Progress Indicator History**.
4. Select the desired progress indicator to view additional details and click **Show Details**. The progress indicator codes are listed from top (latest) to bottom (earliest).

MAP6730 Customer access to management console problem

The customer uses the DS8000 storage manager interface which is installed on a customer platform to access the DS8000 storage manager server on the management console (HMC).

MAP6730 Section-1

Note: If the customer does not know how to access the management console, have them refer to the *IBM System Storage DS8000 User's Guide*, chapter 2. The guide is on the customer documentation CD.

1. Determine if this is a basic network problem. Can the customer "ping" the management console by hostname or TCP/IP address?
   - Yes, continue at the next step.
   - No, go to "MAP6580 Customer Ethernet connection problem" on page 833.
2. Ensure the ESSNI server on the management console is enabled. From the management console, select **Managed system** → **Service Applications** → **Service Utilities** → **Service Focal Point** → **Storage facility**. From the Selected menu, select **Get HMCs** → **Start/Stop ESSNI**.
3. Ensure ICAT is enabled. From the management console, select **Managed system** → **Service Applications** → **Service Utilities** → **Service Focal Point** → **Storage facility**. From the Selected menu, select **Get HMCs** → **Start/Stop ICAT**.
4. Ask the customer to check that the following TCP/IP ports are open on the firewall to allow access for DSCLI and DS8000 Storage Manager: 1718, 1720, 1722, 1750, 1755 and 8451 - 8455.
5. Did you find a problem?
   - Yes, this is the end of this procedure.
   - No, contact your next level of support.

MAP6F00 Accessing the ASMI

Three methods to access the Advanced System Management Interface on the CEC enclosure service processor FRU.

MAP6F00 Section-1

Select the method you want to use to access the ASMI, then go to the specified MAP.

Note: For the ASMI menu options, see "MAP1221 ASMI menu structure" on page 498.

Table 249. Methods for accessing ASMI

Access method:	Description:	Go to:
Using the management console	Launch direct from the management console	"MAP6F10 Accessing the ASMI using the management console"
Using a Web browser	Launch from laptop connected to the "black " DS8000 private network	"MAP6F20 Accessing the ASMI using a Web browser"
Using an ASCI terminal emulator **Note:** Only available when CEC enclosure is in standby power mode	Launch from laptop with direct serial connection to service processor.	"MAP6F30 Accessing the ASMI using an ASCII terminal emulator" on page 854

MAP6F10 Accessing the ASMI using the management console

To access the Advanced System Management Interface (ASMI) using the management console, complete the following steps in this section.

MAP6F10 Section-1

Note: For the ASMI menu options, see "MAP1221 ASMI menu structure" on page 498.

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
2. Click **Service Applications** → **Service Focal Point**.
3. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
4. Select the storage facility.
5. From the Selected menu, select **Get SF Systems**.
6. From the Select a Storage System window, select the System Unit (CEC enclosure) that you want to work with.
7. From the Selected menu, select **Launch ASM Menu**.
8. On the launch ASM interface confirmation, click **OK**.
9. The management console Web browser will be launched and the ASM login panel will appear.

   Note: If access fails and you have a laptop available, try "MAP6F20 Accessing the ASMI using a Web browser."
10. Log in as `admin` with a password of `admin2107`.

    Notes:

    a. If you are logged in and not active for 15 minutes, your session expires.

    b. If you make five invalid login attempts, your user account is locked out for five minutes and none of the other accounts is affected.

MAP6F20 Accessing the ASMI using a Web browser

Complete the tasks in this section to set up the Web browser for direct or remote access to the ASMI.

The Web interface to the Advanced System Management Interface (ASMI) is accessible through Microsoft® Internet Explorer 6.0, Netscape 7.1, or Opera 7.23 running on a PC or mobile computer connected to the service processor. The Web interface is available during all phases of system operation including the initial program load (IPL) and run time. However, some of the menu options in the Web interface are unavailable during IPL or run time to prevent usage or ownership conflicts if the system resources are in use during that phase.

MAP6F20 Section-1

1. Ensure the laptop has a minimum level of Microsoft Internet Explorer 6.0 or Netscape 7.1.
2. Determine the IP address of the service processor using one of the following methods:
   - Using the Restricted Shell command
     a. Logon to WebSM on the management console.
     b. Right click on an area of the desktop outside of the WebSM window.
     c. Select **Terminals** then rshterm
     d. Type `lssyscfg -r sys -F serial_num ipaddr`
     e. Note the IP address for the managed system that you want to access.
   - Using the Network Topology Tool
     a. Logon to WebSM on the management console.
     b. Go to, **Service Focal Point → Service Utilities → Storage Plex Management → View Network Topology**.
     c. Click on the desired Service Process (FSP) in the Current or Save view.
     d. The IP address is displayed in the panel on the right.
3. Ensure the laptop Ethernet port network settings are configured for DHCP. Do not set a static IP address.
4. Based on the IP address for the service processor obtained in step 2, use Table 250 to determine the network and Ethernet switch to be used for the connection.

Table 250. Network and Ethernet switch connection

Network	Ethernet switch
Black - 172.16.xxx.xxx[1] (eth0)	SW1 (upper switch)
Gray - 172.17.xxx.xxx[1] (eth3)	SW2 (lower switch)

Notes:

1. This is the default address range. The network might be using one of three optional address ranges. To determine the range that the network is using, see "MAP7005 Determining which private network address range is selected" on page 867.

5. Connect an Ethernet cable from the laptop to any available port on the Ethernet switch that was determined in step 4. The switch can be located in any storage facility within the storage complex.
6. Open a DOS prompt on the laptop and type `ipconfig /release` and `ipconfig /renew` to reset the existing DHCP address and request a new one from the management console.
7. Open the Web browser on the laptop.
8. Type the IP address of the service processor card (FSP) Ethernet port in the browser address field in the form `https://xxx.xxx.xxx.xxx`.

9. When the login display appears, log in with a user ID of `celogon` and password of `FipSce`.
10. For the ASMI menu options, see "MAP1221 ASMI menu structure" on page 498.

MAP6F30 Accessing the ASMI using an ASCII terminal emulator

MAP6F30 Section-1

1. Ensure the CEC enclosure that you are connecting to is in standby power mode and the LPARs are powered off. Standby mode is indicated by the CEC enclosure control panel green indicator in the lower left corner that is slow blinking.

   Note: If the CEC enclosure is not in standby power mode, return to "MAP6F00 Accessing the ASMI" on page 851 and select a different method.

2. Set up the laptop terminal emulator software (for example, NetTerm) with the following settings:

```
terminal type = VT30
port          = Serial port 1 for many laptops
baud rate     = 38,400 (edf to confirm
data bits     = 8
parity        = none
stop bits     = 1
DTR/DSR       = off
RTS/CTS       = off
Xon/Xoff      = off
control       = direct line (for example: no
                modem between the serial ports
                on the laptop and service
                processor).
```

3. Connect the laptop serial port to the service processor serial port. You must use a "direct connect" serial cable that is wired to cross over the data and send and receive signals. The direct serial cable will have 9-pin D-shell female connectors on both ends. Normal serial cables have a male connector on one end, a female connector on the other end, and pass the data signals without crossing them.

   Note: An example of a direct connect serial cable that can be used is the serial cable used to connect a laptop to a storage facility cluster for service login.

4. Use the terminal emulator connect function.
5. When the login display appears, log in with either the "general " or "admin" login ID.
6. For the ASMI menu options, see "MAP1221 ASMI menu structure" on page 498.

MAP6F40 Troubleshooting accessing the ASMI using a Web browser

MAP6F40 Section-1

Use the following table for information and error resolution regarding common problems that occur during the setup of accessing the Advanced System Management Interface (ASMI) through a Web browser.

Table 251. Problems that may occur during setup of accessing ASMI

Problem	Resolution
After you enter the service processor IP address in the Web browser, you receive a security alert.	Usually this means that your laptop does not accept the server as a secure site. To resolve this problem, complete the following steps: 1. In the Client Authentication window, select the certificate you want to use when connecting and click OK. 2. If you receive the error that this page cannot be found, then your PC or laptop does not trust the server as a secure site. If you have a firewall on your PC or laptop, modify the firewall settings to trust the server's IP address. Then, type the IP address in the Address field of your PCs or laptop's Web browser. 3. On the Security Alert window, click **Yes**.
After you enter the server's IP address in the Web browser, the browser displays an error message stating that it cannot find the IP address that you entered.	1. Ensure that you entered `https://<IP address of server>` in the Address field of your Web browser. 2. Ensure that your entered the correct IP address for the service processor.
You are using Microsoft Internet Explorer 6.0 running on Windows XP, you have correctly cabled the PC or laptop to the server, and you cannot access the ASMI.	Usually this means that the Use TLS 1.0 option in Microsoft Internet Explorer is enabled. To connect to the ASMI, this option must be disabled. To resolve this problem, complete the following steps: 1. From the Tools menu in Microsoft Internet Explorer, select **Internet Options**. 2. From the Internet Options window, click the **Advanced** tab. 3. Uncheck Use TLS 1.0 (in the Security category) and click **OK**.

MAP7xxx range

Use this section for DS8000 network isolation procedures.

MAP7000 Entry point for DS8000 private network problems

This MAP provides guidance on repairing all network problems with the DS8000 private network.

Note: Network problems can be logged as a result of other subsystem failures. Before you start to analyze network errors, try to repair other problems.

MAP7000 Section-1

Use Table 252 to find your purpose for using this MAP.

Table 252. Entry for DS8000 private network problems

Purpose	Go to:
You were sent here to use the Network Topology Tool to verify the connectivity of both DS8000 private networks (gray and black)	"MAP7001 Using the network topology tool" on page 862
You were sent here from a serviceable event and with an SRC (service reference code)	"MAP7000 Section-2" on page 856

Table 252. Entry for DS8000 private network problems (continued)

Purpose	Go to:
You were sent here from another MAP to verify network connectivity	"MAP7000 Section-3"
You have a visual symptom	"MAP7000 Section-3"
The customer cannot remotely access the management console	"MAP6730 Customer access to management console problem" on page 851

MAP7000 Section-2

1. Determine the SRC in the serviceable event that sent you to this MAP.
   - If SRC = BEB1xxxx, go to "MAP7000 Section-3."
   - If SRC = B3xxxxxx, go to "MAP7000 Section-5" on page 858.
   - For all other SRCs, go to step 2.
2. Ensure that the private network is connected to the following:
   - Private network Ethernet switches inside rack-1 of all storage facilities that are connected to this HMC
   - CEC enclosure service processor card (FSP)
   - CEC enclosure integrated Ethernet ports on I/O planar assembly at rear of CEC
   - CEC enclosure Ethernet ports on PCI Ethernet card (only on models with two LPARs per CEC)
3. Are there any open serviceable events for the CEC or Ethernet switches that are related to the private network?
   - Yes, exit this MAP and repair them now. After you have made the repairs, return to "MAP7000 Section-1" on page 855 to determine if the problem that sent you here has already been corrected.
   - No, it is most likely safe to delay the repair of any open serviceable event that is not related to the private network. Go to "MAP7000 Section-3."

MAP7000 Section-3

Perform the visual checks that are specified in Table 253. If you find problems, take the action that is indicated.

Table 253. Visual check list

Visual Check	Action
All Ethernet switches are powered on.	Go to "MAP2350 Ethernet switch power problem" on page 624.
Power is available to the CEC enclosures. Check for green 'AC Good' LEDs on CEC drawer power supplies (rear).	This problem does not normally occur on a single CEC. Perform the following actions: 1. Check that all power distribution cables are plugged in. 2. Check that the UEPO switch is enabled. 3. Check that customer AC input is available. The primary power supplies should indicate AC Input Good. 4. If there are no problems, call your next level of support.

Table 253. Visual check list (continued)

Visual Check	Action
All service processor cards are IML'd and the control panel is not showing an SRC. The following is the normal indication: 01 N V=F HMC=1 P	If the service processor card panel is blank, go to "MAP4100 Repairing a service processor card (FSP) problem" on page 672. If an SRC is displayed, go to Chapter 52, "System reference codes (SRCs) and firmware codes," on page 1849.
All CECs are powered on. Check for green LEDs on processor regulator cards (rear).	Use the management console to power on the storage facility. See "MAP1211 Controlling DS8000 power from the management console" on page 481.
LEDs are lit on the Ethernet switches that correspond to all externally routed Ethernet cables. For example, connect the external management console or other SFs to the SF that contains the primary management console. For a chart of the external Ethernet switch connections, see Figure 462.	Go to "MAP7000 Section-4" on page 858.
None of the visual checks that are listed in this table apply.	Go to "MAP7001 Using the network topology tool" on page 862.

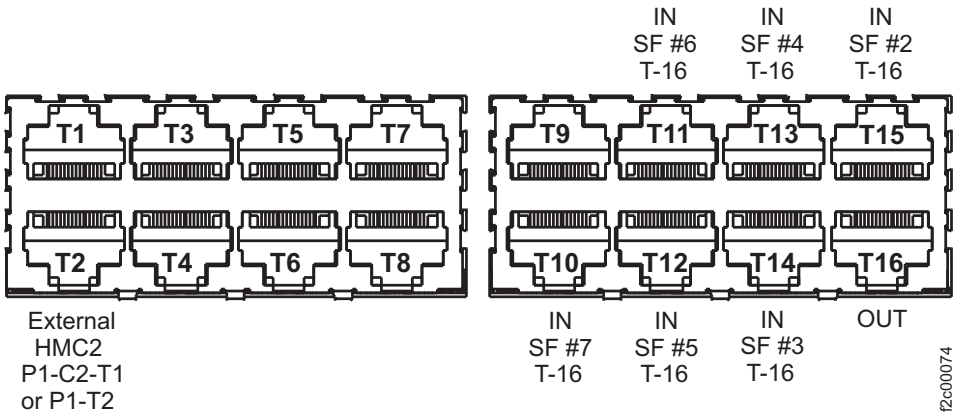


Figure 462. External Ethernet switch port designations - SW1 and SW2

Note: The T-16 OUT port is not used on the SF that houses the primary management console. On SFs that do not house the primary management console, the IN ports are not used. SFs are connected to the SF that contains the primary management console by routing cables routed between T16 OUT port and the appropriate IN port (T10-T15).

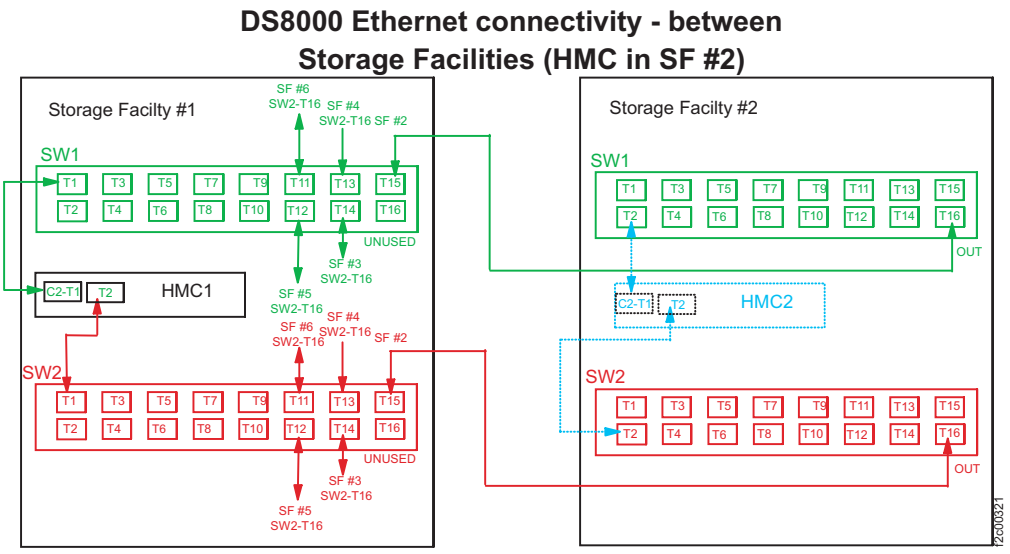


Figure 463. Ethernet connectivity between storage facilities

MAP7000 Section-4

1. You are here because you inspected the Ethernet switches and found that one or more link LEDs were not lit (link LEDs correspond to an externally routed Ethernet cable). Use Table 254 to find the condition of the LED(s) and take the appropriate action.

Table 254. Results of a visual check of the LEDs

Condition of the LED(s)	Action
LEDs for both links to an external management console are not lit.	Go to "MAP7010 Private network isolation procedure 10" on page 868.
LED for a single link to an external management console is not lit.	Go to SW1: "MAP7011 Private network isolation procedure 11" on page 869. Go to SW2: "MAP7012 Private network isolation procedure 12" on page 873.
LEDs for both links to another storage facility are not lit.	"MAP7020 Private network isolation procedure 20" on page 877
LEDs for a single link to another storage facility is not lit.	Go to SW1: "MAP7030 Private network isolation procedure 30" on page 880. Go to SW2: "MAP7040 Private network isolation procedure 40" on page 887.

2. Go to "MAP1500 Ending a service action" on page 546 to close the serviceable event and, save the network topology, and ensure good subsystem status.

MAP7000 Section-5

Most DS8000 private network problems are reported with SRCs of BEB1xxxx. There are a few exceptions where the problems are reported with SRCs of B3xxxxxx which are from the eServer products. When this occurs, use Table 255 on page 859 to determine the equivalent DS8000 BEB1xxxx SRC and/or the appropriate action.

Table 255. Actions for B3xxxxxx SRCs

SRC in serviceable event and definition	Equivalent DS8000 SRC and definition	Action
B3010002 - HMC or partition connection monitoring fault	None	Go to "MAP7000 Section-3" on page 856.
B3030001 - The communication link between the service processor and the management console (HMC) has failed	• BEB10021 (black) - Network Surveillance LINK_FSP_HMC: Single HMC lost link to single FSP over 172.16-BLACK network • BEB10022 (gray) Network Surveillance LINK_FSP_HMC: Single HMC lost link to single FSP over 172.17-GRAY network • BEB10023 - Not sure which network lost link.	The B3030001 SRC does not specify which private network (black or gray) has failed. • Go to "MAP7000 Section-3" on page 856. • If "MAP7000 Section-3" on page 856 does not list a visual symptom, you are instructed to use the Network Topology Tool to determine which network fails. • If the black network fails, substitute SRC BEB10021 in place of B3030001 • If the gray network fails, substitute SRC BEB10021 in place of B3030001
B3030002 - A single partition HMC link has failed.	• BEB10041 (black) Network Surveillance LINK_PART_HMC_REDUND: Single HMC lost link to single partition on a system, the path through the 172.16-BLACK network is not available, the other network is ok • BEB10042 (gray) - Network Surveillance LINK_PART_HMC_REDUND: Single HMC lost link to single partition on a system, the path through the 172.17-GRAY network is not available, the other network is ok • BEB10043 - Not sure which network lost link.	The B3030002 SRC does not specify which private network (black or gray) has failed. • Go to "MAP7000 Section-3" on page 856. • If "MAP7000 Section-3" on page 856 does not list a visual symptom, you are instructed to use the Network Topology Tool to determine which network fails. • If the black network fails, substitute SRC BEB10041 in place of B3030002. • If the gray network fails, substitute SRC BEB10042 in place of B3030002.
B3030003 - Multiple partition HMC links have failed.	BEB10050 - Network Surveillance LINK_M_PART_HMC: Single HMC lost links to multiple partitions on single system; both paths are not available; FSP to HMC link is still working	Go to "MAP7000 Section-3" on page 856 and substitute SRC BEB10050 in place of B3030003.
B3030004 - All partition links for a single system to HMC have failed.	BEB10060 - Network Surveillance LINK_A_PART_HMC: Single HMC lost links to all partitions on single system; both paths are not available; FSP to HMC link is still working	Go to "MAP7000 Section-3" on page 856 and substitute SRC BEB10060 in place of B3030004.

Table 255. Actions for B3xxxxxx SRCs (continued)

SRC in serviceable event and definition	Equivalent DS8000 SRC and definition	Action
B3030005 - All system links from one system to a single HMC have failed.	BEB10070 - Network Surveillance LINK_ALL_HMC: Single HMC lost links to single system (partition and FSP); both paths are not available	Go to "MAP7000 Section-3" on page 856 and substitute SRC BEB10070 in place of B3030005.
B3030006 - The links between a single HMC and a single managed system have failed.	BEB10080 - Network Surveillance LINK_HMC_SYS: Single HMC lost links to all systems (FSP and partition); both paths are not available	Go to "MAP7000 Section-3" on page 856 and substitute SRC BEB10080 in place of B3030006.
B3030007 - A single HMC link to more than one managed system occurred.	BEB10090 - Network Surveillance LINK_HMC_M_SYS: Single HMC lost links to multiple systems (FSP and partition); both paths are not available	Go to "MAP7000 Section-3" on page 856 and substitute SRC BEB10090 in place of B3030007.
B3030008 - One HMC link to more than one HMC occurred.	BEB10100 - Network Surveillance LINK_HMC_HMC: Lost HMC to HMC links; both paths are not available	Go to "MAP7000 Section-3" on page 856 and substitute SRC BEB10100 in place of B3030008.
B3030009 - One HMC link to more than one HMC occurred.	BEB10120 - Network Surveillance LINK_HMC_M_HMC: Lost single HMC to HMC link; only one path is not available	Go to "MAP7000 Section-3" on page 856 and substitute SRC BEB10120 in place of SRC B3030009.
B303000A - The HMC host links to all managed systems.	BEB10130 - Network Surveillance LINK_HMC_ALL: Lost HMC link to multiple HMCs; both paths are not available. This does not apply to the DS8000 management console (HMC)	Go to "MAP7000 Section-3" on page 856 and substitute SRC BEB10130 in place of B303000A.
B303000B - Multiple HMCs lost links to a single managed system.	None	N/A
B303000C - Multiple HMCs lost links to multiple managed systems.	BEB10150 - Network Surveillance M_LINK_HMC_M_SYS: Multiple HMCs lost all links to multiple systems (FSP and partition)	Go to "MAP7000 Section-3" on page 856 substituting SRC BEB10150 in place of B303000C.
B303000D - Multiple HMCs lost links to multiple managed systems.	BEB10160 - Network Surveillance M_LINK_HMC_ALL: Multiple HMCs lost all links to all systems (FSP and partition)	Go to "MAP7000 Section-3" on page 856 substituting SRC BEB10060 in place of B303000D.

Table 255. Actions for B3xxxxxx SRCs (continued)

SRC in serviceable event and definition	Equivalent DS8000 SRC and definition	Action
B303000E - The network interface card (NIC) has failed.	• BEB10011 (black) Network Surveillance NIC_FAILURE: Single HMC physical link unavailable on ethernet port - eth0 (172.16-BLACK network) • BEB10012 (gray) Network Surveillance NIC_FAILURE: Single HMC physical link unavailable on ethernet port - eth3 (172.17-GRAY network) • BEB10013 - Not sure which network has physical link unavailable.	The B303000E SRC does not specify which private network (black or gray) has failed. • Go to "MAP7000 Section-3" on page 856. • If "MAP7000 Section-3" on page 856 does not list a visual symptom, you are instructed to use the Network Topology Tool to determine which network fails. • If the black network fails, substitute SRC BEB10011 in place of B303000E • If the gray network fails, substitute SRC BEB10012 in place of B303000E
B303000F - A single partition HMC link failure has occurred on a redundant path.	• BEB10041 (black) Network Surveillance LINK_PART_HMC_REDUND: Single HMC lost link to single partition on a system, the path through the 172.16-BLACK network is not available, the other network is ok • BEB10042 (gray) Network Surveillance LINK_PART_HMC_REDUND: Single HMC lost link to single partition on a system, the path through the 172.17-GRAY network is not available, the other network is ok • BEB10043 Not sure which network has lost link.	The B303000F SRC does not specify which private network (black or gray) failed. • Go to "MAP7000 Section-3" on page 856. • If "MAP7000 Section-3" on page 856 does not list a visual symptom, you are instructed to use the Network Topology Tool to determine which network fails. • If the black network fails, substitute SRC BEB10041 in place of B303000F • If the gray network fails, substitute SRC BEB10042 in place of B303000F
B3030010 - A single HMC link to one HMC failure has occurred on a redundant path.	BEB10110 - Network Surveillance LINK_HMC_HMC_REDUND	Go to "MAP7000 Section-3" on page 856 and substitute the BEB10110 SRC in place of the B3030010 SRC.
B3030011 - The server firmware connection monitoring to the flexible service processor has failed.	None	Go to "MAP7000 Section-3" on page 856.
B3030012 - The flexible service processor connection monitoring of server firmware has failed.	None	Go to "MAP7000 Section-3" on page 856.

Table 255. Actions for B3xxxxxx SRCs (continued)

SRC in serviceable event and definition	Equivalent DS8000 SRC and definition	Action
B3030013 - The communication path (mailbox) between the server firmware and the flexible service processor has failed.	None	Go to "MAP7000 Section-3" on page 856.

MAP7001 Using the network topology tool

The network topology tool displays information about the networks that are associated with the storage facility. This MAP provides guidance on using the tool when directed from the maintenance package or next level of support.

MAP7001 Section-1 (Start here)

In Table 256, find your purpose for using this MAP.

Table 256. Entry for MAP7001

Purpose	Go to
Invoke the network topology tool	"MAP7001 Section-2 (Invoking the network topology tool)"
See examples of screens that are displayed by the network topology tool	"MAP7001 Section-3 (Examples of screens)"
Analyze the results of the network topology test and repair the network	"MAP7001 Section-4 (Analyzing the results and repairing the network)" on page 865

MAP7001 Section-2 (Invoking the network topology tool)

1. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
2. Click **Service Applications** → **Service Focal Point**.
3. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
4. Select the storage facility.
5. On the main menu, click **Selected** → **Get Storage Plex**. A window that displays the storageplex appears.
6. Select the storageplex.
7. On the main menu, click **Selected** → **View Network Topology**.
8. Wait several minutes for the tool to gather and present the results. For examples of the screens that are displayed by the network topology tool, see "MAP7001 Section-3 (Examples of screens)," and then return here and go to the next step.
9. To analyze the results of the information that is displayed by the network topology tool and to repair the network, go to "MAP7001 Section-4 (Analyzing the results and repairing the network)" on page 865.

MAP7001 Section-3 (Examples of screens)

Screens that contain information about the network topology are displayed when you invoke the network topology tool.

Figure 464 shows the **Network Topology** window. The current network topology is listed at the top of the window; the saved network topology listed at the bottom. Figure 465 shows the the upper left area of the window. This area looks different depending on the configuration of the storage facility.

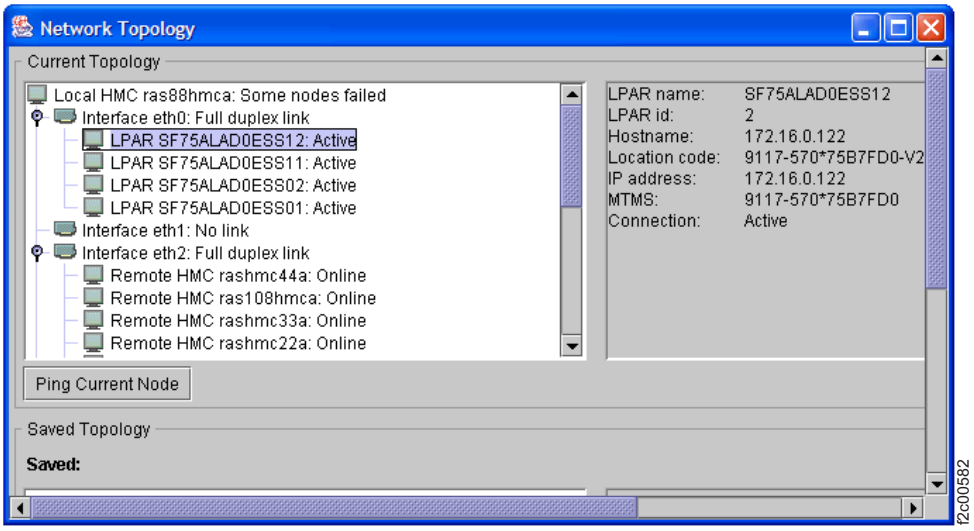


Figure 464. The Network Topology window (the Current Topology area is shown)

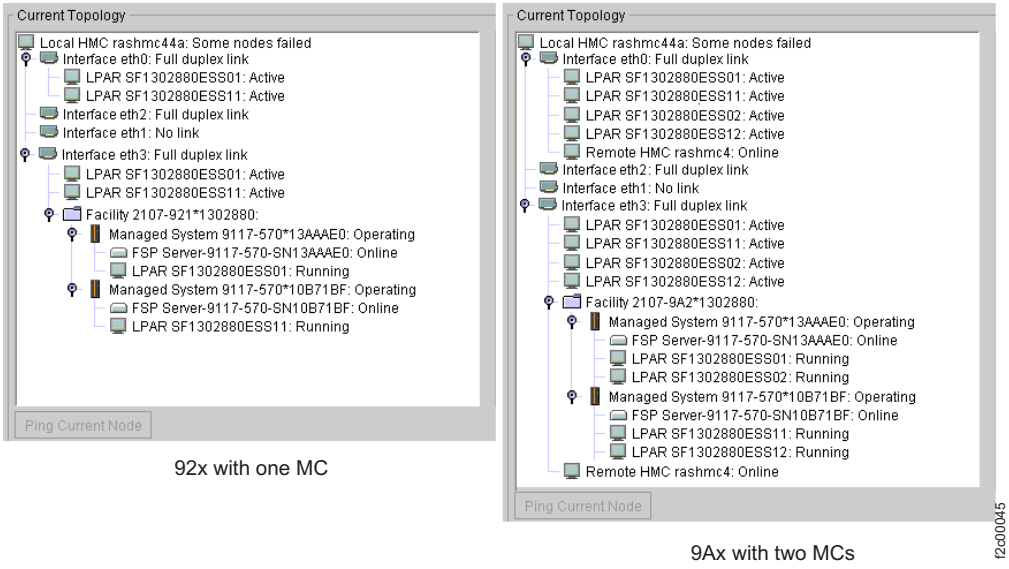


Figure 465. Two examples of the current topology screen

Notes:

- Examples of nodes include:
  - Local HMC ports
  - HMC ports on a second HMC (if installed)
  - Service processor card ports
  - LPAR (partition) ports on the CEC enclosure I/O backplane assembly or PCI Ethernet card
- The tool provides a hierarchical view of the network from the management console which you logged onto.

- For a diagram of the network topology (with two MCs), see Figure 466 on page 865.
- The Current Topology view (upper half of the window) shows the status of **detected** nodes on each of the two DS8000 private networks at the time the tool was invoked or when **Refresh** was selected.
- The Saved Topology view (lower half of the window) shows the status of nodes when the Save function was last performed. A Save should have been performed during installation of the management console or after a repair to a FRU which is connected to the network. Normally, the saved topology will represent the network status when all nodes on both private networks were fully present and operational.
- To verify connectivity to a failing node, ping the selected node by clicking the **Ping Current Node** button (Current Topology view) or the **Ping Saved Node** button (Saved Topology view).
- The service processor cards (represented by ″FSP Server″ in the Network Topology window) are accessed through one of the two networks, so they will not appear on both. This is normal.
  - The service processor cards are accessed by MC 1 through the GRAY network (172.17.x.x).
  - The service processor cards are accessed by MC 2 through the BLACK network (172.16.x.x).
- The CEC enclosure (or Storage Facility system) status information is displayed along with the associated service processor card, so will **not** appear on both networks. This is normal.
- The LPAR status will be displayed under the CEC enclosure. However, you must ping the LPARs by selecting the icon that is listed separately from the CEC enclosure.
- When you have resolved all network problems, perform a **Save** for future comparison.

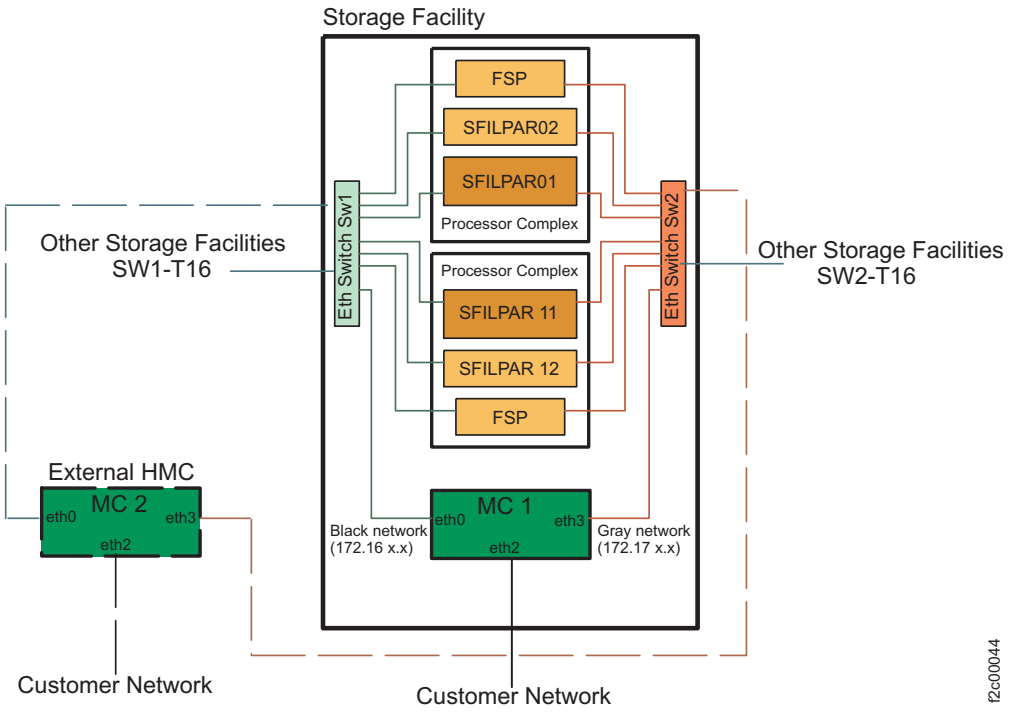


Figure 466. Diagram of the network topology

MAP7001 Section-4 (Analyzing the results and repairing the network)

1. Compare the current topology with the saved topology to verify connectivity with all nodes on the DS8000 private network. Are all expected nodes present and operational?
   - Yes, exit this MAP and return to the procedure that sent you here.
   - No, make a note of the failing nodes, then go to the next step.
2. Are there two management consoles?
   - Yes, repeat step 1 on the other management console, and then go to the next step.
   - No, go to the next step.
3. If you are using this step for verification and have identified that all problems are now resolved, click the **Save** button to save the current topology information for future use.
4. Table 257 contains a list of possible results that you might have seen when you used the network topology tool. Find the condition that describes the current status of the network and take the appropriate action.

Table 257. Results of the topology test

Result of the topology test	Action
One management console has lost connectivity with all nodes through both networks (Black/eth0 and Gray/eth3).	"MAP7010 Private network isolation procedure 10" on page 868.
One management console has lost connectivity with all nodes through Ethernet port - eth0 (Black network).	"MAP7011 Private network isolation procedure 11" on page 869.

Table 257. Results of the topology test (continued)

Result of the topology test	Action
One management console has lost connectivity with all nodes through eth3 (Gray network).	"MAP7012 Private network isolation procedure 12" on page 873.
One or both management consoles has lost connectivity to all nodes on a single Storage Facility through both networks (Black/eth0 and Gray/eth3).	"MAP7020 Private network isolation procedure 20" on page 877.
One or both management consoles has lost connectivity to all nodes on a single system (service processor card and LPARs on one of the two processor complexes in a Storage Facility) through both networks (Black/eth0 and Gray/eth3).	"MAP7021 Private network isolation procedure 21" on page 878.
One or both management consoles has lost connectivity to the service processor card on a single system (one of the two processor complexes in a Storage Facility) through both networks (Black/eth0 and Gray/eth3).	"MAP7022 Private network isolation procedure 22" on page 878.
One or both management consoles has lost connectivity to an LPAR on a single system (one of the two processor complexes in a Storage Facility) through both networks (Black/eth0 and Gray/eth3).	"MAP7023 Private network isolation procedure 23" on page 879.
One or both management consoles has lost connectivity to all nodes on a single Storage Facility through eth0 (Black network).	"MAP7030 Private network isolation procedure 30" on page 880.
One or both management consoles has lost connectivity to all nodes (service processor card and LPARs) on a single system (one of the two processor complexes in a Storage Facility) through eth0 (Black network).	"MAP7031 Private network isolation procedure 31" on page 882.
One or both management consoles has lost connectivity to the service processor card on a single system (one of the two processor complexes in a Storage Facility) through eth0 (Black network).	"MAP7032 Private network isolation procedure 32" on page 883.
One or both management consoles has lost connectivity to an LPAR on a single system (one of the two processor complexes in a Storage Facility) through eth0 (Black network).	"MAP7033 Private network isolation procedure 33" on page 885.
One or both management consoles has lost connectivity to all nodes on a single Storage Facility through eth3 (Gray network).	"MAP7040 Private network isolation procedure 40" on page 887.
One or both management consoles has lost connectivity to all nodes (service processor card and LPARs) on a single system (one of the two processor complexes in a Storage Facility) through eth3 (Gray network).	"MAP7041 Private Network Isolation Procedure 41" on page 889.

Table 257. Results of the topology test (continued)

Result of the topology test	Action
One or both management consoles has lost connectivity to the service processor card on a single system (one of the two processor complexes in a Storage Facility) through eth3 (Gray network).	"MAP7042 Private network isolation procedure 42" on page 890.
One or both management consoles has lost connectivity to an LPAR on a single system (one of the two processor complexes in a Storage Facility) through eth3 (Gray network).	"MAP7043 Private network isolation procedure 43" on page 892.
No problems found.	Return to the MAP that sent you here.

MAP7005 Determining which private network address range is selected

Use this MAP to determine which of the four private network address ranges the customer selected to be used on this storage plex. A default address range and three optional address ranges are available to avoid address range conflicts with the customer network.

MAP7005 Section-1

1. Invoke the Network Topology Tool to display the TCP/IP address of Interface eth0.
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).
   b. Click **Service Applications → Service Focal Point**.
   c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
   d. Select the storage facility, click **Selected** (on top tool bar), and then select **Get Storage Plex**. A window appears displaying the storageplex.
   e. Select the storageplex, click **Selected** (on top tool bar), and then select **View Network Topology**.
   f. Wait several minutes for the tool to gather and present the results.

      A window appears with the current network topology (port connections) listed at the top and the saved network topology listed at the bottom. See Figure 467 on page 868.
   g. In the area labeled **Current Topology**, click an Interface eht0 LPAR. The details of that node are displayed in the right pane. Note the IP address.

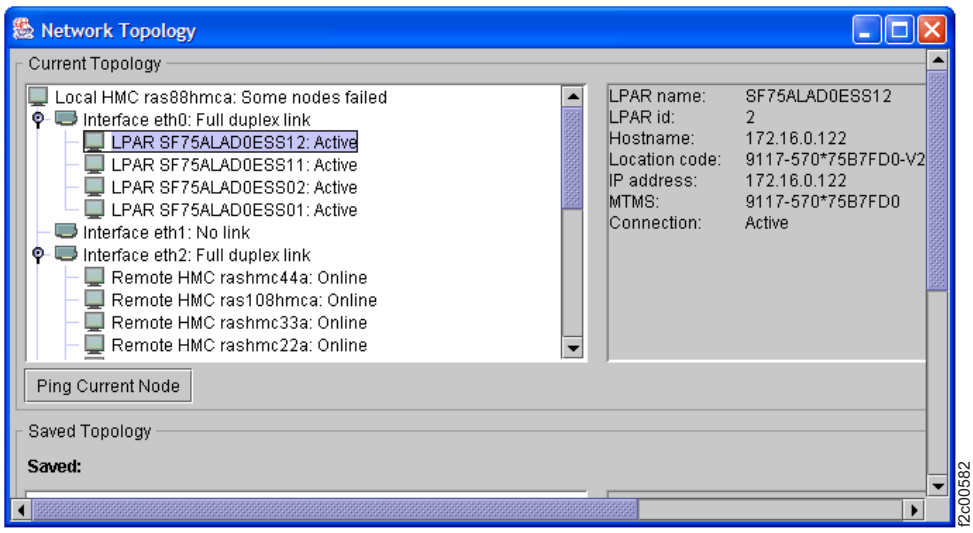


Figure 467. The Network Topology window (the Current Topology area is shown)

2. Use Table 258 to determine which address range the LPAR IP address that you recorded in step 1 is part of.

Table 258. Address ranges of the DS8000 private network

Setting	Address range	
	DS8000 Black network (eth0)	**DS8000 Gray network (eth3)**
Default	172.16.0.0 to 172.16.255.255	172.17.0.0 to 172.17.255.255
Option 1	10.235.158.0 to 10.235.159.255 (10.235.158.0/23)	10.236.158.0 to 10.236.159.255 (10.236.158.0/23)
Option 2	192.168.162.0 to 192.168.163.255 (192.168.162.0/23)	192.168.164.0 to 192.168.165.255 (192.168.164.0/23)
Option 3	9.15.132.0 to 9.15.133.255 (9.15.132.0/23)	9.16.132.0 to 9.16.133.255 (9.16.132.0/23)

3. Return to the procedure that sent you here.

MAP7010 Private network isolation procedure 10

The Network Topology Test tool has been used to determine that one management console has lost connectivity with *all* nodes through both networks (eth0 and eth3).

MAP7010 Section-1

This failure cannot be caused by a single network hardware problem.

1. Is the failing management console an external management console?
   - Yes, continue with the next step.
   - No, continue with step 5.
2. Did this failure occur following the installation of the external management console?
   - Yes, continue with the next step.
   - No, continue with step 5.
3. Check that the management console was configured correctly. Only two management consoles within a storage complex are supported. One management console must be defined as the primary and one as a secondary. To verify this:
   a. In the HMC Navigation area, under the **Management Environment**, expand the HMC (identified by hostname).

b. Click **Service Applications → Service Focal Point**.
c. In the right content area, click **Service Utilities**. A list of storage facilities is displayed.
d. Select the storage facility, click on **Selected** , and then **Get HMCs**.
e. Select the **HMC**, click on **Selected**, and then **Manage HMC Role**.

If no problem was found, then continue with the next step.

4. Ensure that the cables between the external management console and the storage facility are connected at both ends. See "Cabling and connecting the management console to the storage complex" on page 110.
5. Reboot the management console.
   a. Ensure that the customer is not currently accessing the management console to perform configuration or copy services functions.
   b. Close or cancel any tasks or windows that are currently open.
   c. From the task bar, click on **Console**.
   d. Select **Exit** and then click **Exit Now**.
   e. From the selection box, select **Reboot Console**.
   f. Click **OK**.
   g. Wait for the management console to reboot and the management console logon panel to appear.
6. Use the Network topology tool as described in "MAP7001 Using the network topology tool" on page 862 to check if the problem is resolved. Is the network problem resolved?
   - Yes, go to "MAP1500 Ending a service action" on page 546 to close the serviceable event, save the network topology, and ensure good subsystem status.
   - No, continue with the next step.
7. Ensure that the microcode levels of the management consoles are compatible. Refer to the DS8000 - Engineering Web site. If a problem is not identified, then contact your next level of support.

MAP7011 Private network isolation procedure 11

The Network Topology tool has been used to determine that there is no connectivity in the DS8000 private network (Black - eth0) between the management console and all other parts of the system.

MAP7011 Section-1

1. Locate the Ethernet switch SW1 in the storage facility which contains the failingmanagement console. Is the Ethernet switch powered on?

   Note: If this is an external management console, then go to the storage facility to which the management console is cabled.

   - Yes, continue with the next step.
   - No, go to "MAP2350 Ethernet switch power problem" on page 624.
2. Observe the Ethernet switch port LEDs for the failing management console link (SW1-T1 for HMC1 or SW1-T2 for HMC2). See Table 259 for a description and interpretation of the Ethernet Switch port LEDs.

Table 259. Ethernet switch port LED descriptions

LED	State	Meaning
Upper	On	1000Mb/s connection

Table 259. Ethernet switch port LED descriptions (continued)

LED	State	Meaning
Upper	Off	100Mb/s connection (Normal for FSP connection only)
Lower	Off	No link
Lower	On	Link, No Activity
Lower	Flashing	Link, Activity

There are two LEDs for each port. Is the lower Link LED lit solidly or flashing?

- Yes, continue with step 4.
- No, continue with the next step.

3. Temporarily move the Ethernet cable to an unused port on the same switch. Observe the Ethernet switch port LEDs corresponding to the new location. Is the lower Link LED lit solidly or flashing?
   - Yes, it appears that the Ethernet switch is failing. Go to "MAP7011 Section-5" on page 873.
   - No, continue with the next step.
4. Observe the eth0 link status LED on the rear of the failing management console. See Figure 1 (X335 server) or Figure 469 on page 871 (X336 server). Is the eth0 Link Status LED lit?
   - Yes, continue with "MAP7011 Section-2" on page 872.
   - No, continue with the next step.

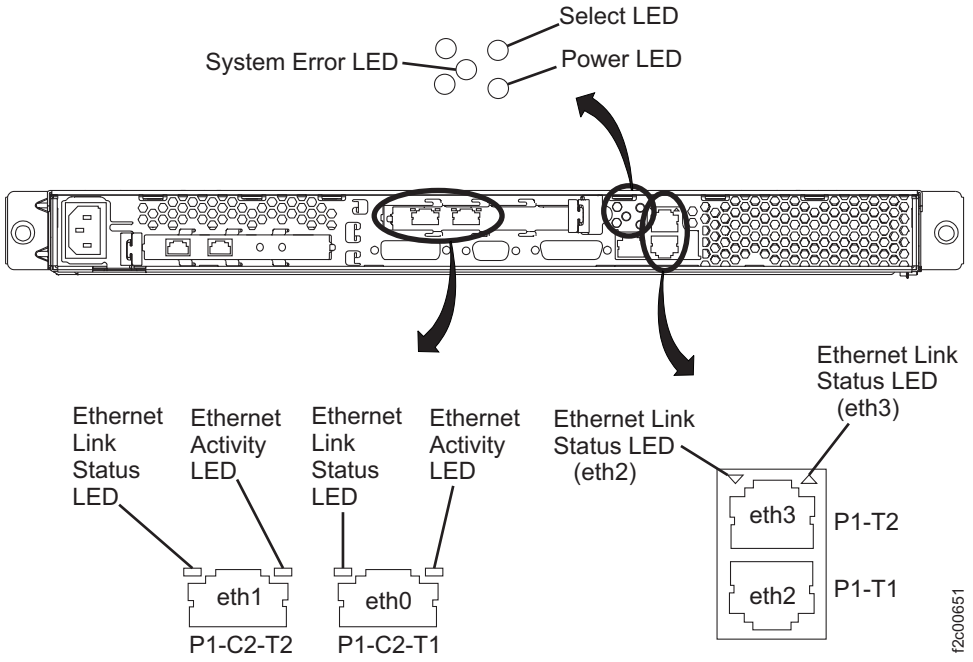


Figure 468. LEDs on the rear of the X335 management console server

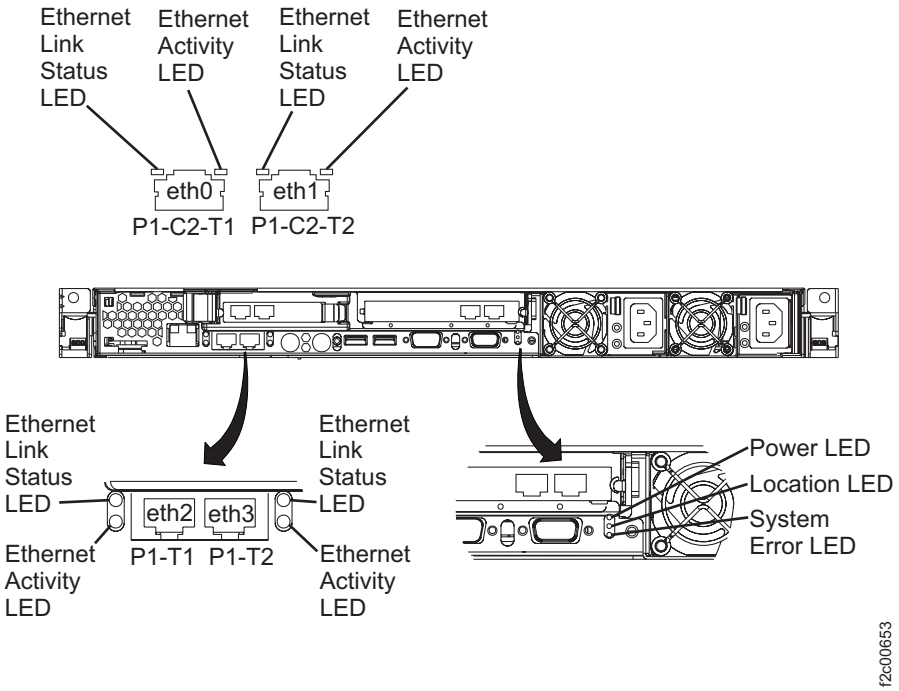


Figure 469. LEDs on the rear of the X336 management console server

5. Move the Ethernet cable from eth0 (P1-C2-T1) to eth1 (P1-C2-T2). See Figure 470 (X335 server) or Figure 471 on page 872 (X336 server). Is the eth1 Link Status LED on P1-C2-T2 lit?
   - Yes, it appears that the management console Ethernet port is failing. Restore the Ethernet cables to there original positions and continue with "MAP7011 Section-3" on page 872.
   - No, it appears that the Ethernet cable between the management console and Ethernet switch SW1 is failing. Go to "MAP7011 Section-6" on page 873 to replace the cable.

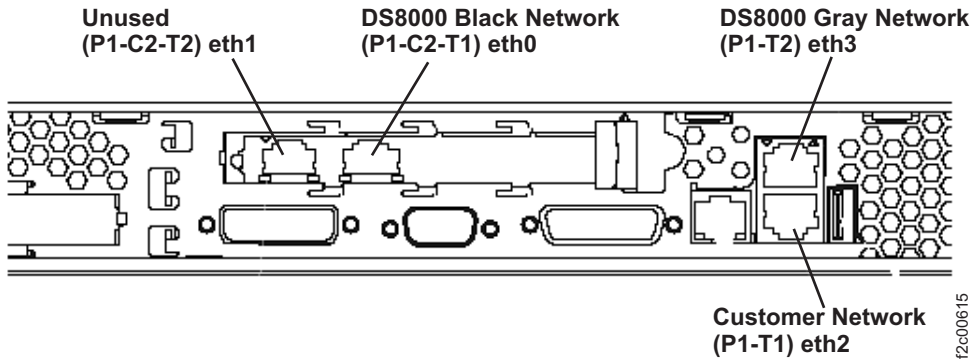


Figure 470. Ethernet connectors on the rear of the X335 management console server

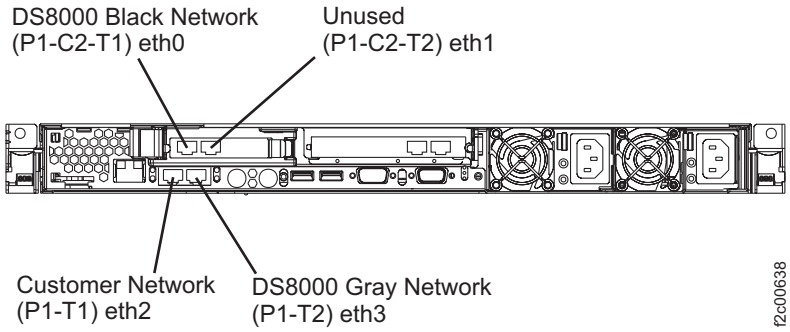


Figure 471. Ethernet connectors on the rear of the X336 management console server

MAP7011 Section-2

In this section we will attempt to resolve the problem by performing a network reset on the failing management console network port.

Use the Network topology test tool as described in "MAP7001 Using the network topology tool" on page 862 to check if the problem is resolved. Is the network problem resolved?

- Yes, return to the serviceable event and close it by reviewing the steps in "MAP1500 Ending a service action" on page 546.
- No, replace the FRUs in the order listed below until the problem is resolved.

1. Management console Ethernet card, "MAP7011 Section-4"
2. Ethernet Switch, "MAP7011 Section-5" on page 873
3. Cable management console to switch, "MAP7011 Section-6" on page 873

MAP7011 Section-3

In this section we will attempt to resolve the problem by performing a network reset on the failing management console network port.

Use the Network topology test tool as described in "MAP7001 Using the network topology tool" on page 862 to check if the problem is resolved. Is the network problem resolved?

- Yes, return to the serviceable event and close it by reviewing the steps in "MAP1500 Ending a service action" on page 546.
- No, go to "MAP7011 Section-4" to replace the management console Ethernet card.

MAP7011 Section-4

Note: In this section the management console will be powered off to replace the Ethernet card. Ensure that the customer is not currently accessing to perform logical configuration of copy service functions.

1. Open the approrpriate manual that is on the *IBM System Storage DS8000 series Service Documents CDROM*:
   - *xSeries 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide*
   - *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*

2. Using the appropriate manual, replace the Ethernet card on the back of the management console in location P1-C2.
   a. Power off the server (Chapter 1. General information)
   b. Replace the Ethernet card (Chapter 4. Customer replaceable units)
   c. Power on the server (Chapter 1. General information)
3. Verify the fix using the Network topology test tool as described in "MAP7001 Using the network topology tool" on page 862. Is the network problem resolved?
   - Yes, return to the serviceable event and close it by reviewing the steps in "MAP1500 Ending a service action" on page 546.
   - No, if you have other FRUs to replace, then continue with the replacement. Otherwise call your next level of support.

MAP7011 Section-5

In this section the SW1 Ethernet switch will be replaced.

1. Go to Chapter 34, "Exchanging parts," on page 991 to replace the SW1 Ethernet switch. Return here when the Ethernet switch has been replaced.
2. Verify the fix using the Network topology test tool as described in "MAP7001 Using the network topology tool" on page 862. Is the network problem resolved?
   - Yes, return to the serviceable event and close it by reviewing the steps in "MAP1500 Ending a service action" on page 546
   - No, if you have other FRUs to replace, then continue with the replacement. Otherwise call your next level of support.

MAP7011 Section-6

In this section the Ethernet cable from the management console to the switch will be replaced.

1. Go to Chapter 34, "Exchanging parts," on page 991 to replace the cable between the management console and the SW1 Ethernet switch. Return here when the cable has been replaced.
2. Verify the fix using the Network topology test tool as described in "MAP7001 Using the network topology tool" on page 862. Is the network problem resolved?
   - Yes, return to the serviceable event and close it by reviewing the steps in "MAP1500 Ending a service action" on page 546.
   - No, if you have other FRUs to replace, then continue with the replacement. Otherwise call your next level of support.

MAP7012 Private network isolation procedure 12

The Network Topology tool has been used to determine that there is no connectivity in the DS8000 private network (Gray - eth3) between the management console server and all other parts of the system.

MAP7012 Section-1

1. Locate the Ethernet switch SW1 in the storage facility which contains the failing management console.

   Note: If this is an external management console, then go to the storage facility to which the management console is cabled.

   Is the Ethernet switch powered on?
   - Yes, continue with the next step.

- No, go to "MAP2350 Ethernet switch power problem" on page 624.

2. Observe the Ethernet switch port LEDs for the failing management console link (SW2-T1 for HMC1 or SW2-T2 for HMC2). Reference Table 260 below for a description and interpretation of the Ethernet Switch port LEDs.

Table 260. Ethernet switch port LED descriptions

LED	State	Meaning
Upper	On	1000Mb/s connection
Upper	Off	100Mb/s connection (Normal for FSP connection only)
Lower	Off	No link
Lower	On	Link, No Activity
Lower	Flashing	Link, Activity

There are two LEDs for each port. Is the lower Link LED lit solidly or flashing?

- Yes, continue with step 4.
- No, continue with the next step.

3. Temporarily move the Ethernet cable to an unused port on the same switch. Observe the Ethernet switch port LEDs corresponding to the new location.

   Is the lower Link LED lit solidly or flashing?

   - Yes, it appears that the Ethernet switch is failing. Go to MAP7012 Section-5.
   - No, continue with the next step.

4. Observe the eth3 link status LED on the rear of the failing management console. See Figure 1 (X335 server) or Figure 473 on page 875 (X336 server).

   Is the eth3 Link Status LED lit?

   - Yes, continue with MAP 7012 Section-2.
   - No, continue with the next step.

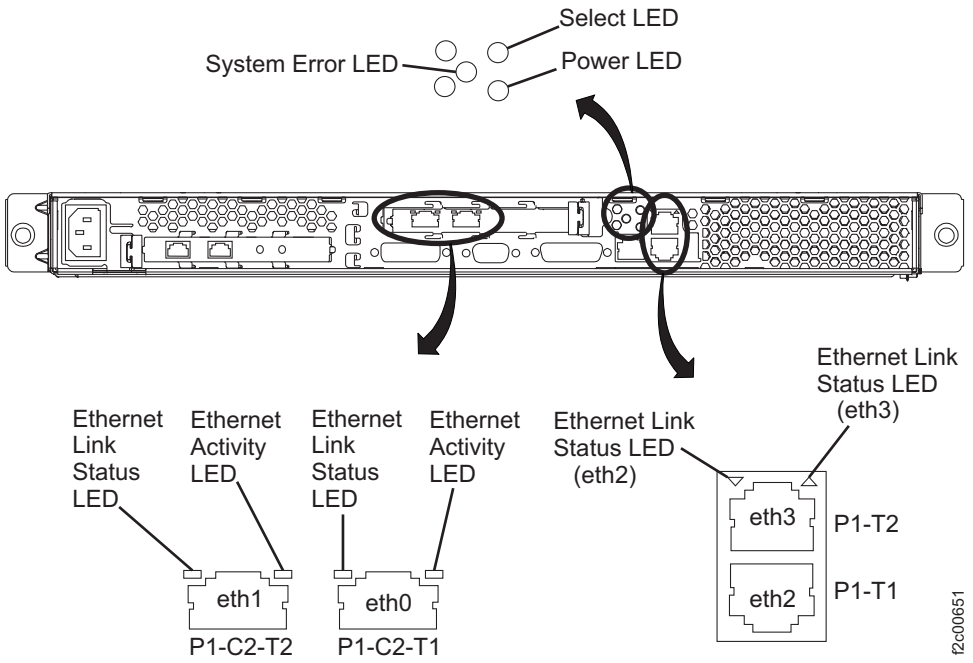


Figure 472. LEDs on the rear of the X335 management console server

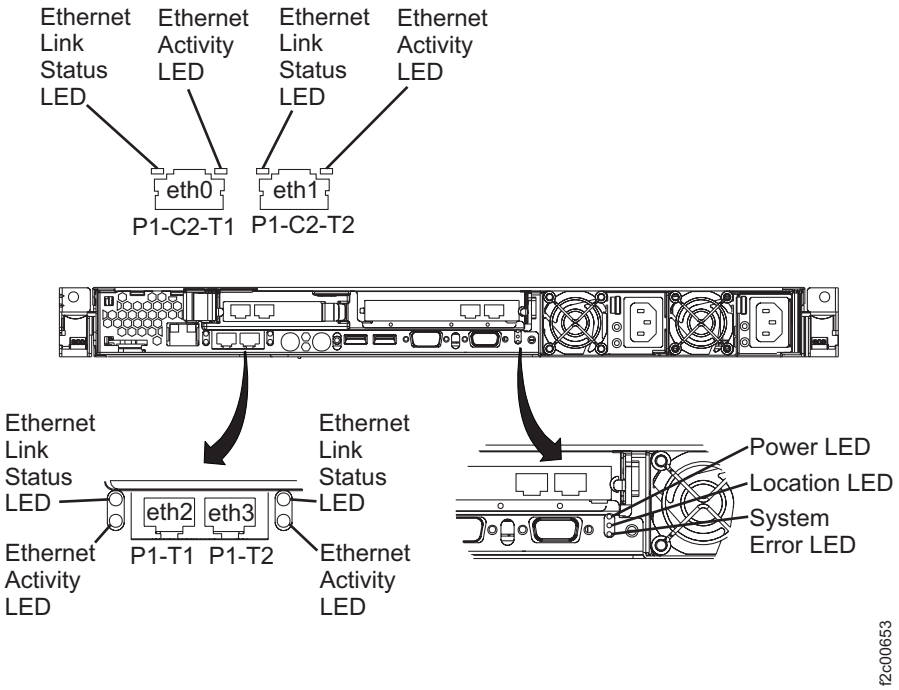


Figure 473. LEDs on the rear of the X336 management console server

5. Move the Ethernet cable from eth3 (P1-T2) to eth1 (P1-C2-T2). See Figure 474 (X335 server) or Figure 475 on page 876 (X336 server).

   Is the eth1 Link Status LED on P1-C2-T2 lit?

   - Yes, it appears that the management console Ethernet port is failing. Restore the Ethernet cables to their original positions and continue with MAP7012 Section-3.
   - No, it appears that the Ethernet cable between the management console and Ethernet switch SW1 is failing. Go to MAP 7012 Section-6 to replace the cable.

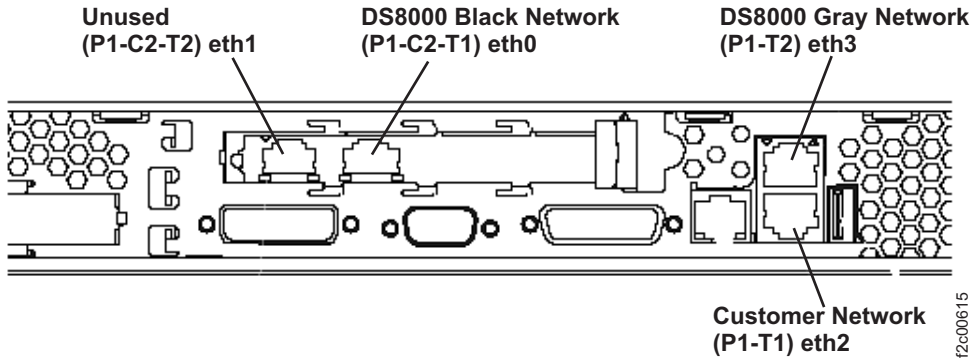


Figure 474. Ethernet connectors on the rear of the X335 management console server

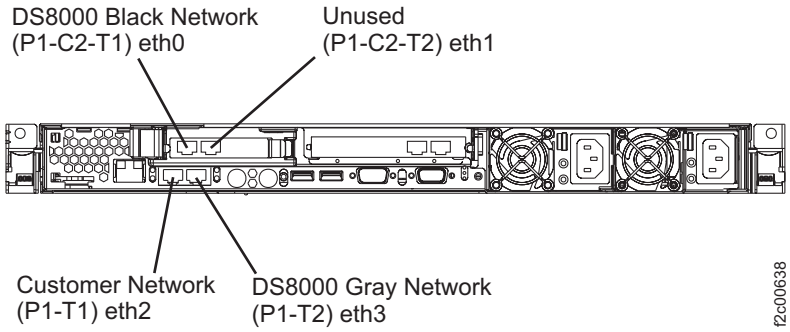


Figure 475. Ethernet connectors on the rear of the X336 management console server

MAP7012 Section-2

In this section you will attempt to resolve the problem by performing a network reset on the failing management console network port.

Use the Network topology test tool as described in "MAP7001 Using the network topology tool" on page 862 to check if the problem is resolved.

Is the network problem resolved?

- Yes, return to the serviceable event and close it by reviewing the steps in "MAP1500 Ending a service action" on page 546.
- No, replace the FRUs in the order listed in the following table until the problem is resolved.

Table 261. FRU replace actions

FRU	Go to:
Management console Ethernet card	MAP7012 Section-4
Ethernet switch	MAP7012 Section-5
Cable, management console to Ethernet switch	MAP7012 Section-6

MAP7012 Section-3

In this section you will attempt to resolve the problem by performing a network reset on the failing management console network port.

Use the Network topology test tool as described in "MAP7001 Using the network topology tool" on page 862 to check if the problem is resolved.

Is the network problem resolved?

- Yes, return to the serviceable event and close it by reviewing the steps in "MAP1500 Ending a service action" on page 546.
- No, go to MAP7012 Section-4 to replace the Ethernet card in the management console server.

MAP7012 Section-4

In this section you will replace the system board (HMC planar) in the management console server.

1. Ensure that the customer is not currently accessing the management console, such as to perform the logical configuration function or to perform the copy services function.
2. Replace the system board (HMC planar) in the management console server. Refer to "Chapter 5. Service replaceable units" in the appropriate maintenance manual for the management console server. The manual is on the *IBM System Storage DS8000 series Service Documents CDROM*:
   - *xSeries 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide*, or
   - *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*
3. Verify the fix using the Network topology test tool as described in "MAP7001 Using the network topology tool" on page 862.

   Is the network problem resolved?
   - Yes, return to the serviceable event and close it by reviewing the steps in "MAP1500 Ending a service action" on page 546.
   - No, if you have other FRUs to replace, do so now. Otherwise, call your next level of support.

MAP7012 Section-5:

In this section you will replace Ethernet switch SW1.

1. Go to Chapter 34, "Exchanging parts," on page 991 to replace Ethernet switch SW1 and then return here.
2. Verify the fix using the Network topology test tool as described in "MAP7001 Using the network topology tool" on page 862.

   Is the network problem resolved?
   - Yes, return to the serviceable event and close it by reviewing the steps in "MAP1500 Ending a service action" on page 546.
   - No, if you have other FRUs to replace, do so now. Otherwise, call your next level of support.

MAP7012 Section-6:

In this section you will replace the cable between the management console server and Ethernet switch SW1.

1. Using Chapter 34, "Exchanging parts," on page 991, replace the cable between the management console server and Ethernet switch SW1, and then return here.
2. Verify the fix using the Network topology test tool as described in "MAP7001 Using the network topology tool" on page 862.

   Is the network problem resolved?
   - Yes, return to the serviceable event and close it by reviewing the steps in "MAP1500 Ending a service action" on page 546.
   - No, if you have other FRUs to replace, do so now. Otherwise, call your next level of support.

MAP7020 Private network isolation procedure 20

The Network topology test tool has been used to determine that all connectivity is lost to a single storage facility.

MAP7020 Section-1

This failure cannot be caused by a single network problem. Do the following :

1. Ensure that power is available to the failing storage facility.
2. Ensure that the Ethernet cables which link the failing storage facility to the one containing the management console are installed and connected.
3. Ensure that the Ethernet cables which link to an external management console are installed and connected.
4. Go to "MAP1200 Prioritizing serviceable events and visual symptoms for repair" on page 476.

MAP7021 Private network isolation procedure 21

The network topology test tool has been used to determine that one or both management consoles have lost connectivity to **all nodes** on a **single system** (service processor card and LPARs on one of the two processor complexes in a Storage Facility) through **both** networks (eth0 and eth3).

MAP7021 Section-1

1. Use **Service Applications → Service Focal Point → Manage Serviceable Events** to view the list of open serviceable events.

   Do you have a serviceable event that is indicating a failure with the service processor card?

   - Yes, use that serviceable event to repair the service processor card problem. When the problem is repaired, go to "MAP7000 Section-1" on page 855 and use the Network topology test tool to check if the network problem is resolved.
   - No, continue with the next step.
2. Observe the CEC enclosure control panel for the processor complex which is failing. Is there an eight-digit reference code (except C*xxxxxxx*) displayed on the control panel?
   - Yes, go to Chapter 52, "System reference codes (SRCs) and firmware codes," on page 1849, and follow "Using system reference codes and firmware codes" on page 2129.
   - No, continue with the next step.
3. Are there two management consoles controlling this Storage Facility?
   - Yes, continue with the next step.
   - No, go to step 5.
4. Have both management consoles lost connectivity with this single system (processor complex)?
   - Yes, go to "MAP4100 Repairing a service processor card (FSP) problem" on page 672.
   - No, continue to the next step.
5. Is the management console failing to communicate with this system?
   - Yes, go to "MAP7042 Private network isolation procedure 42" on page 890.
   - No, go to "MAP7032 Private network isolation procedure 32" on page 883.

MAP7022 Private network isolation procedure 22

The Network Topology Test tool has been used to determine that one or both management consoles have lost connectivity to the **service processor card** on a **single system** (one of the two processor complexes in a Storage Facility) through both networks (eth0 and eth3).

MAP7022 Section-1

1. Use **Service Applications → Service Focal Point → Manage Serviceable Events** to view the list of open serviceable events.

   Do you have a serviceable event that is indicating a failure with the service processor card?

   - Yes, use that serviceable event to repair the service processor card problem. When the problem is repaired, go to "MAP7000 Section-1" on page 855 and use the Network topology test tool to check if the network problem is resolved.
   - No, continue with the next step.

2. Observe the CEC enclosure control panel for the processor complex that is failing. Is there an eight-digit reference code (except C*xxxxxxx*) displayed on the control panel?

   - Yes, go to Chapter 52, "System reference codes (SRCs) and firmware codes," on page 1849, and follow "Using system reference codes and firmware codes" on page 2129.
   - No, continue with the next step.

3. Are there two management consoles controlling this Storage Facility?

   - Yes, continue with the next step.
   - No, go to \step 5.

4. Have both management consoles lost connectivity with this single system (processor complex)?

   - Yes, go to "MAP4100 Repairing a service processor card (FSP) problem" on page 672.
   - No, continue to the next step.

5. Is the management console failing to communicate with this system?

   - Yes, go to "MAP7042 Private network isolation procedure 42" on page 890.
   - No, go to "MAP7032 Private network isolation procedure 32" on page 883.

MAP7023 Private network isolation procedure 23

The Network topology test tool has been used to determine that one or both management consoles have lost connectivity to an LPAR on a single system (one of the two processor complexes in a Storage Facility) through **both** networks (eth0 and eth3).

MAP7023 Section-1

This problem cannot be caused by the failure of a single network FRU.

1. Use **Service Applications → Service Focal Point → Manage Serviceable Events**. Do you have a different serviceable event which is indicating a failure with the processor complex?

   - Yes, use that serviceable event to repair the processor complex problem. When the problem is repaired, go to "MAP7000 Entry point for DS8000 private network problems" on page 855 and use the Network topology test tool to check if the network problem is resolved.
   - No, continue with the next step.

2. Ensure that all previous repair actions on the storage facility were completed and the processor complex was fully activated. Use **Server and Partition → Server Management** to determine the server (ESS system) and partition status and **Service Focal Point → Service Utilities → Select the Storage Facility → Actions/View Unavailable resources**

3. Did you identify that the LPAR was in a deactivated state?
   - Yes, ensure that you understand why the LPAR was deactivated. If you are unsure then contact your next level of support. Activate and resume the LPAR. Use **Service Utilities → Get Storage Facility Images → Select the SFI** and then use **Quiesce/Deactivate/Activate/Resume LPAR** to recover.
   - No, contact your next level of support, who may ask you to use **Quiesce/Deactivate/Activate/Resume LPAR**.

MAP7030 Private network isolation procedure 30

The Network Topology tool has been used to determine that there is no connectivity in the DS8000 private network (Black - eth0) between one or both of themanagement consoles and **all** of the nodes on a **single storage facility**.

MAP7030 Section-1

1. Does the failing management console have working links through eth0 (the Black network) to other storage facilities or management consoles?
   - Yes, continue with the next step.
   - No, go to "MAP7011 Private network isolation procedure 11" on page 869.
2. Locate the Ethernet switch SW1 in the storage facility with which the management console cannot communicate. Is the Ethernet switch powered on?
   - Yes, continue with the next step.
   - No, go to MAP2350 Ethernet switch power problem.
3. Observe the Ethernet switch SW1-T16 port LEDs in the storage facility with which the management console cannot communicate. Reference Table 262 below for a description and interpretation of the Ethernet switch port LEDs.

Table 262. Ethernet switch port LED descriptions

LED	State	Meaning
Upper	On	1000Mb/s connection
Upper	Off	100Mb/s connection (Normal for FSP connection only)
Lower	Off	No link
Lower	On	Link, No Activity
Lower	Flashing	Link, Activity

   There are two LEDs for each port. Is the lower Link LED lit solidly or flashing?
   - Yes, go to MAP7030 Section-2.
   - No, continue with the next step.
4. Temporarily move the Ethernet cable to an unused port on the same switch. Observe the Ethernet switch port LEDs corresponding to the new location. Is the lower Link LED lit solidly or flashing?
   - Yes, it appears that the Ethernet switch is failing. Go to MAP7030 Section-3.
   - No, move the Ethernet cable back to port T16 and continue with the next step.
5. Return to the storage facility which houses management console#1 and locate Ethernet switch SW1. Use Table 263 on page 881 below to determine the SW1 Ethernet port where the cable from the failing storage facility should be plugged. Observe the Ethernet switch port LEDs. Is the lower Link LED lit solidly or flashing?

- Yes, verify that you have the correct port location. If necessary, trace the cable back from the failing storage facility.
- No, continue with the next step.

Table 263. Storage facility Ethernet switch ports

Storage Facility #	SW1 port # Black Network	SW2 port # Gray Network
SF #2	SW1-T15	SW2-T15
SF #3	SW1-T14	SW2-T14
SF #4	SW1-T13	SW2-T13
SF #5	SW1-T12	SW2-T12
SF #6	SW1-T11	SW2-T11
SF #7	SW1-T10	SW2-T10

6. Temporarily move the Ethernet cable to an unused port on the same switch. Observe the Ethernet switch port LEDs corresponding to the new location. Is the lower Link LED lit solidly or flashing?
   - Yes, it appears that the Ethernet switch is failing. Go to MAP7030 Section-3.
   - No, it appears that the Ethernet cable between the storage facilities is failing. Go to MAP7030 Section-4.

MAP7030 Section-2

1. Verify that the link failure is still present using the Network topology test tool as described in "MAP7001 Using the network topology tool" on page 862. Is the link still failing?
   - Yes, continue with the next step.
   - No, go to "MAP1500 Ending a service action" on page 546 to close the serviceable event and ensure good subsystem status.
2. Return to the storage facility with which the management console cannot communicate. Temporarily move the Ethernet cable plugged in SW1-T16 to an unused port on the same switch. Verify that the link failure is still present using the Network topology test tool as described in "MAP7001 Using the network topology tool" on page 862. Is the link still failing?
   - Yes, move the Ethernet cable back to port T16 and continue with the next step.
   - No, it appears that the Ethernet switch is failing. Go to MAP7030 Section-3.
3. Return to the storage facility which houses HMC#1 and locate Ethernet switch SW1. Use Table 264 to determine the SW1 Ethernet port where the cable from the failing storage facility should be plugged. Temporarily move the Ethernet cable to an unused port on the same switch. Observe the Ethernet switch port LEDs corresponding to the new location. Verify that the link failure is still present using the Network topology test tool as described in "MAP7001 Using the network topology tool" on page 862.
   - Yes, it appears that the Ethernet cable between the storage facilities is failing. Go to MAP7030 Section-4.
   - No, it appears that the Ethernet switch is failing. Go to MAP7030 Section-3.

Table 264. Storage facility Ethernet switch ports

Storage Facility #	SW1 port # Black Network	SW2 port # Gray Network
SF #2	SW1-T15	SW2-T15
SF #3	SW1-T14	SW2-T14

Table 264. Storage facility Ethernet switch ports (continued)

Storage Facility #	SW1 port # Black Network	SW2 port # Gray Network
SF #4	SW1-T13	SW2-T13
SF #5	SW1-T12	SW2-T12
SF #6	SW1-T11	SW2-T11
SF #7	SW1-T10	SW2-T10

MAP7030 Section-3

Note: In this section the SW1 Ethernet switch will be replaced.

1. Go to Chapter 34, "Exchanging parts," on page 991 to replace the SW1 Ethernet switch. Return here when the Ethernet switch has been replaced.
2. Verify the fix using the Network topology test tool as described in "MAP7001 Using the network topology tool" on page 862. Is the network problem resolved?
   - Yes, return to the serviceable event and close it by reviewing the steps in "MAP1500 Ending a service action" on page 546.
   - No, call your next level of support.

MAP7030 Section-4

Note: In this section the Ethernet cable between the storage facilities will be replaced.

1. Replace the cable between the storage facilities. Continue with the next step when the cable has been replaced.
2. Verify the fix using the Network topology test tool as described in "MAP7000 Section-1" on page 855, step 3. Is the network problem resolved?
   - Yes, return to the serviceable event and close it by reviewing the steps in "MAP1500 Ending a service action" on page 546
   - No, call your next level of support.

MAP7031 Private network isolation procedure 31

The Network topology tool has been used to determine that there is no connectivity in the DS8000 private network (Black - eth0) between one or both of the management consoles and **all nodes**, service processor cards, and LPARs on a **single system**.

MAP7031 Section-1

1. Use **Service Applications → Service Focal Point → Manage Serviceable Events** to view the list of open serviceable events. Do you have a serviceable event that is indicating a failure with the service processor card?
   - Yes, use that serviceable event to repair the service processor card problem. When the problem is repaired, return to "MAP7000 Section-1" on page 855 and use the Network topology test tool to check if the network problem is resolved.
   - No, continue with the next step.
2. Observe the CEC enclosure control panel for the processor complex that is failing. Is there an eight-digit reference code (except C*xxxxxxx*) displayed on the control panel?

- Yes, go to Chapter 52, "System reference codes (SRCs) and firmware codes," on page 1849, and follow "Using system reference codes and firmware codes" on page 2129.
- No, continue with the next step.

3. Are there two management consoles controlling this Storage Facility?
   - Yes, continue with the next step.
   - No, go to step 5.
4. Have both management consoles lost connectivity with this single system (processor complex)?
   - Yes, go to "MAP4100 Repairing a service processor card (FSP) problem" on page 672.
   - No, continue to the next step.
5. Go to "MAP7032 Private network isolation procedure 32."

MAP7032 Private network isolation procedure 32

The Network Topology tool has been used to determine that there is no connectivity in the DS8000 private network (Black - eth0) between one or both of the management consoles and the service processor card on a single system (one of the two processor complexes in a storage facility).

MAP7032 Section-1

In "MAP7000 Entry point for DS8000 private network problems" on page 855, you verified that power was available to the CEC enclosure and that service processor card was IML'd.

1. Locate Ethernet switch SW1 in the storage facility that contains the service processor card. Use Table 265 to determine the location of the port that corresponds to the failing service processor card.

Table 265. SW1 port location associated with the failing service processor card

Service processor card port location	SW1 port location
U7879.001.nnnnnnn-P1-C8-T1 (Upper CEC enclosure)	T3
U7879.001.nnnnnnn-P1-C8-T1 (Lower CEC enclosure)	T4

2. Move the cable plugged into the port located in step 1 to an unused port on the Ethernet switch.
3. Use the Network topology tool as described in "MAP7001 Using the network topology tool" on page 862 to check if the problem is resolved. Is the network problem resolved?
   - Yes, this indicates a faulty port on the Ethernet switch. Go to "MAP7032 Section-2" on page 884.
   - No, continue with the next step.
4. Move the cable that was swapped in step 3 back to its original position.
5. Install a new Ethernet cable temporarily in place of the existing one between the faulty service processor card (port T1) and the Ethernet switch port that was determined earlier.
6. Use the Network topology tool as described in "MAP7001 Using the network topology tool" on page 862 to check if the problem is resolved. Is the network problem resolved?
   - Yes, this indicates a faulty cable. Go to "MAP7032 Section-3" on page 884 to replace the cable.

- No, go to “MAP7032 Section-4” to reset the service processor card and retest.

MAP7032 Section-2

In this section, the SW1 Ethernet switch will be replaced.

1. Go to Chapter 34, “Exchanging parts,” on page 991 to replace the SW1 Ethernet switch. Return here after you have replaced the Ethernet switch.
2. Use the Network topology tool as described in “MAP7001 Using the network topology tool” on page 862 to check if the problem is resolved. Is the network problem resolved?
   - Yes, go to “MAP1500 Ending a service action” on page 546 to close the serviceable event, save the network topology, and ensure good subsystem status.
   - No, if you have other FRUs to replace, continue with the replacement. Otherwise, call your next level of support.

MAP7032 Section-3

In this section, the faulty Ethernet cable will be replaced.

1. Replace the faulty Ethernet cable between the Ethernet switch and the service processor card.
2. Use the Network topology tool as described in “MAP7001 Using the network topology tool” on page 862 to check if the problem is resolved. Is the network problem resolved?
   - Yes, go to “MAP1500 Ending a service action” on page 546 to close the serviceable event, save the network topology, and ensure good subsystem status.
   - No, reseat the cable again and repeat this step. If the problem persists, it appears that you installed a faulty Ethernet cable or you have a bad connection. Replace the cable again. If that does not resolve the problem, go to “MAP7032 Section-4” to reset the service processor card.

MAP7032 Section-4

In this section, the service processor card will be reset, and the link will be re-tested. If the service processor card reset does not resolve the problem, the service processor card will be replaced.

1. Go to “MAP4810 Resetting the service processor card (FSP)” on page 700. Return here after you have completed the action.
2. Use the Network topology tool as described in“MAP7001 Using the network topology tool” on page 862 to check if communication with the service processor card is now working. Is communication with the service processor card now working?
   - Yes, continue with the next step.
   - No, use **Service Focal Point/Exchange Parts** to replace the service processor card. When you have replaced the service processor card, verify the fix using the Network topology tool as described in “MAP7001 Using the network topology tool” on page 862.
3. Power on the storage facility system. Use **Service Utilities → Get Storage Facility Images → Select the System → Storage System Power Control → Power On System to Ready**.
4. Use the Network topology tool as described in “MAP7001 Using the network topology tool” on page 862 to check that all communication is now working. Is the network problem resolved?

- Yes, go to “MAP1500 Ending a service action” on page 546, save the network topology, and ensure good subsystem status.
- No, return “MAP7000 Entry point for DS8000 private network problems” on page 855 and restart at step 1.

MAP7033 Private network isolation procedure 33

The Network Topology tool has been used to determine that there is no connectivity in the DS8000 private network (Black - eth0) between one or both of the management consoles and an LPAR on a single system (one of the two processor complexes in a storage facility).

MAP7033 Section-1

In “MAP7000 Entry point for DS8000 private network problems” on page 855, you verified that power was available to the CEC enclosure and that service processor card was IML’d.

1. Locate Ethernet switch SW1 in the storage facility that contains the LPAR. Use Table 266 or Table 267 to determine the location of the port which corresponds to the failing LPAR.

Table 266. Port locations (Models 921 and 922 and Models 931 and 932)

LPAR	LPAR port location	SW1 port location
SFxxxxxxxESS01	U7879.001.nnnnnnn-P1-T6 (Upper CEC)	T5
SFxxxxxxxESS11	U7879.001.nnnnnnn-P1-T6 (Lower CEC)	T6

Table 267. Port locations (Models 9A2 and 9B2)

LPAR	LPAR port location	SW1 port location
SFxxxxxxxESS01	U7879.001.nnnnnnn-P1-T6 (Upper CEC)	T5
SFxxxxxxxESS02	U7879.001.nnnnnnn-P1-C4-T1(Upper CEC)	T7
SFxxxxxxxESS11	U7879.001.nnnnnnn-P1-C4-T1(Lower CEC)	T6
SFxxxxxxxESS12	U7879.001.nnnnnnn-P1-T6 (Lower CEC)	T8

2. Move the cable plugged into the port located in step 1 to an unused port on the Ethernet switch.
3. Use the Network topology tool as described in “MAP7000 Entry point for DS8000 private network problems” on page 855 to check if the problem is resolved. Is the network problem resolved?
   - Yes, this indicates a faulty port on the Ethernet switch. Go to “MAP7033 Section-2.”
   - No, continue with the next step.
4. Move the cable that was swapped in step 3 back to its original position.
5. Install a new Ethernet cable on a temporary basis in place of the existing one between the faulty LPAR Ethernet port and the Ethernet switch port determined earlier. Use the Network topology tool as described in “MAP7001 Using the network topology tool” on page 862 to check if the problem is resolved. Is the network problem resolved?
   - Yes, this indicates a faulty cable. Go to “MAP7033 Section-2” to replace the cable.
   - No, go to “MAP7033 Section-4” on page 886 to reset the LPAR and retest.

MAP7033 Section-2:
In this section, the SW1 Ethernet switch will be replaced.

1. Go to Chapter 34, “Exchanging parts,” on page 991 to replace the SW1 Ethernet switch. Return here when you have replaced the Ethernet switch.
2. Verify the fix using the Network topology tool as described in “MAP7001 Using the network topology tool” on page 862. Is the network problem resolved?
   - Yes, go to “MAP1500 Ending a service action” on page 546 to close the serviceable event, save the network topology, and ensure good subsystem status.
   - No, if you have other FRUs to replace, continue with the replacement. Otherwise, call your next level of support.

MAP7033 Section-3:
In this section, the faulty Ethernet cable will be replaced.

1. Replace the faulty Ethernet cable between the Ethernet switch and the service processor card.
2. Verify the fix using the Network topology tool as described in “MAP7001 Using the network topology tool” on page 862. Is the network problem resolved?
   - Yes, go to “MAP1500 Ending a service action” on page 546 to close the serviceable event, save the network topology, and ensure good subsystem status.
   - No, reseat the cable again and repeat this step. If the problem persists, it appears that you installed a faulty Ethernet cable or have a bad connection on the service processor card port. Replace the cable again. If does not resolve the problem, go to then go to “MAP7033 Section-4” to replace the service processor card.

MAP7033 Section-4:
In this section, the LPAR will be reset and then the link will be retested.

1. Quiesce the LPAR that is failing. Use **Service Focal Point → Service Utilities → Get Storage Facility Images → Quiesce an LPAR**.
2. Deactivate the LPAR that is failing. Use **Service Focal Point → Service Utilities → Get Storage Facility Images → Deactivate an LPAR**.
3. Activate the LPAR that is failing. Use **Service Focal Point → Service Utilities → Get Storage Facility Images → Activate an LPAR**.
4. Use the Network topology tool as described in “MAP7001 Using the network topology tool” on page 862 to check if communication with the LPAR is now working. Is communication with the LPAR now working?
   - Yes, continue with step 8 on page 887.
   - No, continue with the next step.
5. Identify the FRU that contains the failing Ethernet port using either Table 268 or Table 269.

Table 268. LPAR and FRU association (Models 921 and 922 and Models 931 and 932)

LPAR	FRU
SFxxxxxxxESS01	U7879.001.nnnnnnn-P1 (Upper CEC I/O backplane)
SFxxxxxxxESS11	U7879.001.nnnnnnn-P1 (Lower CEC I/O backplane)

Table 269. LPAR and FRU association (Models 9A2 and 9B2)

LPAR	FRU
SFxxxxxxxESS01	U7879.001.nnnnnnn-P1 (Upper CEC)
SFxxxxxxxESS02	U7879.001.nnnnnnn-P1-C4 (Upper CEC)

Table 269. LPAR and FRU association (Models 9A2 and 9B2) (continued)

LPAR	FRU
SFxxxxxxxESS11	U7879.001.nnnnnnn-P1-C4 (Lower CEC)
SFxxxxxxxESS12	U7879.001.nnnnnnn-P1 (Lower CEC)

6. Use the serviceable event to replace the FRU. If the FRU is not available to be replaced using the serviceable event, then use **Service Focal Point → Exchange a FRU**.
7. Use the Network topology tool as described in "MAP7001 Using the network topology tool" on page 862 to check if communication with the LPAR is now working. Is communication with the LPAR now working?
   - Yes, continue with step 9.
   - No, contact your next level of support.
8. Resume the LPAR.
9. Go to "MAP1500 Ending a service action" on page 546 to close the serviceable event, save then network topology, and ensure good subsystem status.

MAP7040 Private network isolation procedure 40

The Network Topology tool has been used to determine that there is no connectivity in the DS8000 private network (Gray - eth3) between the management console and a storage facility.

MAP7040 Section-1

1. Does the failing management console have working links through eth3 (the Gray network) to other storage facilities or management consoles?
   - Yes, continue with the next step.
   - No, go to "MAP7011 Private network isolation procedure 11" on page 869.
2. Locate the Ethernet switch SW2 in the storage facility with which the management console cannot communicate. Is the Ethernet switch powered on?
   - Yes, continue with the next step.
   - No, go to MAP 2350 Ethernet switch power problem.
3. Observe the Ethernet switch SW2-T16 port LEDs in the storage facility with which the management console cannot communicate. Reference Table 270 below for a description and interpretation of the Ethernet Switch port LEDs.

Table 270. Ethernet switch port LED descriptions

LED	State	Meaning
Upper	On	1000Mb/s connection
Upper	Off	100Mb/s connection (Normal for FSP connection only)
Lower	Off	No link
Lower	On	Link, No Activity
Lower	Flashing	Link, Activity

   There are two LEDs for each port. Is the lower Link LED lit solidly or flashing?
   - Yes, go to MAP7040 Section-2.
   - No, continue with the next step.

4. Temporarily move the Ethernet cable to an unused port on the same switch. Observe the Ethernet switch port LEDs corresponding to the new location. Is the lower Link LED lit solidly or flashing?
   - Yes, it appears that the Ethernet switch is failing. Go to MAP7040 Section-3.
   - No, move the Ethernet cable back to port T16 and continue with the next step.
5. Return to the storage facility which houses HMC#1 and locate Ethernet switch SW2. Use Table 271 to determine the SW2 Ethernet port where the cable from the failing storage facility should be plugged. Observe the Ethernet switch port LEDs. Is the lower Link LED lit solidly or flashing?
   - Yes, verify that you have the correct port location. If necessary, trace the cable back from the failing storage facility.
   - No, continue with the next step.

Table 271. Storage facility Ethernet switch ports

Storage Facility #	SW1 port # Black Network	SW2 port # Gray Network
SF #2	SW1-T15	SW2-T15
SF #3	SW1-T14	SW2-T14
SF #4	SW1-T13	SW2-T13
SF #5	SW1-T12	SW2-T12
SF #6	SW1-T11	SW2-T11
SF #7	SW1-T10	SW2-T10

6. Temporarily move the Ethernet cable to an unused port on the same switch. Observe the Ethernet switch port LEDs corresponding to the new location. Is the lower Link LED lit solidly or flashing?
   - Yes, it appears that the Ethernet switch is failing. Go to "MAP7040 Section-3" on page 889.
   - No, it appears that the Ethernet cable between the storage facilities is failing. Go to "MAP7040 Section-4" on page 889.

MAP7040 Section-2

1. Verify that the link failure is still present using the Network topology test tool as described in "MAP7000 Section-1" on page 855, step 3. Is the link still failing?
   - Yes, continue with the next step.
   - No.
2. Return to the storage facility with which the management console cannot communicate. Temporarily move the Ethernet cable plugged in SW2-T16 to an unused port on the same switch. Verify that the link failure is still present using the Network topology test tool as described in "MAP7000 Section-1" on page 855, step 3. Is the link still failing?
   - Yes, move the Ethernet cable back to port T16 and continue with the next step.
   - No, it appears that the Ethernet switch is failing. Go to "MAP7040 Section-3" on page 889.
3. Return to the storage facility which houses HMC#1 and locate Ethernet switch SW2. Use Table 272 on page 889 to determine the SW2 Ethernet port where the cable from the failing storage facility should be plugged. Temporarily move the Ethernet cable to an unused port on the same switch. Observe the Ethernet

switch port LEDs corresponding to the new location. Verify that the link failure is still present using the Network topology test tool as described in “MAP7000 Section-1” on page 855, step 3.

- Yes, it appears that the Ethernet cable between the storage facilities is failing. Go to MAP7040 Section-4.
- No, it appears that the Ethernet switch is failing. Go to MAP7040 Section-3.

Table 272. Storage facility Ethernet switch ports

Storage Facility #	SW1 port # Black Network	SW2 port # Gray Network
SF #2	SW1-T15	SW2-T15
SF #3	SW1-T14	SW2-T14
SF #4	SW1-T13	SW2-T13
SF #5	SW1-T12	SW2-T12
SF #6	SW1-T11	SW2-T11
SF #7	SW1-T10	SW2-T10

MAP7040 Section-3

Note: In this section the SW2 Ethernet switch will be replaced.

1. Go to Chapter 34, “Exchanging parts,” on page 991 to replace the SW2 Ethernet switch. Return here when the Ethernet switch has been replaced.
2. Verify the fix using the Network topology test tool as described in “MAP7000 Section-1” on page 855, step 3. Is the network problem resolved?
   - Yes, return to the serviceable event and close it by reviewing the steps in “MAP1500 Ending a service action” on page 546. Save the network topology and ensure good subsystem status.
   - No, if you have other FRUs to replace, then continue with the replacement. Otherwise, call your next level of support.

MAP7040 Section-4

Note: In this section the Ethernet cable between the storage facilities will be replaced.

1. Replace the cable between the storage facilities. Continue with the next step when the cable has been replaced.
2. Verify the fix using the Network topology test tool as described in “MAP7000 Section-1” on page 855, step 3. Is the network problem resolved?
   - Yes, return to the serviceable event and close it by reviewing the steps in “MAP1500 Ending a service action” on page 546
   - No, call your next level of support.

MAP7041 Private Network Isolation Procedure 41

The Network Topology Test tool has been used to determine that one or both management consoles have lost connectivity to all nodes (service processor card and LPARs) on a single system (one of the two processor complexes in a storage facility) through the GRAY network (eth3).

MAP7041 Section-1

1. Use **Service Applications → Service Focal Point → Manage Serviceable Events** to view the list of open serviceable events. Do you have a serviceable event that is indicating a failure with the service processor card?

- Yes, use that serviceable event to repair the service processor card problem. When the problem is repaired, return to "MAP7000 Entry point for DS8000 private network problems" on page 855 and use the Network topology tool to check if the network problem is resolved.
- No, continue with the next step.

2. Observe the CEC enclosure control panel for the processor complex that is failing. Is there an eight-digit reference code (except C*xxxxxxx*) displayed on the control panel?
   - Yes, go to Chapter 52, "System reference codes (SRCs) and firmware codes," on page 1849 and follow "Using system reference codes and firmware codes" on page 2129.
   - No, continue with the next step.
3. Are there two management consoles controlling this storage facility?
   - Yes, continue with the next step.
   - No, go to step 5.
4. Have both management consoles lost connectivity with this single system (processor complex).
   - Yes, go to "MAP4100 Repairing a service processor card (FSP) problem" on page 672.
   - No, continue with the next step.
5. Go to "MAP7042 Private network isolation procedure 42."

MAP7042 Private network isolation procedure 42

The Network Topology tool has been used to determine that there is no connectivity in the DS8000 private network (Gray - eth3) between one or both of the management consoles and the service processor card on a single system (one of the two processor complexes in a storage facility).

MAP7042 Section-1

In "MAP7000 Entry point for DS8000 private network problems" on page 855, you verified that power was available to the CEC enclosure and that the service processor card was IML'd..

1. Locate Ethernet switch SW2 in the storage facility that contains the service processor card. Use Table 273 to determine the location of the port that corresponds to the failing service processor card.

Table 273. SW2 port location associated with the failing service processor card

Service processor card port location	SW2 port location
U7879.001.nnnnnnn-P1-C8-T1 (Upper CEC)	T3
U7879.001.nnnnnnn-P1-C8-T1 (Lower CEC)	T4

2. Move the cable plugged into the port located in step 1 to an unused port on the Ethernet switch.
3. Use the Network topology tool as described in "MAP7001 Using the network topology tool" on page 862 to check if the problem is resolved. Is the network problem resolved?
   - Yes, this indicates a faulty port on the Ethernet switch. Go to "MAP7042 Section-2" on page 891.
   - No, continue with the next step.
4. Move the cable that was swapped in step 3 back to its original position.

5. Install a new Ethernet cable temporarily in place of the existing one between the faulty service processor card (port T1) and the Ethernet switch port that was determined earlier.
6. Use the Network topology tool as described in "MAP7001 Using the network topology tool" on page 862 to check if the problem is resolved. Is the network problem resolved?
   - Yes, this indicates a faulty cable. Go to "MAP7042 Section-3" to replace the cable.
   - No, go to "MAP7042 Section-4" to reset the service processor card and retest.

MAP7042 Section-2

In this section, the SW2 Ethernet switch will be replaced.

1. Go to Chapter 34, "Exchanging parts," on page 991 to replace the SW2 Ethernet switch. Return here after you have replaced the Ethernet switch.
2. Verify the fix using the Network topology tool as described in "MAP7001 Using the network topology tool" on page 862. Is the network problem resolved?
   - Yes, go to "MAP1500 Ending a service action" on page 546 to close the serviceable event, save the network topology, and ensure good subsystem status.
   - No, if you have other FRUs to replace, continue with the replacement. Otherwise, call your next level of support.

MAP7042 Section-3

In this section, the faulty Ethernet cable will be replaced.

1. Replace the faulty Ethernet cable between the Ethernet switch and the service processor card.
2. Verify the fix using the Network topology tool as described in "MAP7001 Using the network topology tool" on page 862. Is the network problem resolved?
   - Yes, go to "MAP1500 Ending a service action" on page 546 to close the serviceable event, save the network topology, and ensure good subsystem status.
   - No, reseat the cable again and repeat this step. If the problem persists, it appears that you installed a faulty Ethernet cable or you have a bad connection. Replace the cable again. If that does not resolve the problem, go to "MAP7042 Section-4" to reset the service processor card.

MAP7042 Section-4

In this section, the service processor card will be reset, and the link will be re-tested. If the service processor card reset does not resolve the problem, the service processor card will be replaced.

1. Go to "MAP4810 Resetting the service processor card (FSP)" on page 700. Return here after you have completed the action.
2. Use the Network topology tool as described in "MAP7001 Using the network topology tool" on page 862 to check if communication with the service processor card is now working. Is communication with the service processor card now working?
   - Yes, continue with the next step.
   - No, use **Service Focal Point/Exchange Parts** to replace the service processor card. When you have replaced the service processor card, verify the fix using the Network topology tool as described in "MAP7001 Using the network topology tool" on page 862.

3. Power on the storage facility system. Use **Service Utilities → Get Storage Facility Images → Select the System → Storage System Power Control → Power On System to Ready**.
4. Use the Network topology tool as described in "MAP7001 Using the network topology tool" on page 862 to check that all communication is now working. Is the network problem resolved?
   - Yes, go to "MAP1500 Ending a service action" on page 546, save the network topology, and ensure good subsystem status.
   - No, return "MAP7000 Entry point for DS8000 private network problems" on page 855 and restart at step 1.

MAP7043 Private network isolation procedure 43

The Network Topology tool has been used to determine that there is no connectivity in the DS8000 private network (Gray - eth3) between one or both of the management consoles and an LPAR on a single system (one of the two processor complexes in a storage facility).

MAP7043 Section-1

In "MAP7000 Entry point for DS8000 private network problems" on page 855, you verified that power was available to the CEC enclosure and that service processor card was IML'd.

1. Locate Ethernet switch SW2 in the storage facility that contains the LPAR. Use Table 274 or Table 275 to determine the location of the port that corresponds to the failing LPAR.

Table 274. Port locations (Models 921/922 and 931/932)

LPAR	LPAR port location	SW2 port location
SFxxxxxxxESS01	U7879.001.nnnnnnn-P1-T7 (Upper CEC)	T5
SFxxxxxxxESS11	U7879.001.nnnnnnn-P1-T7 (Lower CEC)	T6

Table 275. Port locations (Models 9A2/9B2)

LPAR	LPAR port location	SW2 port location
SFxxxxxxxESS01	U7879.001.nnnnnnn-P1-T7 (Upper CEC)	T5
SFxxxxxxxESS02	U7879.001.nnnnnnn-P1-C4-T2(Upper CEC)	T7
SFxxxxxxxESS11	U7879.001.nnnnnnn-P1-C4-T2(Lower CEC)	T6
SFxxxxxxxESS12	U7879.001.nnnnnnn-P1-T7 (Lower CEC)	T8

2. Move the cable plugged into the port located in step 1 to an unused port on the Ethernet switch.
3. Use the Network topology tool as described in "MAP7001 Using the network topology tool" on page 862 to check if the problem is resolved. Is the network problem resolved?
   - Yes, this indicates a faulty port on the Ethernet switch. Go to "MAP7043 Section-2" on page 893.
   - No, continue with the next step.
4. Move the cable that was swapped in step 3 back to its original position.
5. Install a new Ethernet cable temporarily in place of the existing one between the faulty LPAR Ethernet port and the Ethernet switch port that was determined earlier. Use the Network topology tool as described in "MAP7001

Using the network topology tool" on page 862 to check if the problem is resolved. Is the network problem resolved?

- Yes, this indicates a faulty cable. Go to "MAP7043 Section-3" to replace the cable.
- No, go to "MAP7043 Section-4" to reset the LPAR and retest.

MAP7043 Section-2

In this section, the SW2 ethernet switch will be replaced.

1. Go to Chapter 34, "Exchanging parts," on page 991 to replace the SW2 Ethernet switch. Return here when you have replaced the Ethernet switch.
2. Verify the fix using the Network topology tool as described in "MAP7001 Using the network topology tool" on page 862. Is the network problem resolved?
   - Yes, go to "MAP1500 Ending a service action" on page 546 to close the serviceable event, save the network topology and ensure good subsystem status.
   - No, if you have other FRUs to replace, continue with the replacement. Otherwise, call your next level of support.

MAP7043 Section-3

In this section, the faulty Ethernet cable will be replaced.

1. Replace the faulty Ethernet cable between the Ethernet switch and the service processor card.
2. Verify the fix using the Network topology tool as described in "MAP7001 Using the network topology tool" on page 862. Is the network problem resolved?
   - Yes, go to "MAP1500 Ending a service action" on page 546 to close the serviceable event, save the network topology, and ensure good subsystem status.
   - No, reseat the cable again repeat this step. If the problem persists, it appears that you installed a faulty Ethernet cable or have a bad connection on the service processor card port. Replace the cable again. If that does not resolve the problem, go to "MAP7043 Section-4" to replace the service processor card.

MAP7043 Section-4

In this section, the LPAR will be reset then the link will be retested.

1. Quiesce the LPAR that is failing. Use **Service Focal Point → Service Utilities → Get Storage Facility Images → Quiesce an LPAR**.
2. Deactivate the LPAR that is failing. Use **Service Focal Point → Service Utilities → Get Storage Facility Images → Deactivate an LPAR**.
3. Activate the LPAR that is failing. Use **Service Focal Point → Service Utilities → Get Storage Facility Images → Activate an LPAR**.
4. Use the Network topology tool as described in "MAP7001 Using the network topology tool" on page 862 to check if communication with the LPAR is now working. Is communication with the LPAR now working?
   - Yes, continue with step 8 on page 894.
   - No, continue with the next step.
5. Identify the FRU that contains the failing Ethernet port using either Table 276 on page 894 or Table 277 on page 894.

Table 276. LPAR and FRU association (Models 921/922 and 931/932)

LPAR	FRU
SFxxxxxxxESS01	U7879.001.nnnnnnn-P1 (Upper CEC I/O backplane)
SFxxxxxxxESS11	U7879.001.nnnnnnn-P1 (Lower CEC I/O backplane)

Table 277. LPAR and FRU association (Models 9A2/9B2)

LPAR	FRU
SFxxxxxxxESS01	U7879.001.nnnnnnn-P1 (Upper CEC)
SFxxxxxxxESS02	U7879.001.nnnnnnn-P1-C4 (Upper CEC)
SFxxxxxxxESS11	U7879.001.nnnnnnn-P1-C4 (Lower CEC)
SFxxxxxxxESS12	U7879.001.nnnnnnn-P1 (Lower CEC)

6. Use the serviceable event to replace the FRU. If the FRU is not available to be replaced using the serviceable event, then use**Service Focal Point → Exchange a FRU**.
7. Use the Network topology tool as described in "MAP7001 Using the network topology tool" on page 862 to check if communication with the LPAR is now working. Is communication with the LPAR now working?
   - Yes, continue with step 9.
   - No, contact your next level of support.
8. Resume the LPAR. Use **Service Focal Point → Service Utilities → Get Storage Facility Images → Resume an LPAR**.
9. Go to "MAP1500 Ending a service action" on page 546 to close the serviceable event, save then network topology, and ensure good subsystem status.

MASBUS

The multi-adapter bridge detected a problem with a connection to a PCI adapter.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Replace the FRU listed below.

Table 278. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	I/O backplane	Refer to Chapter 34, "Exchanging parts," on page 991.

This ends the procedure.

MEDIA

The drive or media might be dirty or defective.

Go to "MAP6550 DVD RAM Drive Problem" on page 830 to resolve the problem.

This ends the procedure.

MEMBRD

The failing component is the board that the memory DIMMs plug into.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. If the location code identifies the processor card that has the problem replace the processor card identified by the location code.
2. If no location code is provided, replace the processor cards in the following order:

Table 279. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	Processor 1 P2-C1 Processor 2 P2-C2	Refer to Chapter 34, "Exchanging parts," on page 991

This ends the procedure.

MEMCTLR

The failing component is one of the memory controllers.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Replace the FRUs in the order shown until the problem is resolved.

Table 280. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	System processor assembly P2-C1	Refer to Chapter 34, "Exchanging parts," on page 991.
CEC enclosure	System processor assembly P2-C2	Refer to Chapter 34, "Exchanging parts," on page 991.

This ends the procedure.

MEMDIMM

The failing component is one of the memory DIMMs.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Replace the FRUs in the order shown for the failing processor until the problem is resolved.

Table 281. Replacing the failing part

Unit	Failing part	How to replace the failing part
CEC enclosure - Processor 1	DIMM 1 P2-C1-C1 DIMM 2 P2-C1-C2 DIMM 3 P2-C1-C3 DIMM 4 P2-C1-C4 DIMM 5 P2-C1-C5 DIMM 5 P2-C1-C5 DIMM 6 P2-C1-C6 DIMM 7 P2-C1-C7 DIMM 8 P2-C1-C8	Refer to Chapter 34, "Exchanging parts," on page 991.
CEC enclosure - Processor 2	DIMM 1 P2-C2-C1 DIMM 2 P2-C2-C2 DIMM 3 P2-C2-C3 DIMM 4 P2-C2-C4 DIMM 5 P2-C2-C5 DIMM 6 P2-C2-C6 DIMM 7 P2-C2-C7 DIMM 8 P2-C2-C8	Refer to Chapter 34, "Exchanging parts," on page 991.

This ends the procedure.

MEMORY

This section describes the symbolic FRU MEMORY.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

MESSAGE

This section describes the symbolic FRU MESSAGE.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

MOVEIOA

This section describes the symbolic FRU MOVEIOA.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

MSG0001

This section describes the symbolic FRU MSG0001.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

MSG0002

This section describes the symbolic FRU MSG0002.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

MSG0003

This section describes the symbolic FRU MSG0003.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

MSG0005

This section describes the symbolic FRU MSG0005.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

Chapter 24. N Procedures

NETSERV

This section describes the symbolic FRU NETSERV.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

NEXTLVL

Further analysis of this problem will require assistance from your next level of support.

1. Collect any relevant information regarding the current problem e.g. failure symptoms, SRC, subsystem status and actions already taken.
2. Contact your next level of support.

This ends the procedure.

NO_PNUM

Diagnostic firmware could not determine a part number for the FRU.

1. To determine the part number go to Chapter 43, “Part numbers,” on page 1323.
2. To replace any FRUs identified use the **HMC → Service Actions → Service Focal Point** and use the Exchange Parts option.

This ends the procedure.

NODEPL

The failing component is the node backplane.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

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Replace the FRU listed below.

Table 282. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	I/O backplane	Refer to Chapter 34, "Exchanging parts," on page 991.

This ends the procedure.

NOFRUS

No failing items are identified for the reference code.

NSCABLE

This section describes the symbolic FRU NSCABLE.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

NTDEVDR

This section describes the symbolic FRU NTDEVDR.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

NTLANDD

This section describes the symbolic FRU NTLANDD.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

NTOPSYS

This section describes the symbolic FRU NTOPSYS.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

NTUSER

This section describes the symbolic FRU NTUSER.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

NTVSCSI

This section describes the symbolic FRU NTVSCSI.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

Chapter 25. O Procedures

OPCIP03

This section describes the symbolic FRU OPCIP03.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

OPT_CLN

This section describes the symbolic FRU OPT_CLN.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

OPTLCBL

This section describes the symbolic FRU OPTLCBL.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

OPTLDRV

This section describes the symbolic FRU OPTLDRV.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

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you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

OPUSER

This section describes the symbolic FRU OPUSER.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

OSLIC

This section describes the symbolic FRU OSLIC.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

OSTERM

The operating system in a partition has terminated abnormally. Use the management console to look for a partition that has failed. It should have the same SRC in the SRC display history for the failed partition. Use the SRC given in this error to resolve the problem.

Note: This error has not been automatically sent to IBM.

Repair any other problems that exist on the machine. If this is the only problem in the serviceable event view, call your next level of support.

This ends the procedure.

Chapter 26. P Procedures

PFW1540

These procedures are used to locate problems in the processor subsystem, I/O subsystems.

All storage facility repair activity should be started from Chapter 1, "Start here," on page 1. If you did not start from that procedure, go there now and start from the section "Analyze and repair problems" on page 2. If you did start from that section and the analysis procedures produced an SRN, follow the steps below.

PFW1540 Section-1

Important:

- **Note:** Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.
- When following this procedure to concurrently repair a single storage facility (SF) system within a storage facility, you must ensure that all storage facility image LPARs on the SF system are set in Service Mode (Quiesced). To verify the state of storage facility resources, use "MAP1100 View storage facility state (end of call)" on page 446.
- To avoid damage, before removing or installing any part, unplug the power cords on the rear of the CEC enclosure.

1. Use **Service Applications → Service Focal Point → Manage Serviceable Events** to check if you have a serviceable event to repair for the failing storage facility system. Did you find a serviceable event to repair?
   - Yes, repair the problem using the serviceable event.
   - No, continue with the next step.
2. Use the **Service Processor ASMI** menu to check for event logs which indicate a problem:
   a. Access the ASMI menu. For assistance, go to "MAP6F00 Accessing the ASMI" on page 851.
   b. Select **System Service Aids → Error/Event logs**.
   c. View any error logs from the current UTC time.
3. Are there any service processor error logs that indicate a failing FRU?
   - Yes, replace the FRUs using the WebSM (select **Service Applications → Service Focal Point → Exchange a FRU** option).
   - No, continue with the next step.
4. Attempt to identify a root cause by performing a slow boot of the storage facility system. Use the following steps:
   a. Quiesce all the SF LPARs for the failing SF system as follows:

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1) Select **Service Focal Point → Service Utilities**.
2) Select the storage facility, click on **Selected**, and then select **Get ESS LPARs**.
3) Click on **Start/Stop SFI LPAR**.
4) On the Server Control Panel, click on **Quiesce LPAR**.

b. Power off the failing SF system as follows:
1) Select **Service Focal Point → Service Utilities**.
2) Select the storage facility, click on **Selected**, and then select **Get Storage Facility Images**.
3) Select the SF System, click on **Selected**, and then select **Storage System Power Control**.
4) On the System Power Control window, click on **Power Off System**.
5) Wait for the SF system to power down (Monitor the Server and Partition Management).

c. Perform a slow boot of the storage facility system. Go to "MAP4820 Performing a slow boot of a processor complex" on page 706.

d. Monitor the power on and boot of the storage facility system using the CEC enclosure control panel and Server and Partition Management.

e. View the serviceable events.

5. Did the storage facility system boot up to normal completion? (Server and Partition Management shows Server : Operating and Partitions : Running).
   - Yes, go to step 8.
   - No, continue with the next step.
6. Did the slow boot of the storage facility system fail with an serviceable event?
   - Yes, repair the problem using the serviceable event.
   - No, continue with the next step.
7. Did the slow boot of the storage facility system fail with an SRC displayed on the CEC enclosure control panel or the HMC Virtual Operator Panel?
   - Yes, go to Chapter 47, "Messages and codes," on page 1467, look up the SRC and take the recommended action.
   - No, contact your next level of support.
8. Retest the storage facility system boot up in normal mode. Perform the following steps:
   a. Power off the SF system as follows:
      1) Select **Service Focal Point → Service Utilities**
      2) Select the storage facility, click on **Selected**, and then select **Get Storage Facility Images**.
      3) Select the SF System, click on **Selected**, and then select **Storage System Power Control**.
      4) On the System Power Control window, click on **Power Off System**.
      5) Wait for the SF system to power down (Monitor the Server and Partition Management).
   b. Power on the SF system as follows:
      1) On the System Power Control window, click on **Power On System to Ready**.
      2) Monitor the power on and boot of the storage facility system using the CEC enclosure control panel and Server and Partition Management.

9. Did the storage facility system boot up to normal completion? (Server and Partition Management shows Server : Operating and Partitions : Running).
   - Yes, go to step 10.
   - No, if a serviceable event was created, then repair the problem using the serviceable event. If the same SRN error occurs, then contact your next level of support.
10. Resume the LPAR(s) on the SF system as follows:
    a. **Service Focal Point → Service Utilities**.
    b. Select the storage facility, click on **Selected**, and then select **Get ESS LPARs**.
    c. Click on **Start/Stop SFI LPAR**.
    d. On the Server Control Panel, click on **Resume LPAR**.
    e. If the Resume was successful, then this is the end of the repair.

PFW1542

The CEC is failing to boot. This procedure will help to isolate the problem.

All storage facility repair activity should be started from Chapter 1, “Start here,” on page 1. If you did not start from that procedure, go there now and start from the section “Analyze and repair problems” on page 2. If you did start from that section and the analysis procedures produced an SRN, follow the steps below.

PFW1542 Section-1

Important:

- **Note:** Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.
- When following this procedure to concurrently repair a single storage facility (SF) system within a storage facility, you must ensure that all storage facility image LPARs on the SF system are set in Service Mode (Quiesced). To verify the state of storage facility resources, use “MAP1100 View storage facility state (end of call)” on page 446.
- To avoid damage, before removing or installing any part, unplug the power cords on the rear of the CEC enclosure.

1. Did you wait 10 minutes for the progress code to change?
   - Yes, continue with the next step.
   - No, wait 10 minutes before continuing with the next step
2. Use **Service Applications → Service Focal Point → Manage Serviceable Events** to check if you have a serviceable event to repair for the failing storage facility system. Did you find a serviceable event to repair?
   - Yes, repair the problem using the serviceable event
   - No, continue with the next step.

3. Use the Service Processor ASMI menu to check for event logs which indicate a problem:
   a. Access the ASMI menu. For assistance go to "MAP6F00 Accessing the ASMI" on page 851.
   b. Select **System Service Aids → Error/Event logs**.
   c. View any error logs from the current UTC time.
4. Are there any service processor error logs which indicate a failing FRU?
   - Yes, replace the FRUs using the WebSM select **Service Applications → Service Focal Point → Exchange a FRU**.
   - No, continue with the next step.
5. Attempt to identify a root cause by performing a slow boot of the storage facility system. Use the following steps to do that:
   a. Quiesce all the SF LPARs for the failing SF system as follows:
      1) Select **Service Focal Point → Service Utilities**.
      2) Select the storage facility, click on **Selected**, and then select **Get ESS LPARs**.
      3) Click on **Start/Stop SFI LPAR**.
      4) On the Server Control Panel, click on **Quiesce LPAR**.
   b. Power off the failing SF system as follows:
      1) Select **Service Focal Point → Service Utilities**.
      2) Select the storage facility, click on **Selected**, and then select **Get Storage Facility Images**.
      3) Select the SF System, click on **Selected**, and then select **Storage System Power Control**.
      4) On the System Power Control window, click on **Power Off System**.
      5) Wait for the SF system to power down (Monitor the Server and Partition Management).
   c. Perform a slow boot of the storage facility system. Go to "MAP4820 Performing a slow boot of a processor complex" on page 706.
   d. Monitor the power on and boot of the storage facility system using the CEC enclosure control panel and Server and Partition Management.
   e. View the serviceable events.
6. Did the storage facility system boot up to normal completion? (Server and Partition Management shows Server : Operating and Partitions : Running).
   - Yes, go to step 9.
   - No, continue with the next step.
7. Did the slow boot of the storage facility system fail with a serviceable event?
   - Yes, repair the problem using the serviceable event.
   - No, continue with the next step.
8. Did the slow boot of the storage facility system fail with an SRC displayed on the CEC enclosure control panel or the HMC Virtual Operator Panel?
   - Yes, go to Chapter 47, "Messages and codes," on page 1467, look up the SRC and take the recommended action.
   - No, contact your next level of support.
9. Retest the storage facility system boot up in normal mode. Perform the following steps.
   a. Power off the SF system as follows:
      - Select **Service Focal Point → Service Utilities**.

- Select the storage facility, click on **Selected**, and then select **Get Storage Facility Images**.
- Select the SF System, click on **Selected**, and then select **Storage System Power Control**.
- On the System Power Control window, click on **Power Off System**.
- Wait for the SF system to power down (Monitor the Server and Partition Management).

b. Power on the SF system as follows:
- On the System Power Control window, click on **Power On System to Ready**.
- Monitor the power on and boot of the Storage Facility system using the CEC enclosure control panel and Server and Partition Management.

10. Did the storage facility system boot up to normal completion? (**Server and Partition Management shows Server → Operating and Partitions → Running**).
- Yes, go to step 11.
- No, if a serviceable event was created, repair the problem using the serviceable event. If the same SRN error occurs, contact your next level of support.

11. Yes, resume the LPAR(s) on the SF System as follows:
a. **Service Focal Point → Service Utilities**.
b. Select the storage facility, click on **Selected**, and then select **Get ESS LPARs**.
c. Click on **Start/Stop SFI LPAR**.
d. On the Server Control Panel, click on **Resume LPAR**.
e. If the Resume was successful, this is the end of the repair.

PFW1548

This MAP will provide guidance on how to repair a platform firmware hang condition that indicates a boot device problem. These conditions will be indicated by a CA00E1F*x* code (displayed on the HMC Virtual Control panel) that remains for longer than 10 minutes.

All storage facility repair activity should be started from Chapter 1, “Start here,” on page 1. If you did not start from that procedure, go there now and start from the section “Analyze and repair problems” on page 2. If you did start from that section and the analysis procedures produced an SRN, follow the steps below.

PFW1548 Section-1

Important:

-

  Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

- When following this procedure to concurrently repair a single storage facility (SF) system within a storage facility, you must ensure

that all storage facility image LPARs on the SF system are set in Service Mode (Quiesced). To verify the state of storage facility resources, use "MAP1100 View storage facility state (end of call)" on page 446.

- To avoid damage, unplug the power cords on the rear of the CEC enclosure before removing or installing any part.

1. Did you wait 10 minutes for the progress code to change?
   - Yes, continue with the next step.
   - No, wait for the progress code to change, and then continue with the next step.
2. Use **Service Applications → Service Focal Point → Manage Serviceable Events** to check if you have a serviceable event to repair for the failing storage facility system. Did you find a serviceable event to repair?
   - Yes, repair the problem using the serviceable event.
   - No, continue with the next step.
3. Use the **Service Processor ASMI** menu to check for event logs that indicate a problem:
   a. Access the ASMI menu. See "MAP6F00 Accessing the ASMI" on page 851.
   b. Select **System Service Aids → Error/Event logs**.
   c. View any error logs from the current UTC time.
4. Are there any service processor error logs that indicate a failing FRU?
   - Yes, replace the FRUs using the WebSM (use the **Service Applications → Service Focal Point → Exchange a FRU** option).
   - No, continue with the next step.
5. Attempt to identify a root cause by performing a slow boot of the storage facility system. Use the following steps:
   a. Quiesce all the SF LPARs for the failing SF system as follows:
      1) Select **Service Focal Point → Service Utilities**.
      2) Select the storage facility, click **Selected**, and then select **Get ESS LPARs**.
      3) Click on **Start/Stop SFI LPAR**.
      4) On the Server Control Panel, click **Quiesce LPAR**.
   b. Power off the failing SF system as follows:
      1) Select **Service Focal Point → Service Utilities**.
      2) Select the storage facility, click on **Selected**, and then select **Get Storage Facility Images**.
      3) Select the SF System, click on **Selected**, and then select **Storage System Power Control**.
      4) On the System Power Control window, click on **Power Off System**.
      5) Wait for the SF system to power down (Monitor the Server and Partition Management).
   c. Perform a slow boot of the storage facility system. Go to "MAP4820 Performing a slow boot of a processor complex" on page 706.
   d. Monitor the power on and boot of the storage facility system using the CEC enclosure control panel and Server and Partition Management.
   e. View the serviceable events.
6. Did the storage facility system boot up to normal completion? (Server and Partition Management shows Server : Operating and Partitions : Running).

- Yes, go to step 9.
- No, continue with the next step.

7. Did the slow boot of the storage facility system fail with a serviceable event?
   - Yes, repair the problem using the serviceable event.
   - No, continue with the next step.
8. Did the slow boot of the storage facility system fail with an SRC displayed on the CEC enclosure control panel or the HMC Virtual Operator panel?
   - Yes, go to Chapter 47, "Messages and codes," on page 1467, look up the SRC and take the recommended action.
   - No, call your next level of support.
9. Retest the storage facility system boot up in normal mode. Perform the following steps:
   a. Power off the SF system as follows:
      - Select **Service Focal Point → Service Utilities**.
      - Select the storage facility, click on **Selected**, and then select **Get Storage Facility Images**.
      - Select the SF System, click on **Selected**, and then select **Storage System Power Control**.
      - On the System Power Control window, click on **Power Off System**.
      - Wait for the SF system to power down (Monitor the Server and Partition Management).
   b. Power on the SF system as follows:
      - On the System Power Control window, click on **Power On System to Ready**.
      - Monitor the power on and boot of the Storage Facility system using the CEC enclosure control panel and Server and Partition Management.
10. Did the storage facility system boot up to normal completion? (**Server and Partition Management shows Server → Operating and Partitions → Running**).
    - Yes, go to step 11.
    - No, if a serviceable event was created, repair the problem using the serviceable event. If the same SRN error occurs, contact your next level of support.
11. Resume the LPAR(s) on the SF system as follows:
    a. Select **Service Focal Point → Service Utilities**.
    b. Select the storage facility, click on **Selected**, and then select **Get ESS LPARs**.
    c. Click on **Start/Stop SFI LPAR**.
    d. On the Server Control Panel, click on **Resume LPAR**.
    e. If the Resume was successful, this is the end of the repair.

PGDPART

A CEC enclosure FRU is preventing the power on to a 'good' state.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Power off the failing Storage Facility System. Use **HMC → Service Applications → Service Focal Point → Service Utilities → Storage Facility Systems Management → Deactivate a System then Power Off a System**.
2. Check that the tower card is connected and seated properly. See "TWRCARD" on page 967.
3. Check that the power supplies are connected and seated properly. See "PWRSPLY" on page 927.
4. Power on the failing server. Use **HMC → Service Applications → Service Focal Point → Service Utilities → Storage Facility Systems Management → Power On a System** .
5. Is there a reference code 1*xxx*2600 or 2601?
   - Yes, exchange the following FRUs one at a time (see Chapter 44, "Location codes in serviceable events," on page 1415 and Chapter 34, "Exchanging parts," on page 991):
     - Tower card ("TWRCARD" on page 967)
     - Power supplies ("PWRSPLY" on page 927)
     - Memory cards (if installed)
     - Processor cards (if installed)
     - Backplane ("SYSBKPL" on page 964)
   - No, activate the Storage Facility system, then continue with step 6.
6. If not done already, power on the DS8000 processor complex, close associated problems, and return it to the customer. Perform the following:
   a. Power on the Storage Facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → Storage Facility Systems Management → Power On a System and Reactivate a System** .
   b. Use **HMC → Service Applications → Service Focal Point → Manage Serviceable Events → Power On a System and Reactivate a System** to close any associated problems. **This ends the procedure.**

PIOCARD

The multi-adapter bridge hardware that controls PCI adapters and PCI card slots detected an error.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Is a location code associated with this checkpoint?
   - Yes, go to step 2.
   - No, call your next level of support for assistance.
2. Does the location code identify a PCI adapter card?
   - Yes, replace that PCI card. If the problem persists replace the backplane that the PCI card is plugged into.
   - No, go to step 3.
3. Replace the backplane given in the location code.

This ends the procedure.

PLDUMP

This section describes the symbolic FRU PLDUMP.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

PLUS

The list of possible failing items that are displayed online is not complete. There is not enough space to display all of the failing items.

See the complete list of possible failing items in the appropriate unit reference code table in the Chapter 47, “Messages and codes,” on page 1467 section.

This ends the procedure.

PPCIMIN

The failing component is the primary PCI bus in an I/O unit.

Use symbolic FRU “PRI_PCI” to determine the FRU(s) and service information.

This ends the procedure.

PPCISYS

The failing component is the primary PCI bus in a system unit.

Use symbolic FRU “PRI_PCI” to determine the FRU(s) and service information.

This ends the procedure.

PPCITWR

The failing component is the primary PCI bus in an I/O unit.

Use symbolic FRU “PRI_PCI” to determine the FRU(s) and service information.

This ends the procedure.

PRI_PCI

There is an error on the primary PCI bus. This bus can be in a system unit or I/O unit.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC** →

Service Applications → Service Focal Point option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Is a location code associated with this checkpoint?

- Yes, replace the FRU indicated by the location code.
- No, call your next level of support for assistance.

This ends the procedure.

PTFSRCH

Licensed Internal Code is the failing item. Licensed Internal Code is the failing item.

PTNNTWK

One or more connections to a partition have been lost.

Note: This SRC and symbolic FRU is not expected on DS8000. Please report this problem to the next level of support. They might have you use the following procedure to isolate the problem.

1. Go to "MAP7000 Entry point for DS8000 private network problems" on page 855; follow the instructions to isolate the failure.
2. Was a problem found?
   - Yes, follow the steps in "MAP7000 Entry point for DS8000 private network problems" on page 855 to repair the failure. **This ends the procedure.**
   - No, go to step 3.
3. Is the peer HMC with the missing connection present in the topology?
   - Yes, the problem was temporary and has resolved itself. **This ends the procedure.**
   - No, go to step 4.
4. Is the HMC that reported the connection errors also reporting a hardware error with a network adapter?
   - Yes, service the network adapter error. **This ends the procedure.**
   - No, go to step 5.
5. Verify that the HMC with a missing connection is powered on and that its Ethernet connections are secure and functioning. Does the problem persist?
   - Yes, call your next level of support for assistance. **This ends the procedure.**
   - No, **this ends the procedure.**

PWR1900

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

PWR1900 Section-1

Follow the instructions for the enclosure on which you are working.

- For errors on a CEC enclosure, go to "PWR1904."
- For errors on an I/O enclosure, go to "PWR1909" on page 919.

PWR1902

This section describes the symbolic FRU PWR1902.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

PWR1903

This section describes the symbolic FRU PWR1903.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

PWR1904

A power supply or regulator overcurrent fault is occurring in the CEC enclosure.

Before servicing the system, refer to the other PWR19*xx* MAPs for important safety information.

PWR1904 Section-1

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Is the reference code 1*xxx*1C02, 1C04, or 1C06?
   - Yes, continue with the next step.
   - No, go to step 5 on page 916.
2. Is the reference code 1xxx 1C02 or 1C04?
   - Yes, go to step 4 on page 916.
   - No, continue with the next step.

3. Perform the following steps:
   a. Power off the failing DS8000 processor complex indicated in the problem. Use **HMC → Service Applications → Service Focal Point → Service Utilities → Storage Facility Systems Management → Deactivate a System then Power Off a System**.
   b. Replace one of the memory DIMMs on the processor cards (see Chapter 44, "Location codes in serviceable events," on page 1415 and Chapter 34, "Exchanging parts," on page 991).
   c. Power on the DS8000 processor complex. Use **HMC → Service Applications → Service Focal Point → Service Utilities → Storage Facility Systems Management → Power On a System**.
   d. Has the problem been resolved?
      - Yes, the problem is resolved, continue with step 17 on page 918.
      - No, go to step 3e.
   e. Have you replaced all of the memory DIMMs?
      - Yes, go to step 4.
      - No, repeat step 3 and replace the next memory DIMM.
4. Perform the following steps:
   a. Power off the failing DS8000 processor complex indicated in the problem. Use **HMC → Service Applications → Service Focal Point → Service Utilities → Storage Facility Systems Management → Deactivate a System then Power Off a System**.
   b. Replace one of the processor cards (see Chapter 34, "Exchanging parts," on page 991).
   c. Power on the DS8000 processor complex. Use **HMC → Service Applications → Service Focal Point → Service Utilities → Storage Facility Systems Management → Power On a System**.
   d. Has the problem been resolved?
      - Yes, the problem has been resolved. Continue with step 17 on page 918.
      - No, continue with step 4e.
   e. Have you replaced all of the processor cards?
      - Yes, go to step 8 on page 917.
      - No, repeat step 4 and replace the next processor card.
5. Perform the following steps:
   a. Power off the failing DS8000 processor complex indicated in the problem. Use **HMC → Service Applications → Service Focal Point → Service Utilities → Storage Facility Systems Management → Deactivate a System then Power Off a System** .
   b. Disconnect the power input cables to the CEC power supplies E1 and E2 (see Chapter 44, "Location codes in serviceable events," on page 1415).
   c. Disconnect all of the I/O devices (optical and disk units) from the CEC enclosure you are working on by sliding them partially out of the unit. See Chapter 44, "Location codes in serviceable events," on page 1415 and Chapter 34, "Exchanging parts," on page 991.
   d. Remove and label all PCI cards that are installed.
   e. Reconnect the power cable to the CEC power supplies E1 and E2.
   f. Power on the DS8000 processor complex. Use **HMC → Service Applications → Service Focal Point → Service Utilities → Storage Facility Systems Management → Power On a System**.

Does a power reference code occur?

- Yes, got to the next step.
- No, go to step 10.

6. Perform the following steps:
   a. Power off the failing DS8000 processor complex.
   b. Replace one of the system fans. See Subsystem Locations and Chapter 34, “Exchanging parts,” on page 991.
   c. Power on the DS8000 processor complex.

      Does a power reference code occur?

      - Yes, continue with the next step.
      - No, the fan you just replaced was the failing item. The problem is resolved; continue with step 17 on page 918.
7. Have you tried replacing all of the fans?
   - Yes, reinstall all of the fans you replaced in step 6 and continue with the next step.
   - No, perform the following steps:
     a. Power off the system.
     b. Reinstall the fan that you just removed in step 6 to its original location.
     c. Repeat step 6.
8. Perform the following steps:
   a. Power off the failing DS8000 processor complex.
   b. Replace one of the processor regulator cards. See Chapter 44, “Location codes in serviceable events,” on page 1415 and Chapter 34, “Exchanging parts,” on page 991.
   c. Power on the DS8000 processor complex.

      Does a power reference code occur?

      - Yes, continue with the next step.
      - No, the processor regular card you just replaced was the failing item. The problem is resolved. Continue with 17 on page 918.
9. Have you tried replacing all of the processor regulator cards?
   - Yes, replace the backplane - P2 “SYSBKPL” on page 964. **This ends the procedure.**
   - No, perform the following steps:
     a. Power off the failing DS8000 processor complex.
     b. Reinstall the processor regulator card that you just removed in step 8.
     c. Repeat step 8.
10. Perform the following steps:
    a. Power off the failing DS8000 processor complex.
    b. Reinstall all of the PCI cards you removed in step 5 on page 916 to their original locations.
    c. Power on the DS8000 processor complex.

       Does a power reference code occur?

       - Yes, continue with the next step.
       - No, go to step 13 on page 918.
11. Perform the following steps:
    a. Power off the DS8000 processor complex.

b. Disconnect one of the PCI cards you reinstalled in step 10 on page 917.
c. Power on the DS8000 processor complex.

   Does a power reference code occur?

   - Yes, continue with the next step.
   - No, exchange the last card you disconnected in this step (see Chapter 34, "Exchanging parts," on page 991). The problem is resolved, continue with step 17.

12. Have you tried disconnecting all of the PCI cards?
    - Yes, reinstall all of the parts you have removed or exchanged in this procedure and return to Chapter 1, "Start here," on page 1. **This ends the procedure.**
    - No, repeat step 11 on page 917.
13. Perform the following steps:
    a. Power off the DS8000 processor complex.
    b. Reconnect all of the I/O devices (optical and disk units) that you disconnected in step 5 on page 916.
    c. Power on the DS8000 processor complex.

       Does a power reference code occur?

       - Yes, continue with the next step.
       - No, the problem is resolved. Continue with step 16.
14. Perform the following steps.
    a. Power off the failing DS8000 processor complex.
    b. Disconnect one of the I/O devices (optical and disk units) that you reconnected in step 13.
    c. Power on the DS8000 processor complex.

       Does a power reference code occur?

       - Yes, continue with the next step.
       - No, exchange the last I/O device you disconnected in this step (see Chapter 34, "Exchanging parts," on page 991). The problem is resolved, continue with step 17.
15. Have you tried disconnecting all of the I/O devices?
    - Yes, reinstall all of the parts you have removed or exchanged in this procedure and return to Chapter 1, "Start here," on page 1. **This ends the procedure.**
    - No, repeat step 14.
16. The problem is resolved. Did you remove any parts that need to be reinstalled?
    - Yes, perform the following steps:
      a. Power off the DS8000 processor complex.
      b. Reinstall all of the parts that you have removed or exchanged in this procedure.
      c. Continue with step 17.
    - No, continue with the next step.
17. If you have not done so already, power on the DS8000 processor complex, close associated problems and return it to the customer. Perform the following:

a. Power on the storage facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → Storage Facility Systems Management → Power On a System and Reactivate a System**
b. To close any associated problems, use **HMC → Service Applications → Service Focal Point → Manage Serviceable Events**.

PWR1906

This section describes the symbolic FRU PWR1906.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

PWR1907

This section describes the symbolic FRU PWR1907.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

PWR1908

This section describes the symbolic FRU PWR1908.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

PWR1909

A power supply load fault is occurring in an I/O enclosure.

PWR1909 Section-1

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Perform the following steps:
   a. Power off the storage facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → View/Change a Storage Facility power mode**.
   b. Disconnect all the cables from the device and host adapter cards in I/O enclosure.
   c. Remove and label all cards installed in the PCI slots.
   d. Power on the storage facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → View/Change a Storage Facility power mode**.

   Does a power reference code occur?
   - Yes, continue with the next step.
   - No, go to step 5 on page 921.
2. Perform the following steps:
   a. Power off the storage facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → View/Change a Storage Facility power mode**.
   b. Remove the I/O enclosure fan. See Chapter 44, "Location codes in serviceable events," on page 1415 and Chapter 34, "Exchanging parts," on page 991.
   c. Power on the storage facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → View/Change a Storage Facility power mode**.

      Note: Disregard any fan reference codes that occur during this step, for example 1*xxx*7650/1.

   Does a power reference code occur (other than for the fan removal)?
   - Yes, continue with the next step.
   - No, the fan you removed in this step is the failing item. Replace the fan and go to step 11 on page 922.
3. Perform the following steps:
   a. Power off the storage facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → View/Change a Storage Facility power mode**.
   b. Re-install the I/O enclosure fan removed in step 2.
   c. Remove a power supply that you have not previously removed, and replace it with a new one. See Chapter 44, "Location codes in serviceable events," on page 1415 and Chapter 34, "Exchanging parts," on page 991.
   d. Power on the storage facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → View/Change a Storage Facility power mode**.

   Does a power reference code occur?
   - Yes, continue with the next step.

- No, the power supply that was removed in this step is the failing item. Go to step 11 on page 922.

4. Have you replaced all of the power supplies one at a time?
   - Yes, perform the following steps.
     a. Power off the storage facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → View/Change a Storage Facility power mode**.
     b. Remove the new power supply that you installed in step 3 on page 920 and reinstall the original power supply.
     c. Replace the I/O enclosure backplane. See Chapter 44, "Location codes in serviceable events," on page 1415 and Chapter 34, "Exchanging parts," on page 991.
     d. Go to step 11 on page 922.
   - No, remove the new power supply that you installed in step 3 on page 920 and reinstall the original power supply. Then, repeat step 3 on page 920.
5. Perform the following steps:
   a. Power off the storage facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → View/Change a Storage Facility power mode**.
   b. Reinstall all of the cards you removed in step 1 on page 920.
   c. Power on the storage facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → View/Change a Storage Facility power mode**.

   Does a power reference code occur?
   - Yes, continue with the next step.
   - No, go to step 8.
6. Perform the following steps:
   a. Power off the storage facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → View/Change a Storage Facility power mode**.
   b. Remove one of the cards you reinstalled in step 5.
   c. Power on the storage facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → View/Change a Storage Facility power mode**.

   Does a power reference code occur?
   - Yes, continue with the next step.
   - No, exchange the last card you removed in this step. Go to step 11 on page 922.
7. Have you disconnected all the cards?
   - Yes, perform the following steps:
   - No, repeat step 6.

     a. If the SRC is the same as when you started, then go to step 2 on page 920.

     b. If the SRC is not the same, reinstall all the parts and return to the Chapter 1, "Start here," on page 1.
8. Perform the following steps:
   a. Power off the storage facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → View/Change a Storage Facility power mode**.

b. Reconnect all of the cables that you disconnected in step 1 on page 920.
c. Power on the storage facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → View/Change a Storage Facility power mode**.

Does a power reference code occur?

- Yes, continue with the next step.
- No, go to step 11.

9. Perform the following steps:
   a. Power off the system.
   b. Disconnect one of the cables that you reconnected in step 8 on page 921.
   c. Power on the system.

   Does a power reference code occur?
   - Yes, continue with the next step.
   - No, the problem appears to be:
     – The port/connector to which the cable attaches.
     – A short circuit on the cable.
     – The attached device (for example, storage enclosure fibre channel interface card) Use **HMC → Service Applications → Service Focal Point → Exchange Parts** option to replace the failing FRU. Go to step 11.
10. Have you disconnected all of the cables?
    - Yes, perform the following steps:
      – If the SRC is the same as when you started, then go to step 1 on page 920.
      – If the SRC is not the same, reinstall all the parts and return to the Chapter 1, “Start here,” on page 1.
    - No, repeat step 9.
11. The problem is now resolved. Have you reinstalled all of the cards and reconnected all of the cables?
    - Yes, use **HMC → Service Applications → Service Focal Point → Manage Serviceable Events** to close any associated problems.
    - No, perform the following steps:
      a. Power off the storage facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → View/Change a Storage Facility power mode**.
      b. Reinstall all of the cards and reconnect all of the cables.
      c. Power on the storage facility. Use **HMC → Service Applications → Service Focal Point → Service Utilities → View/Change a Storage Facility power mode**.
      d. Use **HMC → Service Applications → Service Focal Point → Manage Serviceable Events** to close any associated problems.

PWR1911

An input power problem on either a CEC or I/O enclosure has occurred.

PWR1911 Section-1

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC →**

Service Applications → Service Focal Point option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. This problem can be caused by a failure of a rack primary power supply. Are there any serviceable events that list a PPS as the failing FRU?
   - Yes, repair those problems first. If that does not resolve the problem, then return here and continue with the next step.
   - No, continue with the next step.
2. Observe the six vertical LED indicators at the front of each primary power supply (to the left of the fans). Are the LED indications on both PPSs as shown in the following table?
   - Yes, continue with the next step.
   - No, go to "MAP21A0 PPS fault isolation during install" on page 592.

Table 283. PPS LED indicator state

AC INPUT GOOD	UEPO LOOP GOOD	208V PWR GOOD	DDM PWR GOOD	PPS FAULT	On BATTERY PWR
On	On	On	On	Off	Off

3. On the unit (CEC or I/O drawer) that does not power on, perform the following steps:
   a. Disconnect the line cords from the power supplies. Refer to Chapter 44, "Location codes in serviceable events," on page 1415 for the location.
   b. Use a multimeter to measure the DC voltage at the power supply end of both line cords.
   c. Check for 208 VAC (+/- 2.0 V) on each line cord. Is the voltage correct?
      - Yes, continue with the next step.
      - No, go to step 5.
4. Find the enclosure in the table that follows and replace the appropriate part.

Table 284. Replacing the failing part

Unit	Failing parts	Action
CEC or 7311 D11 I/O Enclosure	E1, E2	Refer to Chapter 34, "Exchanging parts," on page 991

5. Is the AC good LED off on multiple power supplies in this rack?
   - Yes, it appears that the DC distribution from the PPS to the 208 VDC distribution assembly is failing. Trace the failing line cord to the 208 VDC distribution assembly and from there to the PPS. Check that all connectors are plugged correctly and do not show signs of damage. If you do not find a problem, replace the following FRUs sequentially. See Chapter 34, "Exchanging parts," on page 991.
     - PPS
     - Cables from PPS to side bus bar
     - Side bus bar
     - Cables from side bus bar to 208 VDC distribution assembly
     - 208 VDC distribution assembly
   - No, replace the line cord from the 208 VDC distribution assembly to the power supply. If the problem is still evident, replace the 208 VDC distribution assembly. See Chapter 34, "Exchanging parts," on page 991.

PWR1912

This section describes the symbolic FRU PWR1912.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

PWR1916

The system power control network (SPCN) identifier might be set incorrectly.

PWR1916 Section-1

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Launch a WebSM session on the failing service processor card. Use **HMC → Service Applications → Service Focal Point → Service Utilities → Target the failing Processor Complex/Launch WebSM**.
2. Log on to ASM. Use the userid `celogin`. Contact your support center for the required password.
3. Open the System information and select **Configure I/O Enclosures**.
4. Check the Power Control Network Identifiers for the CEC and I/O enclosures. The CEC enclosure should be set to 0*x*B6 and all I/O enclosures should be set to 0*x*88. For an example of the display, see Table 285.

Table 285. Example display for the power control network identifiers

Rack address	Unit address	Power Control Network Identifier	Type - Model	Serial Number	Location code
0*x*3C00	0*x*1	0*x*B6	7879-570	0012345	U7879.001.0012345
0*x*3C01	0*x*1	0*x*88	1300-001	BB0032A	U1300.001.BB0032A

5. Were the power control network identifiers set correctly?
   - Yes, continue with the next step.
   - No, update the values using the WebSM menu selections and continue with the next step.
6. Retry the operation that failed. If the problem persists, go to the appropriate procedure:
   - For CEC enclosure, go to "PWR1904" on page 915.
   - For I/O enclosure, go to "PWR1909" on page 919.

PWR1917

A processor regulator card is failing.

PWR1917 Section-1

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Is the SRC 1*xxx*8400?
   - Yes, reenter and save the correct configuration ID value, even if the correct value is already displayed. Go to "MAP4820 Performing a slow boot of a processor complex" on page 706. If the problem persists, continue with the next step.
   - No, continue with the next step.
2. Use ASMI to display the configuration ID for the CEC and I/O enclosures. For information on launching ASMI, refer to "MAP6F00 Accessing the ASMI" on page 851.

   Note: To perform this step, the SF systems must be powered on.

   a. Logon with userid `celogin` and password `FipSce`.
   b. Select **System Configuration**, then **Configure I/O enclosures**.
   c. Refer to Table 286 to check the values are correct for the CEC and I/O enclosures.
   d. Continue with step 3.

Table 286. Configuration IDs

Model or expansion unit	Configuration ID
9117-570	B6
7311-D11 I/O Enclosure	88

3. Is the correct configuration ID displayed for the CEC or I/O enclosures selected?
   - Yes, if the problem persists, continue with step 6 on page 926.
   - No, continue with the next step.
4. Is the CEC enclosure configuration correct?
   - Yes, set the correct configuration ID value. Go to "MAP4820 Performing a slow boot of a processor complex" on page 706. If the problem persists, continue with step 6.
   - No, continue with the next step.
5. This is not an expected condition. Contact your next level of support.

   Note: To set the I/O enclosure configuration ID, both Storage Facility systems must be powered on to Server Firmware Standby Mode. This cannot be performed concurrently with customer access to the storage facility.

   The next level of support might ask you to perform the following steps to correct the I/O enclosure configuration ID.

   a. Use **Service Focal Point → Service Utilities → Manage Power Control** to power off the storage facility.

b. Use **Service Focal Point → Service Utilities → Get Storage Facility Images → Select an SF system → Storage System Power Control → Power on System to Standby**.
c. Repeat the previous step for the other SF system.
d. Access ASMI against the SF system as described in step 2 on page 925.
e. Select **System Configuration** then **Configure I/O enclosures**.
f. Set the **Power Control Network Identifier** to 88.
g. Click **Save Settings**.
h. Set the **Local/Remote switch** to Local and use the white service switch to power off the Storage Facility.
i. Set the **Local/Remote switch** to Remote.
j. Use **Service Focal Point → Service Utilities → Manage Power Control** to power on the Storage Facility.
k. If the problem persists then exchange the SPCN card in the failure enclosure, see "TWRCARD" on page 967.

6. Exchange the SPCN card in the failing enclosure see "TWRCARD" on page 967.

PWR1918

A processor regulator card is failing.

PWR1918 Section-1

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Use the table that follows to determine the failing FRU.

Table 287. Reference code repair actions

Reference code	Description/Action
1*xxx*8450	Fewer processor regulator cards than processor cards are installed.
1*xxx*8451	Too few processor regulator cards installed.
1*xxx*1611/12/13	Processor regulator 1 at location -P2-C3 is failing. Replace it.
1*xxx*1621/22/23	Processor regulator 2 at location -P2-C4 is failing. Replace it.
1*xxx*1631/32/33	Processor regulator 3 at location -P2-C5 is failing. Replace it.
1*xxx*2602	Failing regulator card cannot be determined. Replace regulator cards sequentially, and then the distribution backplane.

PWR1920

This section describes the symbolic FRU PWR1920.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

PWR2402

This section describes the symbolic FRU PWR2402.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

PWRCBL

The failing item is the SPCN frame-to-frame cable or adapter.

If you have just replaced an SPCN adapter card, replace the frame-to-frame cable that was connected to that card. If no location code is available call your next level of support.

This ends the procedure.

PWROC

A power supply is reporting a load fault.

Go to "(1*xxxxxxx*) System power control network (SPCN) reference codes" on page 1850 and locate the SRC you are working on to service this problem.

This ends the procedure.

PWRSPLY

A power supply may be the failing item.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Is the reference code 1*xxx*15*xx*?
   - Yes, perform the following:
     a. Find the unit reference code in the following tables to determine the failing power supply.
     b. Refer to Chapter 44, "Location codes in serviceable events," on page 1415 to determine the location and part number of the failing item.

c. Replace the failing power supply (see the tables below to determine which power supply to replace). Refer to Chapter 34, “Exchanging parts,” on page 991.
d. Perform the following if the new power supply does not fix the problem:
1) Reinstall the original power supply.
2) Try the new power supply in each of the other positions listed in the table.
3) If the problem still is not fixed, reinstall the original power supply and go to the next FRU in the list.
4) For reference codes 1*xxx*1500, 1510, 1520, and 1530, exchange the power distribution backplane if a problem prevails after replacing the power supply.

- No, continue with the next step.

Table 288. Reference code to power supply translation

Reference code	Power supply
CEC or 7311 D11 I/O Enclosure	
1510, 1511, 1512, 1513, 1514, 7110	E1
1520, 1521, 1522, 1523, 1524, 7120	E2

2. Is the reference code 1*xxx*2600, 2601, 2603, 2605, or 2606?
   - Yes, perform the following:
     a. The failing power supply is either E1 or E2.
     b. Refer to Chapter 44, “Location codes in serviceable events,” on page 1415 to determine the location and part number of the failing item.
     c. Replace the failing power supply. Refer to Chapter 34, “Exchanging parts,” on page 991.
     d. Perform the following if the new power supply does not fix the problem:
        1) Reinstall the original power supply.
        2) Try the new power supply in each of the other positions listed in the table.
        3) If the problem still is not fixed, reinstall the original power supply and go to the next FRU in the list. **This ends the procedure.**
   - No, continue with the next step.
3. Is the reference code 1*xxx*7300?
   - Yes, perform the following:
     a. The failing power supply is either E1 or E2.
     b. Refer to Chapter 44, “Location codes in serviceable events,” on page 1415 to determine the location and part number of the failing item.
     c. Replace the failing power supply. Refer to Chapter 34, “Exchanging parts,” on page 991.
     d. Perform the following if the new power supply does not fix the problem:
        1) Reinstall the original power supply.
        2) Try the new power supply in the other position.
        3) If the problem still is not fixed, reinstall the original power supply and go to the next FRU in the list. **This ends the procedure.**
   - No, continue with the next step.
4. Is the reference code 1*xxx*8455 or 8456?

- Yes, one of the power supplies is missing, and must be installed. Use the following table to determine which power supply is missing, and the install the power supply (see Chapter 44, "Location codes in serviceable events," on page 1415 and Chapter 34, "Exchanging parts," on page 991).
- No, return to Start of call procedure. **This ends the procedure.**

Table 289. Reference code to power supply translation

Reference code	**Missing power supply**
1*xxx*8455	E1
1*xxx*8456	E2

Chapter 27. Q Procedures

QDCCRLS

Licensed Internal Code is the failing item.

Call your next level of support for assistance. This problem might be resolved by installing the latest version of Licensed Internal Code (LIC).

This ends the procedure.

QSYSOPR

This section describes the symbolic FRU QSYSOPR.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

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Chapter 28. R Procedures

REFER

This section describes the symbolic FRU REFER.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

REM_NIC

This section describes the symbolic FRU REM_NIC.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

REM_SYS

This section describes the symbolic FRU REM_SYS.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

RIOIP01

Use this procedure to isolate a failure in a high-speed link (HSL) loop using i5/OS™ service tools.

Follow the steps in the "RIOIP01 Section-1: Main task" on page 934 and you will be directed to the proper subtasks.

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Note: During this procedure, you will be disconnecting and reconnecting cables. If errors concerning missing resources (such as disk units and HSL failures) occur, ignore them. Missing resources will report in again when the loop reinitializes.

RIOIP01 Section-1: Main task

1. Were you directed here while working on a B700*xxxx* reference code?
   - Yes, go to step 4.
   - No, continue with the next step.
2. Are you working on a 520 or 570?
   - Yes, go to step 4.
   - No, continue with the next step.
3. Were you sent here from a B600*xxxx* reference code?
   - Yes, use the serviceable event view and the system service documentation to search for a B700*xxxx* reference code with the same last four characters reported at approximately the same time. If you find one, perform service on that reference code first, and when you close that problem, close this one as well. If you do not find one, continue with the next step.
   - No, continue with the next step.
4. Before powering down any system unit or expansion unit, work with the customer to end all subsystems in all of the partitions using each partition's console.
5. From the partition control panel, IPL the system or partition to Dedicated Service Tools (DST).

   Attention: Do not use function 21!
6. Are all system and expansion units on the loop powered on?
   - Yes, go to step 8.
   - No, continue with the next step.
7. Perform the following:
   a. Power on all system and expansion units on the loop. If a frame cannot be powered on, perform the "RIOIP01 Section-5: Cannot power on unit" on page 939 subtask below, and then continue with step 8.
   b. Was the HSL link error cleared up when the frames were powered back on?
      - Yes, go to **Verifying the repair**.
      - No, continue with the next step.

      This ends the procedure.
8. Perform the following:
   a. Access the Service Action Log (SAL) entry for this error; the field replaceable units (FRUs) should be listed there. Look for part numbers and descriptions for the FRUs containing the HSL port for two frames. There should also be a FRU for the cable between them. The locations information for the FRUs is the location of the failed ports on the failed link.
   b. Record the loop number from the SAL (if it is displayed there in one of the FRU descriptions) or from the first four characters of word 7 of the reference code. Go to Converting the loop number to NIC port location labels to determine which HSL/RIO cables on the system you are working with. Is this information in the SAL?

- Yes, continue with the next step.
- No, perform "RIOIP01 Section-6: Manually detecting the failed link" on page 939 below, and then continue with the next step of the main task.

9. Is the cable connecting the failed ports an optical cable?
   - Yes, continue with the next step.
   - No, go to step 11.
10. Perform the following:
    a. Clean the HSL cable connectors and ports using the tools and procedures in symbolic FRU "OPT_CLN" on page 903.
    b. To determine if cleaning the connectors and ports solved the problem, perform "RIOIP01 Section-6: Manually detecting the failed link" on page 939 below and return to this point. Did the ports you were working on have a status of ″failed″?
       - Yes, continue with the next step.
       - No, the problem is fixed. Go to **Verifying the repair**. **This ends the procedure.**
11. There are now three cases to consider. Continue with the appropriate subtask of this procedure:
    - The ports on both ends of the failed link are in different system units on the loop.
    - The port on one end of the failed link is in a system unit and the port on the other end is in an I/O unit.
    - The ports on both ends of the failed link are in an I/O unit.

RIOIP01 Section-2: The ports on both ends of the failed link are in different system units on the loop

1. There might be failed hardware that will report a different error on the other system units. Perform the following:
   a. Work any other HSL/RIO problems in the serviceable event view on the other system units.
   b. Perform "RIOIP01 Section-6: Manually detecting the failed link" on page 939 below and return to this point. Did the ports you were working on have a status of ″failed″?
      - Yes, continue with the next step.
      - No, the problem is fixed. Go to **Verifying the repair**. **This ends the procedure.**
2. Is the cable an optical HSL/RIO cable?
   - Yes, go to step 4 on page 936.
   - No, continue with the next step.
3. Perform the following:
   a. Check the thumb screws on the cable connectors at both ends of the cable to ensure they are tight. For any thumb screw that was loose, disconnect the cable at that end, wait 30 seconds, reconnect the cable, and tighten the thumb screws. You must tighten both thumb screws within 30 seconds of when the cable makes contact with the port.
   b. If you disconnected and reconnected the cable at either end, perform "RIOIP01 Section-6: Manually detecting the failed link" on page 939 below and return to this point. Did the ports you were working on have a status of ″failed″?

- Yes, continue with the next step.
- No, the problem is fixed. Go to **Verifying the repair**. **This ends the procedure.**

4. Replace the cable between the two system unit ports on the failed link. To determine if replacing the cable resolved the problem, perform "RIOIP01 Section-6: Manually detecting the failed link" on page 939 below and return to this point. Did the ports you were working on have a status of ″failed″?
   - Yes, continue with the next step.
   - No, the problem is fixed. Go to **Verifying the repair**. **This ends the procedure.**
5. Exchange the FRU with the HSL/RIO port in one of the system units. If you are working with a serviceable event view and the HSL FRUs are listed, exchange the FRU corresponding to the first HSL/RIO cable port listed. Otherwise, exchange the FRU that is quickest and easiest to replace). To determine if replacing the FRU resolved the problem, perform "RIOIP01 Section-6: Manually detecting the failed link" on page 939 below and return to this point. Did the ports you were working on have a status of ″failed″?
   - Yes, continue with the next step.
   - No, the problem is fixed. Go to **Verifying the repair**. **This ends the procedure.**
6. Exchange the remaining FRU with the HSL/RIO port on the other system unit. To determine if replacing the FRU resolved the problem, perform "RIOIP01 Section-6: Manually detecting the failed link" on page 939 below and return to this point. Did the ports you were working on have a status of ″failed″?
   - Yes, continue with the next step.
   - No, the problem is fixed. Go to **Verifying the repair**. **This ends the procedure.**
7. Use symbolic FRU "HSL_LNK" on page 414 to determine if there are any additional HSL/RIO cable-related FRUs, such as interposer cards and internal ribbon cables, that might be on either unit. Did you exchange any additional HSL/RIO FRUs?
   - Yes, continue with the next step.
   - No, call your next level of support for further instruction. **This ends the procedure.**
8. To determine if replacing the FRU resolved the problem, perform "RIOIP01 Section-6: Manually detecting the failed link" on page 939 below and return to this point. Did the ports you were working on have a status of ″failed″?
   - Yes, call your next level of support for further instruction. **This ends the procedure.**
   - No, the problem is fixed. Go to **Verifying the repair**. **This ends the procedure.**

RIOIP01 Section-3: The port on one end of the failed link is in a system unit and the port on the other end is in an I/O unit

1. Switch the two HSL/RIO cables on the I/O unit with the failed port, so that each cable is connected to the port where the other cable was previously connected. Disconnect both cables at the same time, wait 30 seconds, and then reconnect the cables one at a time.

Attention: For copper cables, you must fully connect the cable and tighten the connector's screws within 30 seconds of when the cable makes contact with the port. Otherwise, the link will fail and you must disconnect and reconnect again. Also, if the connector screws are not tightened, errors will occur on the link and it will fail.

2. Refresh the port status for the first failing resource by performing Refresh the port status below. Then continue with the next step.
3. Is the port on the system unit that was failed now working?
   - Yes, perform symbolic FRU "SIIOADP" on page 958 to exchange the HSL I/O bridge FRU in the I/O unit. Go to **Verifying the repair**. **This ends the procedure.**
   - No, continue with the next step.
4. Switch the cables back to their original positions by disconnecting both cables at the same time, waiting 30 seconds, and then reconnecting the cables one at a time.

   Attention: For copper cables, you must fully connect the cable and tighten the connector's screws within 30 seconds of when the cable makes contact with the port. Otherwise, the link will fail and you must disconnect and reconnect again. Also, if the connector screws are not tightened, errors will occur on the link and it will fail.
5. Refresh the port status for the first failing resource by performing Refresh the port status below. Then continue with the next step.
6. Exchange the cable between the two ports on the failed link. To determine if replacing the cable resolved the problem, perform "RIOIP01 Section-6: Manually detecting the failed link" on page 939 below and return to this point. Did the ports you were working on have a status of ″failed″?
   - Yes, continue with the next step.
   - No, then the problem is fixed. Go to **Verifying the repair**. **This ends the procedure.**
7. Exchange the HSL/RIO FRU that contains the failing port in the system unit. To determine if replacing the FRU resolved the problem, perform "RIOIP01 Section-6: Manually detecting the failed link" on page 939 below and return to this point. Did the ports you were working on have a status of ″failed″?
   - Yes, continue with the next step.
   - No, the problem is fixed. Go to **Verifying the repair**. **This ends the procedure.**
8. Use symbolic FRU "HSL_LNK" on page 414 to determine if there are any additional HSL/RIO cable-related FRUs, such as interposer cards and internal ribbon cables, that may be on either unit. Did you exchange any additional HSL/RIO FRUs?
   - Yes, continue with the next step.
   - No, call your next level of support for further instruction. **This ends the procedure.**
9. To determine if replacing the FRU resolved the problem, perform "RIOIP01 Section-6: Manually detecting the failed link" on page 939 below and return to this point. Did the ports you were working on have a status of ″failed″?
   - Yes, call your next level of support for further instruction. **This ends the procedure.**
   - No, the problem is fixed. Go to **Verifying the repair**. **This ends the procedure.**

RIOIP01 Section-4: The ports on both ends of the failed link are in an I/O unit

1. Switch the two HSL/RIO cables on the first (or ″From″) cable's I/O unit with the failed port so that each cable is connected to the port where the other cable was previously connected.

   Attention: For copper cables, you must fully connect the cable and tighten the connector's screws within 30 seconds of when the cable makes contact with the port. Otherwise, the link will fail and you must disconnect and reconnect again. Also, if the connector screws are not tightened, errors will occur on the link and it will fail.
2. Refresh the port status for the first failing resource by performing Refresh the port status below. Then continue with the next step.
3. Is the port on the I/O unit on which you did not switch the cables now working?
   - Yes, use symbolic FRU "SIIOADP" on page 958 to exchange the HSL/RIO I/O bridge card in the I/O unit where you just switched the cables. The continue with the next step.
   - No, go to step 5.
4. To determine if replacing the FRU resolved the problem, perform "RIOIP01 Section-6: Manually detecting the failed link" on page 939 below and return to this point. Did the ports you were working on have a status of ″failed″?
   - Yes, continue with the next step.
   - No, the problem is fixed. Go to **Verifying the repair**. **This ends the procedure.**
5. Switch the cables back to their original positions.

   Attention: For copper cables, you must fully connect the cable and tighten the connector's screws within 30 seconds of when the cable makes contact with the port. Otherwise, the link will fail and you must disconnect and reconnect again. Also, if the connector screws are not tightened, errors will occur on the link and it will fail.
6. Switch the two HSL/RIO cables on the second (or ″To″) I/O unit with the failed port so that each cable is connected to the port where the other cable was previously connected.

   Attention: For copper cables, you must fully connect the cable and tighten the connector's screws within 30 seconds of when the cable makes contact with the port. Otherwise, the link will fail and you must disconnect and reconnect again. Also, if the connector screws are not tightened, errors will occur on the link and it will fail.
7. Refresh the port status for the first failing resource by performing Refresh the port status below. Then continue with the next step.
8. Is the port on the I/O unit on which you did not switch cables now working?
   - Yes, use symbolic FRU "SIIOADP" on page 958 to exchange the HSL/RIO I/O bridge card in the I/O unit where you just switched the cables. Then continue with the next step.
   - No, go to step 10 on page 939.
9. To determine if replacing the FRU resolved the problem, perform "RIOIP01 Section-6: Manually detecting the failed link" on page 939 below and return to this point. Did the ports you were working on have a status of ″failed″?
   - Yes, continue with the next step.

- No, the problem is fixed. Go to **Verifying the repair**. **This ends the procedure.**

10. Switch the cables back to their original positions.

    Attention: For copper cables, you must fully connect the cable and tighten the connector's screws within 30 seconds of when the cable makes contact with the port. Otherwise, the link will fail and you must disconnect and reconnect again. Also, if the connector screws are not tightened, errors will occur on the link and it will fail.

11. Exchange the HSL/RIO cable between the two ports on the failed link. To determine if replacing the cable resolved the problem, perform "RIOIP01 Section-6: Manually detecting the failed link" below and return to this point. Did the ports you were working on have a status of ″failed″?
    - Yes, continue with the next step.
    - No, the problem is fixed. Go to **Verifying the repair**. **This ends the procedure.**

12. Use symbolic FRU "HSL_LNK" on page 414 to determine if there are any additional HSL/RIO cable-related FRUs, such as interposer cards and internal ribbon cables, that may be on either unit. Did you exchange any additional HSL/RIO FRUs?
    - Yes, continue with the next step.
    - No, call your next level of support for further instruction. **This ends the procedure.**

13. To determine if replacing the FRU resolved the problem, perform "RIOIP01 Section-6: Manually detecting the failed link" below and return to this point. Did the ports you were working on have a status of ″failed″?
    - Yes, call your next level of support for further instruction. **This ends the procedure.**
    - No, the problem is fixed. Go to **Verifying the repair**. **This ends the procedure.**

RIOIP01 Section-5: Cannot power on unit

1. Work the errors related to powering on the units, and then continue with the next step. If a unit still cannot be powered on, re-cable the HSL/RIO loop without the I/O units and system units that cannot be powered on, allowing the loop to be complete (no disconnected cables).
2. To determine if re-cabling the loop resolved the problem, perform "RIOIP01 Section-6: Manually detecting the failed link" below and return to this point.

RIOIP01 Section-6: Manually detecting the failed link

1. Get the loop number from the reference code if you do not already have it. The loop number is a hexadecimal number in word 7 of the reference code.
   - If you are working from the Product Activity Log (PAL®), then the loop number is the 4 leftmost characters of the DSA in word 7 (BBBB). Use the DSA translation to convert the hexadecimal loop number to decimal format before continuing with this procedure.
   - If you are working from the Service Action Log (SAL), the loop number should be displayed in the FRU description area in decimal format.
2. Sign on to SST or DST (if you have not already done so). Select **Start a service tool → Hardware service manager → Logical hardware resources → High-speed link (HSL) resources**.

3. Select **Resources associated with loop** for the HSL loop with the failed link. The HSL bridges will be displayed under the loop.
4. Select **Display detail** for the loop with the failed link.
5. Record the name of the NIC/RIO controller resource you are starting from on the display. You will need this name to determine if you have followed the loop around and back to this resource.
6. If the leading port does not have a status of ″failed″, select **Follow leading port** until a leading port with a ″failed″ status is found, or the display is showing information for the starting NIC/RIO resource you recorded. Did you find a leading port with a status of ″failed″?
   - Yes, record the resource name at the leading port with a ″failed″ status, and the type, model, and serial number for the resource with the failed status. Continue with the next step.
   - No, the loop is functioning properly. Return to the subtask that sent you here.
7. Select **Follow leading port** one more time and note all the information for the resource name with a failed trailing port.
8. Select **Display system information** and note the power controlling system's type, model, and serial number (and name, if available). This information may be needed for FRU replacement at a later time.
9. Select **Cancel** twice to return to the previous screen.
10. Select **Associated packaging resource(s)** from each resource name. This gives the description of the failing item and the frame ID.
11. Select **Display detail** to find the part number and location associated with the possible failing item. Then return to the step that sent you here.

RIOIP01 Section-7: Refresh the port status

1. Wait one minute, and then sign on to SST or DST (if you have not already done so).
2. Select **Start a service tool → Hardware service manager → Logical hardware resources → High-speed link (HSL) resources**.
3. Move the cursor to the HSL loop that you want to examine and select **Display detail → Include non-reporting resources**.
4. If the display is not showing the ports for one of the units you are working on, select **Follow leading port**. Continue to select **Follow leading port** until the display is showing the ports for one of the units you are working on. Note the status of the port you were working on. Select **Follow leading port** until the display is showing the ports for the other unit you are working on, and note the status of the port you were working on.
5. Select **Cancel → Refresh → Display detail** for the failing resource you are checking. Note any change in the status for the resource. Then return to the step that sent you here.

RIOIP02

Use this procedure to determine the status of HSL/RIO ports in the loop and to identify failing resources.

RIOIP02 Section-1

1. Sign on to SST or DST (if you have not already done so).

2. Select **Start a service tool → Hardware service manager → Logical hardware resources → High-speed link (HSL) resources**.
3. Select **Include non-reporting resources**. Move the cursor to the HSL loop that you want to examine and select **Display detail**.
4. The display that appears shows the port status of the Network Interface Controller (NIC) for the loop that you selected. Record the resource name, type-model, and serial number, if it has not been previously recorded.
5. Is the status of the ″Leading port to next resource″ operational?
   - Yes, select **Follow Leading Port**. Then continue with the next step.
   - No, you have found the first ″failed″ link. You will be directed to find the other ″failed″ link. Go to step 7.
6. Is the resource name the same name that you recorded for the NIC in step 4?
   - Yes, you have followed the HSL links around the loop and back to the NIC on the system, but did not find a failed link. Return to the procedure that sent you here. **This ends the procedure.**
   - No, the display that appears shows the status of the HSL ports for the next I/O bridge resource on the loop. Go to step 5.
7. Find the information for the first failing resource using the following steps:
   a. Record the information as the first failing resource on the link.
   b. Record the resource name, card type-model, and part number.
   c. Record the link status of each port. Record 'Internal' if the port is designated as internal.
   d. Select **Cancel** to return to the Work with High-speed link (HSL) resources display.
   e. For the loop with the failure, select **Resources associated with loop**.
   f. For the HSL I/O bridge with the resource name that you recorded, select **Associated packaging resources**.
   g. Record the frame ID for the first failing link.
   h. Select **Display detail**, and record the card position for the first failing resource.
8. Find the information for the other (second) failing resource by following these steps:
   a. Record this information as the second failing resource on the link.
   b. Select **Cancel → Cancel** to return to the Logical hardware associated with HSL loops display.
   c. Move the cursor to the HSL I/O bridge with the name of the first failing resource, and select **Display detail → Include non-reporting resources**.
   d. Follow the failed port by doing one of the following:
      - If the leading port is failed, select **Follow leading port**.
      - If the trailing port is failed, select **Follow trailing port**.
   e. You have located the second failing resource on the link.
   f. Record the resource name, card type-model, and part number.
   g. Record the link status of each port for the second failing link. Record ″Internal″ if the port is designated as internal.
   h. Select **Cancel** to return to the Logical hardware associated with HSL loops display.
   i. Select **Include non-reporting resources → Associated packaging resources** for the HSL I/O bridge or Network Interface Controller (NIC) with the resource name that you recorded for the second failed resource.

j. Record the frame ID (if present) and port for the second failing link.

k. Select **Display detail** and record the card position for the second failing resource.

9. Have you repeated steps 1 on page 940 through 8 on page 941 for a second time during this procedure?
   - Yes, return to the procedure that sent you here. **This ends the procedure.**
   - No, continue with the next step.
10. Do the first failing link and the second failing link have the same frame ID?
    - Yes, return to the procedure that sent you here. **This ends the procedure.**
    - No, continue with the next step to determine if the HSL cable connectors between the first and second failing resources are properly seated and cleaned.
11. Disconnect the cable at the frame ID, card position, and port that you recorded for the first failing resource.
12. Is the connection an optical link?
    - Yes, clean the HSL cable connector and port using the tools and procedures listed in symbolic FRU "OPT_CLN" on page 903. Then continue with the next step.
    - No, wait at least 30 seconds, and then continue with the next step.
13. Reconnect the cable to the port.

    Attention: For copper cables, you must fully connect the cable and tighten the connector's screws within 30 seconds of when the cable makes contact with the port. Otherwise, the link will fail and you must disconnect and reconnect again. Also, if the connector screws are not tightened, errors will occur on the link and it will fail.
14. Disconnect the cable at the frame ID, card position, and port that you recorded for the second failing resource.
15. Is the connection an optical link?
    - Yes, clean the HSL cable connector and port using the tools and procedures listed in symbolic FRU "OPT_CLN" on page 903. Then continue with the next step.
    - No, wait at least 30 seconds, and then continue with the next step.
16. Reconnect the cable to the port.

    Attention: For copper cables, you must fully connect the cable and tighten the connector's screws within 30 seconds of when the cable makes contact with the port. Otherwise, the link will fail and you must disconnect and reconnect again. Also, if the connector screws are not tightened, errors will occur on the link and it will fail.
17. Wait one minute to allow the changes to be detected by LIC.
18. Determine if the link has become "operational" by repeating steps 1 on page 940 through 8 on page 941 for a second time. There is no need to duplicate any information you have already recorded. Return to the procedure that sent you here, when you are directed to do so in steps 1 on page 940 through 8 on page 941. **This ends the procedure.**

RIOIP03

Use HSM to examine the HSL Loop to find failing items. Use this procedure to determine the status of HSL links in the loop.

RIOIP03 Section-1

1. Sign on to SST or DST.
2. Select **Start a service tool → Hardware service manager → Logical hardware resources → High-speed link resources**.
3. Move the cursor to the HSL loop that you want to examine, and select **Display detail → Include non-reporting resources**. The display that appears shows the port status of the HSL controller for the loop that you selected.
4. Record the resource name, type-model, and serial number, if it has not been previously recorded.
5. Is the status of the ″Leading port to next resource″ operational?
   - Yes, select **Follow leading port**. Then, continue with the next step.
   - No, you have found the first ″failed″ resource in the link. You will be directed to find the other ″failed″ resource on this link. Go to step 8.
6. Record the HSL resource name, type-model, part number, and port.
7. Is the resource name the same name that you recorded for the HSL controller in step 4?
   - Yes, you have followed the HSL links around the loop and back to the HSL controller on the system. You did not find a ″failed″ link. Return to the procedure that sent you here. **This ends the procedure.**
   - No, the display that appears is showing the status of the HSL ports for the next I/O adapter resource on the loop. Go to step 5.
8. Find and record the information for the ″first″ failing resource using the following steps:
   a. Record the resource name, card type-model, part number, and port.
   b. Select **Cancel** to return to the Work with system interconnect resources display.
   c. Select **Resources** associated with ring for the loop with the failure.
   d. Select **Associated packaging resources** for the HSL I/O adapter with the resource name that you recorded.
   e. Record the frame ID, card position, and port. Record this information for the ″first″ failing link in (diagnosis form).
   f. Select **Display detail** and record the card position for the ″first″ failing resource.
9. Find and record the information for the other (second) failing resource using the following steps:
   a. Select **Cancel** to return to the Logical hardware associated with HSL ring display.
   b. For the HSL I/O adapter with the name of the ″first″ failing resource, select **Display detail → Follow leading port**. You have located the ″second″ failing resource on the link.
   c. Record the resource name, card type-model, part number, port.
   d. Select **Cancel** to return to the Logical hardware associated HSL rings display.
   e. Select **Associated packaging resources** for the HSL I/O adapter with the resource name that you recorded for the ″second″ failed resource.
   f. Record the frame ID, card position, and port. Record this information for the ″second″ failing link in (diagnosis form).
   g. Select **Display detail**, and record the card position for the ″second″ failing resource.

10. Have you repeated steps 1 on page 943 through 9 on page 943 for a second time during this procedure?
    - Yes, return to the procedure that sent you here. **This ends the procedure.**
    - No, does the ″first″ failing resource and the ″second″ failing resource have the same frame ID?
      – Yes, return to the procedure that sent you here. **This ends the procedure.**
      – No, perform the following to determine if the HSL cable connectors between the first and second failing resources are properly seated and clean:
        a. Disconnect the cable at the frame ID, card position, and port that you recorded for the ″first″ failing resource, then wait 30 seconds and reconnect it. You must fully connect the cable and tighten the connector's screws within 30 seconds of when the cable makes contact with the port. Otherwise, the link will fail and you must disconnect and reconnect the cable again. If the connector screws are not tightened, errors will occur on the link and it will fail.
        b. Disconnect the cable at the frame ID, card position, and port that you recorded for the ″second″ failing resource, then wait 30 seconds and reconnect it. See the 30 second attention notice in step 10a.
        c. Refresh the port status by doing the following:
           - Wait 1 minute.
           - Select **Cancel** → **Refresh**.

           Determine if the link has become ″operational″ by repeating steps 1 on page 943 through 9 on page 943 for a second time, returning to the procedure that sent you here when directed.

           You may see a 6982 indicating that the loop went open and then a 6985 indicating that the loop recovered. **This ends the procedure.**

RIOIP04

Use HSM to examine the HSL Loop to find a failing I/O bridge resource.

RIOIP04 Section-1

1. Sign on to SST or DST.
2. Select **Start a service tool** → **Hardware service manager** → **Logical hardware resources** → **High-speed link resources**.
3. Select **Include non-reporting resources**. Move the cursor to the HSL loop that you want to examine and select **Display detail**. The display that appears shows the port status of the Network Interface Controller (NIC) for the loop that you selected.
4. Record the resource name, type-model, and serial number, if it has not been previously recorded.
5. Is the status of the Leading port to next resource operational?
   - Yes, select **Follow Leading Port**. Then continue with the next step.
   - No, you have found the first half of a ″failing″ link. Choose from the following options:
     – If this is your first time through steps 1 through 7 on page 945, go to step 8 on page 945.
     – If this is your second time through steps 1 through 7 on page 945, go to step 9 on page 945.

6. Record the HSL resource name, type-model, part number, and port.
7. Is the resource name the same name that you recorded for the NIC in step 4 on page 944?
   - Yes, you have followed the HSL links around the loop and back to the NIC on the system. You did not find a failed link. Return to the procedure that sent you here. **This ends the procedure.**
   - No, the display that appears is showing the status of the HSL ports for the next I/O bridge resource on the loop. Go to step 5 on page 944.
8. Follow the steps in "RIOIP04 Section-3: Clean and properly seat the cables" below.
9. Choose from the following options:
   - If the status of the Leading port to next resource has become "operational", the problem has been corrected. Return to the procedure that sent you here. **This ends the procedure.**
   - If the status is still not "operational", continue with the next step.
10. If the resource type (shown near the top of the screen, just below the bus number) is an HSL I/O bridge, then perform "RIOIP04 Section-2: Collect the resource information" below. Then continue with the next step.
11. Select **Follow leading port** to move to the resource with the failed link on the trailing port. If that resource is an HSL I/O bridge, then perform "RIOIP04 Section-2: Collect the resource information" below. Then return to the procedure that sent you here. **This ends the procedure.**

RIOIP04 Section-2: Collect the resource information

Find the information for the failing HSL I/O bridge using the following steps:

1. Record the resource name, card type-model, part number, and port.
2. Select **Cancel** to return to the Work with high-speed link (HSL) resources display.
3. Select **Resources associated with loop** for the loop with the failure.
4. Select **Associated packaging resources** for the HSL I/O bridge with the resource name that you recorded.
5. Record the frame ID.
6. Select **Display detail** and record the card position.
7. Go to step 11 of Section-1.

RIOIP04 Section-3: Clean and properly seat the cables

Determine if the HSL cable connectors for this HSL I/O bridge are properly seated and clean.

1. Disconnect one of the cables at the frame ID/unit of the HSL I/O bridge.
2. Is the connection an optical link?
   - Yes, clean the HSL cable connector and port using the tools and procedures listed in symbolic FRU "OPT_CLN" on page 903. Then continue with the next step.
   - No, wait at least 30 seconds, and then continue with the next step.
3. Reconnect the cable to the port.

Attention: For copper cables, you must fully connect the cable and tighten the connector's screws within 30 seconds of when the cable makes contact with the port. Otherwise, the link will fail and you must disconnect and reconnect again. Also, if the connector screws are not tightened, errors will occur on the link and it will fail.

4. Disconnect the other cable at the frame ID/unit of the HSL I/O Bridge.
5. Is the connection an optical link?
   - Yes, clean the HSL cable connector and port using the tools and procedures listed in symbolic FRU "OPT_CLN" on page 903. Then continue with the next step.
   - No, wait at least 30 seconds, and then continue with the next step.
6. Reconnect the cable to the port.

   Attention: For copper cables, you must fully connect the cable and tighten the connector's screws within 30 seconds of when the cable makes contact with the port. Otherwise, the link will fail and you must disconnect and reconnect again. Also, if the connector screws are not tightened, errors will occur on the link and it will fail.
7. Refresh the port status by doing the following:
   a. Wait 1 minute.
   b. Select **Cancel → Refresh → Display detail for the failing resource**.
   c. Determine if the link has become "operational" by repeating steps 1 on page 944 through 7 on page 945 of the main procedure a second time.

RIOIP06

Use HSM to examine the HSL Loop to determine if other systems are connected to the loop.

RIOIP06 Section-1

1. Sign on to SST or DST (if you have not already done so).
2. Select **Start a service tool → Hardware service manager → Logical hardware resources → High-speed link (HSL) resources**.
3. Move the cursor to the HSL loop that you want to examine, and select **Resources associated with loop**.
4. Search for "Remote HSL NICs" on the loop. Are there any Remote HSL NICs on the loop?
   - Yes, you have determined that there are other systems connected to this loop.
   - No, you have determined that there are no other systems connected to this loop.

   This ends the procedure.

RIOIP07

Starting with a frame ID, for a frame connected to an HSL loop, use this procedure to determine if there is another frame with the same frame ID on the loop. This is possible when more than one system is connected to an HSL loop.

RIOIP07 Section-1

1. Sign on to SST or to DST if you have not already done so.

2. Select **Start a service tool → Hardware service manager → Logical hardware resources → High-speed link resources**.
3. Move the cursor to the HSL loop that you want to examine, and select **Resources associated with loop → Include non-reporting resources**. The display that appears shows the loop resource and all the ″HSL I/O Bridge″ and all the ″Remote HSL NIC″ resources connected to the loop.
4. Perform the following for each HSL I/O Bridge resource on the display:
   a. Move the cursor to the HSL I/O Bridge resource and select **Associated packaging resource(s)**.
   b. Compare the frame ID on the display with the frame ID (in hexadecimal format) that you are looking to find (Ignore leading zeros).
   c. Are the frame IDs the same?
      - Yes, perform the following steps:
        1) Record the resource name and the Type-Model of the HSL I/O Bridge with the frame ID for possible use later.
        2) Select **Display Detail** and record the ″SPCN system serial number″. The SPCN system serial number is the serial number of the system unit that controls the power subsystem on the frame (it connects to the frame with an SPCN cable).
        3) Select **Cancel** to the return to the Packaging Resources Associated with a Logical Resource display.
        4) Select **Cancel** to return to the Logical Hardware Associated With HSL Loops display. Continue with the next step.
      - No, select **Cancel** to return to the Logical Hardware Associated With HSL Loops display. Continue with the next step.
5. Repeat step 4 for each HSL I/O Bridge under the loop. Then, continue with the next step in this procedure.
6. Did you find more than one HSL I/O Bridge with the same frame ID?
   - Yes, you have recorded the resource name, the Type-Model, and the Power Controlling system of every frame on the loop that matches the frame ID that you are looking to find. **This ends the procedure.**
   - No, there is only one frame on the loop with the frame ID you are working with. Return to the procedure that sent you here. **This ends the procedure.**

RIOIP08

Starting with the frame ID and HSL port location label for one end of an HSL cable, determine the frame ID and port location label for the other end.

RIOIP08 Section-1

1. Sign on to SST or to DST if you have not already done so.
2. Select **Start a service tool → Hardware service manager → Logical hardware resources → High-speed link resources**.
3. Move the cursor to the HSL loop that you want to examine, and select **Resources associated with loop → Include non-reporting resources**. The display that appears shows the loop resource and all the ″HSL I/O Bridge″ and all the ″Remote HSL NIC″ resources connected to the loop.
4. Perform the following for each HSL I/O Bridge resource on the display:
   a. Move the cursor to the HSL I/O Bridge resource and select **Associated packaging resource(s)**.

b. Compare the frame ID on the display with the frame ID (in hexadecimal format) that you are looking to find. (Ignore leading zeros.) Are the frame IDs the same?
   - Yes, continue with the next step.
   - No, select **Cancel** to return to the Logical Hardware Associated with HSL Loops display. Continue with the next step, repeating it for each HSL I/O Bridge under the loop, until you are directed to do otherwise.

5. Perform the following:
   a. Select **Associated logical resource(s)**.
   b. Move the cursor to the HSL I/O Bridge resource and select **Display detail**.
   c. Examine the Leading port and Trailing port information. Search the display for the HSL port location label that you recorded prior to starting this procedure. If the label is part of the information for the Leading port, then select **Follow leading port**. If the label is part of the information for the Trailing port, then select **Follow leading port**.
   d. Perform the step below that matches the function you selected in the previous step:
      - If you selected **Follow leading port**, examine the display for the Trailing port information. Record, on the worksheet that you are using, the HSL port location label shown on the ″Trailing port from previous resource″ line. Record this information as the ″To HSL Port Label″.
      - If you selected **Follow leading port**, examine the display for the Leading port information. Record, on the worksheet that you are using, the HSL port location label on the ″Leading port to next resource″ line. Record this information as the ″To HSL Port Label″.
   e. Record the ″Link type″ (Copper or Optical) on the worksheet that you are using in the field describing the cable type.
   f. Select **Cancel** → **Cancel** → **Cancel** to return to the ″Logical Hardware Associated With HSL Loops″ display.
   g. Record the resource name on the display.
   h. Move the cursor to the resource with the resource name you recorded in step 5g in Section-8.
   i. Select **Associated logical resource(s)**.
   j. Record the frame ID on the worksheet that you are using for the ″To Frame ID″.
   k. Return to the procedure that sent you here. **This ends the procedure.**

RIOIP09

This procedure offers a description and service action for HSL reference code B6006982.

Note:

1. A fiber optic cleaning kit might be required for optical HSL connections.
2. This reference code can occur on an HSL loop when an I/O expansion unit on the loop is powered off for a concurrent maintenance action.

RIOIP09 Section-1

1. Is the reference code in the Service Action Log (SAL) or serviceable event view you are using?

- Yes, there is a connection failure on an HSL link. A B6006984 reference code may also appear in the Product Activity Log (PAL) or error log view you are using. Both reference codes are reporting the same problem. Continue with the next step.
- No the reference code is only informational, and requires no service action. **This ends the procedure.**

2. Multiple B6006982 errors may occur due to retry and recovery activity. Is there a B6006985 with ″*xxxx*3206″ in word 4 logged after all B6006982 errors for the same HSL loop in the PAL?
   - Yes, the recovery efforts were successful. Close all of the B6006982 entries for the same loop in the SAL. No service is required. **This ends the procedure.**
   - No, continue with the next step.
3. Is there a B6006987 reference code in the SAL, or serviceable event view you are using, logged at about the same time?
   - Yes, close this problem and work the B6006987. **This ends the procedure.**
   - No, continue with the next step.
4. Is there a B6006981 reference code in the SAL, or serviceable event view you are using, logged at approximately the same time?
   - Yes, go to step 9.
   - No, continue with the next step.
5. Perform “RIOIP06” on page 946 to determine if this loop connects to any other systems and then return here.

   Note: The loop number can be found in the SAL in the description for the “HSL_LNK” on page 414 FRU.

   Is this loop connected to other systems?
   - Yes, continue with the next step.
   - No, go to step 9.
6. Check for HSL failures in the serviceable event views on the other systems. HSL failures are indicated by entries with HSL I/O bridge and Network Interface Controller (NIC) resources. Ignore B6006982 and B6006984 entries. Are there HSL failures on other systems?
   - Yes, continue with the next step.
   - No, go to step 9.
7. Repair the problems on the other systems and return to this step. After making repairs on the other systems check the PAL of this system. Is there a B6006985 reference code, with this loop’s resource name, that was logged after the repairs you made on the other systems?
   - Yes, continue with the next step.
   - No, go to step 9.
8. For the B6006985 reference code you found, use “SIRSTAT” on page 959 to determine if the loop is now complete. Is the loop complete?
   - Yes, the problem has been resolved. Use “RIOIP01” on page 933 to verify that the loop is now working properly. **This ends the procedure.**
   - No, continue with the next step.
9. The FRU list displayed in the SAL, or serviceable event view you are using, may be different from the failing item list given here. Use the FRU list in the serviceable event view if it is available. Does the reference code appear in the serviceable event view with “HSL_LNK” on page 414 or HSL*xxxx* listed as a symbolic FRU?

- Yes, perform "RIOIP01" on page 933. **This ends the procedure.**
- No, exchange the FRUs in the serviceable event view according to their part action codes. **This ends the procedure.**

RIOIP10

Use this procedure to determine if the RIO/HSL loop is complete (with both primary and redundant paths functioning for each unit on the loop).

RIOIP10 Section-1

Use "MAP4E20 RIO Topology tool" on page 742 to display the RIO topology. Are all the RIO nodes (connections) in the expected state?

- Yes, exit this MAP and close any related serviceable events that are open.
- No, return to the procedure that sent you here to continue with the repair.

RIOIP11

Use this procedure to recover from a B7*xx*6982 high speed link (HSL) failure.

RIOIP11 Section-1

1. Was a CEC enclosure or I/O enclosure on the RIO loop powered down for repair?
   - Yes, the loop remains in a failed state until all CEC enclosures and I/O enclosures on the loop are powered on and functioning. After the repairs are complete, continue with the next step.
   - No, go to step 3.
2. Did the RIO loop recover? You can use "MAP4E20 RIO Topology tool" on page 742 to display the RIO topology status.
   - Yes, close the problem. **This ends the procedure**.
   - No, continue with the next step.
3. Search for an open serviceable event with a 1xxxxxxx SRC logged at approximately the same time and with one or more FRUs in the same enclosure as those in the FRU list for the SRC serviceable event you are currently working. Did you find a serviceable event with a 1xxxxxxx SRC?
   - Yes, resolve that problem (after you resolve the problem, the RIO/HSL loop may be recovered) and then return to this procedure and determine if correcting that problem also corrected the RIO/HSL error. You can use MAP4E20 to display the RIO topology status.
   - No, go to step 5.
4. Did the RIO loop recover?
   - Yes, close the problem. **This ends the procedure**.
   - No, continue with the next step.
5. Search for an open serviceable event with a B7006981 SRC error logged at approximately the same time and on the same RIO loop (CEC enclosure or I/O enclosure on that physical RIO loop). Did you find a serviceable event with a B7006981 SRC at approximately the same time and on the same RIO loop?
   - Yes, work on that problem. After you have repaired that error, the RIO/HSL loop may be recovered. After you complete working on that problem, return to this procedure and determine if correcting that problem also corrected the HSL/RIO error. You can use MAP4E20 to display the RIO topology status.

- No, go to step 6.

6. Did the RIO loop recover?
   - Yes, close the problem. **This ends the procedure.**
   - No, continue with the next step.
7. Using the FRU list that you are working with for this SRC and exchange one FRU at a time. After you exchange each FRU, determine if the loop has recovered. You can use MAP4E20 to display the RIO topology status. After the loop recovers or after you have exchanged all the FRUs, continue with the next step.
8. Did the RIO loop recover?
   - Yes, close the problem. **This ends the procedure.**
   - No, contact your next level of support. **This ends the procedure.**

RIOIP12

Use this procedure to recover from a B7*xx*6985 high speed link (HSL) failure.

RIOIP12 Section-1

1. Work with the customer to determine if a system or I/O unit on the RIO loop has powered down normally.
2. Was a system or I/O unit on the loop powered down normally?
   - Yes, the loop remains in a failed state until all systems and I/O units on the loop are powered on and functioning. Work with the customer to determine if all the powered down systems and units on the loop can be powered on. After all system and units on the loop are powered on, check to determine if the RIO loop is complete. To determine if the RIO/HSL loop has recovered, record the RIO/HSL loop number in the first four characters of word 7 of this SRC and perform "RIOIP10" on page 950.
   - No, go to step 4.
3. Did the RIO loop recover?
   - Yes, close the problem. **This ends the procedure.**
   - No, continue with the next step.
4. In the serviceable event view, search for a B7006981 or a B7006986 error logged at approximately the same time and on the same RIO loop (the first four characters of word 7 are the same).
5. Did you find a serviceable event with a 1*xxxxxxx* SRC?
   - Yes, work that problem. After you have repaired that error, the RIO/HSL loop may be recovered. After you complete working that problem, return to this procedure and check to determine if correcting that problem also corrected the RIO/HSL error. To determine if the HSL/RIO loop has recovered, record the RIO/HSL loop number in the first four characters of word 7 of this SRC and perform "RIOIP10" on page 950.
   - No, go to step 7.
6. Did the RIO loop recover?
   - Yes, close the problem. **This ends the procedure.**
   - No, continue with the next step.
7. In the serviceable event view, search for a B7006981 or B7006986 error logged at approximately the same time and on the same RIO loop (the first four characters of word 7 are the same).

8. Did you find a B7006981 or a B7006986 error logged at approximately the same time and on the same RIO loop?
   - Yes, work that problem. After you have repaired that error, the RIO/HSL loop may be recovered. After you complete working that problem, return to this procedure and check to determine if correcting that problem also corrected the RIO/HSL error. To determine if the RIO/HSL loop has recovered, record the RIO/HSL loop number in the first four characters of word 7 of this SRC and perform "RIOIP10" on page 950.
   - No, go to step 10.
9. Did the RIO loop recover?
   - Yes, close the problem. **This ends the procedure.**
   - No, continue with the next step.
10. Search for a system or I/O unit on the RIO loop that has not powered up as expected.
11. Did you find a system or I/O unit on the RIO loop that has not powered up as expected?
    - Yes, go to Cannot power on I/O expansion unit and work that power symptom. Use the first half of word 7 to determine the loop number for later use. After you have repaired that error, the RIO/HSL loop may be recovered. After you complete working that power symptom, return to this procedure and check to determine if correcting that problem also corrected the RIO/HSL error. To determine if the RIO/HSL loop has recovered, record the RIO/HSL loop number in the first four characters of word 7 of this SRC and perform "RIOIP10" on page 950.
    - No, go to step 14.
12. Did the RIO loop recover?
    - Yes, close the problem. **This ends the procedure.**
    - No, continue with the next step.
13. Using the FRU list that you are working with for this SRC, exchange one FRU at a time. After you exchange each FRU, determine if the loop has recovered. To determine if the RIO/HSL loop has recovered, record the RIO/HSL loop number in the first four characters of word 7 of this SRC and perform "RIOIP10" on page 950. After the loop recovers or after you have exchanged all the FRUs, continue with the next step.
14. Did the RIO loop recover?
    - Yes, close the problem. **This ends the procedure.**
    - No, call your next level of support. **This ends the procedure.**

RIOIP50

If the system you are working on has an HMC, service this error using the HMC's interfaces.

This procedure will help you isolate failing items for HSL/RIO link errors. The basic FRU list for such errors is one RIO hub (NIC, bridge, or remote NIC), a cable, and the RIO hub on the other end of the cable. There are two initial conditions. Choose the scenario you are dealing with:

- You are working the problem from service documentation or from a Service Action Log (SAL) entry without complete part number and location information for each RIO hub. Start with "RIOIP55 Section-1: Preliminary task" on page 953 to determine which segment of the HSL/RIO loop has failed.

- You are working this problem from the SAL with complete part number and location information for each RIO hub. Perform "RIOIP01" on page 933.

RIOIP55 Section-1: Preliminary task

Perform the following to determine which segment of the HSL/RIO loop has failed:

1. Get the loop number from the reference code if you do not already have it. The hexadecimal loop number is the 4 leftmost characters of the DSA in word 7 of the reference code. Before continuing to the next step, use DSA translation to find the loop number and translate it into decimal format.
2. Sign on to SST or DST (if you have not already done so). Select **Start a service tool → Hardware service manager → Logical hardware resources → High-speed link (HSL) resources**.
3. Select **Resources associated with loop** for the loop with the failed link. The HSL bridges will be displayed under the loop.
4. Select **Display detail** for the loop with the failed link.
5. Select **Follow leading port** until a port with a status of "failed" is found. Note the resource name, type-model, and serial number for the resource with the failed status.
6. Select **Follow leading port** one more time and note all the information for the resource name with a failed trailing port.
7. Select **Display system information** and note the power controlling system. This information may be needed for concurrent replacement at a later time.
8. Select **Cancel** twice to return to the previous screen.
9. Go to each resource name (found above) and select **Associated packaging resource(s)**. This gives the description of the failing item and the frame ID.
10. Select **Display detail** to find the part number and location associated with the possible failing item.
11. Now you have the same information you would have if the SAL had complete part number and location information. Perform "RIOIP01" on page 933.

RIOIP55

There is an open RIO/HSL loop at IPL time.

RIOIP55 Section-1

The system may have tried multiple times to establish a complete RIO/HSL loop. This could result in multiple permanent B7006985 errors for the same RIO/HSL loop. Check the following:

1. Look in the informational logs for a B7006985 occurring on the same RIO/HSL loop with a value of *xxxx*3206 or *xxxx*3208 in word 4. These indicate that a retry attempt was successful and the permanent B7006985 errors for that loop can be closed with no further action necessary.
2. If there is a clustered system on the RIO/HSL loop that has not finished it's IPL at the time of the error, you should check for a similar error on that system. These errors will occur until all systems on the loop have been completed their IPL. If there is a similar error on the last system to complete its IPL, work the error from that system. Otherwise you can close this error.
3. Check cable seating for the cable indicated in the locations given in the serviceable event view. If no locations are given, check the RIO/HSL Loop Status in the view on the operating system or on the HMC. Find the failed link

and check cable connections there. If the cable is an optical cable, use "OPT_CLN" on page 903 for direction on cleaning the optical connections.

4. If the error persists after steps 1 on page 953 and 2 on page 953 above, continue working the error with the FRUs given in the serviceable event view or service documentation. **This ends the procedure.**

RTRIP01

This section describes the symbolic FRU RTRIP01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

RTRIP02

This section describes the symbolic FRU RTRIP02.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

RTRIP03

This section describes the symbolic FRU RTRIP03.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

RTRIP04

This section describes the symbolic FRU RTRIP04.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

RTRIP05

This section describes the symbolic FRU RTRIP05.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

RTRIP06

This section describes the symbolic FRU RTRIP06.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

RTRIP07

This section describes the symbolic FRU RTRIP07.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

RTRIP08

This section describes the symbolic FRU RTRIP08.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

Chapter 29. S Procedures

SI_CARD

The failing component is the CEC enclosure RIO card.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Replace the FRU listed below.

Table 290. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure	CEC enclosure RIO card	Refer to Chapter 34, "Exchanging parts," on page 991.

This ends the procedure.

SI_PHB

The RIO card for a CEC or I/O enclosure is failing.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. If a location code was reported with the error replace the FRU identified by the location code.
2. If no location code was reported with the error, call your next level of support for assistance.

This ends the procedure.

SIADPCD

The failing component is the RIO card in an I/O enclosure.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. If a location code was reported with the error, replace the FRU identified by the location code.

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2. If no location code was reported with the error, call your next level of support for assistance.

This ends the procedure.

SICNTRL

The failing component is the network interface controller (NIC)/RIO controller.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Is a location code associated with this checkpoint?

- Yes, replace the FRU indicated by the location code.
- No, call your next level of support for assistance.

This ends the procedure.

SIIOADP

There is a RIO card in a CEC or I/O enclosure.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Is a location code associated with this checkpoint?

- Yes, replace the FRU indicated by the location code.
- No, call your next level of support.

This ends the procedure.

SIRGCFG

This is an unexpected error for this machine type. You should first resolve any other serviceable events on this machine and if this problem persists, you should then call your next level of support.

This ends the procedure.

Support Information

The following is the information from the eServer product on which this machine is based. This information might be of use to your support engineer.

Note: This is background information for support use only. It is not necessarily applicable to this machine.

An invalid configuration was detected on an HSL/RIO loop during IPL.

The four rightmost characters of word 4 in the reference code represent the Program Return Code (PRC), which describes the problem detected. The four leftmost digits of word 7 represent the loop number in hexadecimal format.

1. Convert the loop number to decimal format before comparing it to loop numbers shown in serviceable event views and service tools.
2. To determine the problem, find the PRC in Table 291.

   Note: The FRU description in the serviceable event view might already contain a message that identifies the problem.

Table 291. Correcting an invalid configuration on an HSL/RIO loop

PRC	Problem identified	Corrective action
*xxxx*0008	System serial number not set	Set the serial number on the system unit. See "MAP6F00 Accessing the ASMI" on page 851. If the problem persists, call your next level of support.
*xxxx*3200	Clustered system(s) on loop with SPD migrated tower	Migration towers are not supported; remove them.
*xxxx*3201	Clustered systems on multiple HSL/RIO loops	Ensure all clustered systems are on the same HSL/RIO loop.
*xxxx*3202	Multiple SPD migrated towers detected	Migration towers are not supported; remove them.
*xxxx*3207	SPD migrated tower not on first HSL/RIO loop	Migration towers are not supported; remove them.
*xxxx*3212	NIC/RIO controller level does not support OptiConnect	The NIC/RIO controller hardware component does not support i5/OS HSL OptiConnect. The FRU containing the NIC/RIO controller component must be upgraded to a level that supports HSL OptiConnect. Examine the Service Action Log (SAL) of the IBM eServer i5 system on this loop for the same error. The SAL will call out the correct FRU to replace. Use the service tools and information for that system to correct the problem and close the problem on this system.

This ends the procedure.

SIRSTAT

A status indication for a RIO-G loop is identified in the reference code.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Record the rightmost four characters of word 4 of the reference code. These characters are the program return code (PRC), which indicates the RIO-G

status. The leftmost four characters of word 7 indicate the RIO-G loop number (in hexadecimal format). See “FRPORT” on page 378 for more information about the RIO-G loop number. The format of the reference code is shown in Table 292.

Table 292. Reference code format

Word number			
1	2	3	4
TTTTUUUU	*xxxxxxxx*	*xxxxxxxx*	*xxxx*PPPP

Key:
TTTT = Reference code type
UUUU = Unit reference code
PPPP = Program return code

2. Use Table 293 to determine if the status indication requires a service action.

Table 293. Program return codes

PRC	**Indicated status**
*xxxx*3205	During IPL, LIC determined that the loop is not complete. • This is expected if there are no I/O units on the loop. • This error can also occur when an I/O unit, shared I/O unit, or another system on the loop did not complete powering on by the time this system's LIC checked the loop for completeness. As a result, you might see this error in the serviceable event view you are working with. • When you find the same reference code logged from the same IPL against the same resource with a PRC of 3206 or 3208, the problem no longer exists. This can happen because the error was recovered when RIO/HSL hardware came on line, was properly configured, or the diagnostic code determined that there was not a problem based on the combination of machine types, features, configuration, and topology. In this case, you can close the problem entry. • This error can also be caused by a problem in a rack, frame, or unit connected to the RIO-G loop if the problem prevents the unit from powering on or being detected by LIC. Follow the service procedures for this reference code. When necessary, you might be directed to work on other reference codes before returning to this procedure.
*xxxx*3206	During normal operation a RIO-G loop recovered its redundant path. The loop is now complete.
*xxxx*3208	During normal operation an RIO-G I/O bridge recovered a failed link on the loop.
*xxxx*3209	Recoverable CRC (cyclical redundancy check) errors occurred on the loop. This error requires service action. A RIO-G cable or connection must be exchanged. Exchange only the cable that appears in the FRU list of this reference code in this document. If you are working from the serviceable event view, then only the FRUs required for this error will be displayed.
*xxxx*3210	A RIO-G link switched to a slower speed. The link is designed to run at a faster speed based on the link's hardware and LIC levels at both ends. If there is a FRU list in the serviceable event view, use it to complete the repair action. If not, call your next level of support for assistance.

This ends the procedure.

SLOTERR

The multi-adapter bridge detected a problem with a card location that it controls.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

The problem is in the controls for the card slot. The card location may or may not have an installed card. If there is a card installed in that location, it may be the source of the problem. In some cases, the user interface view of the serviceable event will list more than one card position for the location of this FRU. The problem may be with any one of the FRUs in those locations. When there is a list of locations in the location code for this FRU, the card locations will be separated by commas. A range of card positions will show the starting card position, a colon, and the ending card position.

1. Replace in turn each PCI card listed in the Serviceable Event.
2. If the problem persists replace the I/O enclosure backplane that the PCI cards are plugged into.

This ends the procedure.

SLOTUSE

This is an unexpected error for this machine type.

You should first resolve any other serviceable events on this machine and if this problem persists you should then call your next level of support. **This ends the procedure.**

The following is the information from the eServer product on which this machine is based. This information might be of use to your support engineer.

Note: This is background information for support use only. It is not necessarily applicable to this machine.

The card in the given slot is not available for use.

1. Is the unit reference code 2250 or 2300?
   - Yes, the first two characters in word 4 of the reference code will identify the platform LIC component that has control of the slot. Continue with the next step.
   - No, continue with step 3 on page 962.
2. What is the value of the first two characters of word 4 of the reference code?
   - 81: The component that has control of the slot is concurrent maintenance. The concurrent maintenance procedure must complete before the partition will IPL.
   - 02 or 03: The component that has control of the slot is the management console service or management console configuration. Make sure that the management console functions are not using the slot.
   - Other: Contact your next level of support.

   This ends the procedure.

3. Is the unit reference code 2475?
   - Yes, continue with the next step.
   - No, contact your next level of support. **This ends the procedure.**
4. Look in the serviceable event view for part numbers and location codes associated with the card slot.

   Note: There is no part number if the card slot is empty.
   If the reference code is on the control panel, look in the FRU call out section of the reference code for the location of the card slot. Use the location information to see if a card is physically present in the card slot.

   Is a card physically present?
   - Yes, exchange the failing card.
   - No, use symbolic FRU "LPARCFG" on page 432 to reconfigure the card slot so that it is not a required resource to IPL the partition.

   This ends the procedure.

SPBUS

The path to the service processor may be the failing item.

1. Look in the serviceable event view.
2. Fix all B700697*x* errors that occurred at approximately the same time. One of them will implicate the hardware that communicates with the service processor.

This ends the procedure.

SPNETWK

A connection between a management console and a service processor has been lost. The location code will identify the unit to which contact was lost.

Note: This SRC and symbolic FRU is not expected on DS8000. Please report this problem to the next level of support. They might have you use the following procedure to isolate the problem.

1. Go to "MAP7000 Entry point for DS8000 private network problems" on page 855 and follow the instructions to isolate the failure.
2. Was a problem found?
   - Yes, follow the steps in "MAP7000 Entry point for DS8000 private network problems" on page 855 to repair the failure. **This ends the procedure.**
   - No, go to step 3.
3. Is the service processor with the missing connection present in the topology?
   - Yes, the problem was temporary and has resolved itself. **This ends the procedure.**
   - No, go to step 4.
4. Is the management console that reported the connection errors also reporting a hardware error with a network adapter?
   - Yes, service this network adapter error. **This ends the procedure.**
   - No, go to step 5.
5. Verify that the service processor with a missing connection is powered on and that its Ethernet connections are secure and functioning. Does the problem persist?
   - Yes, call your next level of support for assistance. **This ends the procedure.**

- No, **this ends the procedure.**

SRCTB1X

There is a failure detected by the power subsystem. The complete FRU part number, procedure ID, or symbolic FRU could not be determined by the power subsystem firmware.

This FRU in the serviceable event view may have a partial or complete location code that will assist you in the repair action. Go to "(1*xxxxxxx*) System power control network (SPCN) reference codes" on page 1850 and locate the SRC you are working on to service this problem.

This ends the procedure.

STORIOA

This section describes the symbolic FRU STORIOA.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

SVCDOCS

This section describes how to use service documents.

See the Description/Action column in the "List of system reference codes and firmware codes" on page 1849 for the SRC you have.

This ends the procedure.

SVCPROC

The service processor is failing.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. The service processor is failing.

   Warning: Replacement of the service processor requires special procedures to restore system information. See Chapter 34, "Exchanging parts," on page 991 and ensure that procedures are followed carefully.
2. The service processor card in the CEC enclosure is a removable card in location P1-C8. To replace the card, see Chapter 44, "Location codes in serviceable events," on page 1415 and "Exchange the service processor card or time of day battery" on page 1127.

This ends the procedure.

SYSBKPL

The CEC enclosure system processor backplane assembly part is failing.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

The failing component is in the CEC enclosure regulator distribution connection backplane or the logic planar. To replace the backplane, see Chapter 44, "Location codes in serviceable events," on page 1415 and Chapter 34, "Exchanging parts," on page 991.

This ends the procedure.

SYSNTWK

There has been a network adapter failure on this HMC.

Note: This SRC and symbolic FRU is not expected on DS8000. Please report this problem to the next level of support. They might have you use the following procedure to isolate the problem.

1. Go to "MAP7000 Entry point for DS8000 private network problems" on page 855 and follow the instructions to isolate the failure.
2. Was a problem found?
   - Yes, follow the steps in "MAP7000 Entry point for DS8000 private network problems" on page 855 to repair the failure. **This ends the procedure.**
   - No, go to step 3.
3. Is the peer management console with the missing connection present in the topology?
   - Yes, the problem was temporary and has resolved itself. **This ends the procedure.**
   - No, go to step 4.
4. Is the management console that reported the connection errors also reporting a hardware error with a network adapter?
   - Yes, service this network adapter error. **This ends the procedure.**
   - No, go to step 5.
5. Verify that the management console with a missing connection is powered on and that its Ethernet connections are secure and functioning. Does the problem persist?
   - Yes, call your next level of support for assistance. **This ends the procedure.**
   - No. **This ends the procedure.**

Chapter 30. T Procedures

TAPCLN

This section describes the symbolic FRU TAPCLN.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

TAPCNFG

This section describes the symbolic FRU TAPCNFG.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

TOD

This section describes the symbolic FRU TOD.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

TOD_BAT

The battery for the time-of-day clock is low or failing.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

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Replace the FRU listed below.

Table 294. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
CEC enclosure - service processor card	TOD Battery	Refer to Chapter 34, "Exchanging parts," on page 991.

This ends the procedure.

TOPORT

This procedure locates the end of the failing RIO-G link.

The RIO-G node on one end of the link may be the failing item. If you were sent to this procedure as a result of a B7006985 SRC and this is the only FRU in the FRU list, the system cannot see any I/O units on a RIO-G loop and there is at least one cable attached to a port on that loop. In this case, go to "(B7*xxxxxx*) Licensed Internal Code (LIC) reference codes" on page 2017 and work from the full FRU list provided there.

Note: The other end of the link is given in the symbolic FRU "FRPORT" on page 378.

1. Starting from the failed port you isolated in symbolic FRU "FRPORT" on page 378, select Follow Leading Port to move to the other side of the failed link.
2. Record the location code of the last failed resource.

This ends the procedure.

TUPIP02

This section describes the symbolic FRU TUPIP02.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

TUPIP03

This section describes the symbolic FRU TUPIP03.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

TUPIP04

This section describes the symbolic FRU TUPIP04.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

TUPIP06

This section describes the symbolic FRU TUPIP06.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

TWRBKPL

This section describes the symbolic FRU TWRBKPL.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

TWRCARD

An SPCN (tower) card may be failing. The SPCN is either part of the service processor card or on the I/O enclosure backplane.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC** →

Service Applications → **Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Warning: Replacement of the TWRCARD in the CEC enclosure (service processor) requires special procedures to restore system information. See Chapter 34, "Exchanging parts," on page 991 and ensure that procedures are followed carefully.

1. Verify that all SPCN cables are seated correctly.
2. Is the failing SPCN card in the CEC enclosure?
   - Yes, the SPCN card in the CEC enclosure is a removable card in location P1-C8. To replace the card, see Chapter 44, "Location codes in serviceable events," on page 1415 and Chapter 34, "Exchanging parts," on page 991). When complete, continue with step 4.
   - No, continue with the next step.
3. The failing SPCN card is in a 7311 D11 I/O enclosure. The SPCN card is part of the I/O enclosure backplane (P1). To replace the part, see Chapter 44, "Location codes in serviceable events," on page 1415 and Chapter 34, "Exchanging parts," on page 991). When complete, continue with step 4.
4. If not done already, power on the DS8000 processor complex, close associated problems and return it to the customer. Perform the following:
   - Power on the Storage Facility. Use **HMC** → **Service Applications** → **Service Focal Point** → **Service Utilities** → **Storage Facility Systems Management** → **Power On a System and Reactivate a System**.
   - Use **HMC** → **Service Applications** → **Service Focal Point** → **Manage Serviceable Events** to close any associated problems.

   This ends the procedure.

TWRPLNR

The failing component is in the I/O Backplane assembly of an I/O enclosure.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC** → **Service Applications** → **Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Replace the FRU listed below.

Table 295. Replacing the failing part

Unit	Failing part(s)	How to replace the failing part
I/O enclosure	I/O Backplane assembly	Refer to Chapter 34, "Exchanging parts," on page 991.

This ends the procedure.

TWSIP01

This section describes the symbolic FRU TWSIP01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

Chapter 31. U Procedures

UC235

This section describes the symbolic FRU UC235.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UC236

This section describes the symbolic FRU UC236.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UG3AS

This section describes the symbolic FRU UG3AS.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJ6P3

This section describes the symbolic FRU UJ6P3.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

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you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJ9GC

This section describes the symbolic FRU UJ9GC.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJA32

This section describes the symbolic FRU UJA32.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJA33

This section describes the symbolic FRU UJA33.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJA34

This section describes the symbolic FRU UJA34.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJA35

This section describes the symbolic FRU UJA35.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJA36

This section describes the symbolic FRU UJA36.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJB35

This section describes the symbolic FRU UJB35.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJB36

This section describes the symbolic FRU UJB36.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJC35

This section describes the symbolic FRU UJC35.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJC36

This section describes the symbolic FRU UJC36.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJC37

This section describes the symbolic FRU UJC37.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJC38

This section describes the symbolic FRU UJC38.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJE31

This section describes the symbolic FRU UJE31.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJE32

This section describes the symbolic FRU UJE32.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJE33

This section describes the symbolic FRU UJE33.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJE34

This section describes the symbolic FRU UJE34.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJE35

This section describes the symbolic FRU UJE35.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJE36

This section describes the symbolic FRU UJE36.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJE37

This section describes the symbolic FRU UJE37.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJE38

This section describes the symbolic FRU UJE38.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJE39

This section describes the symbolic FRU UJE39.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJE40

This section describes the symbolic FRU UJE40.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJJ35

This section describes the symbolic FRU UJJ35.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJJ36

This section describes the symbolic FRU UJJ36.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJJ37

This section describes the symbolic FRU UJJ37.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJJ38

This section describes the symbolic FRU UJJ38.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJJ39

This section describes the symbolic FRU UJJ39.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJ0E2

This section describes the symbolic FRU UJ0E2.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJ0E3

This section describes the symbolic FRU UJ0E3.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJ0E6

This section describes the symbolic FRU UJ0E6.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJ0E7

This section describes the symbolic FRU UJ0E7.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJ0E9

This section describes the symbolic FRU UJ0E9.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UJP37

This section describes the symbolic FRU UJP37.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

ULNZ3

This section describes the symbolic FRU ULNZ3.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

ULNZ4

This section describes the symbolic FRU ULNZ4.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UNM31

This section describes the symbolic FRU UNM31.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UNM32

This section describes the symbolic FRU UNM32.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UNM35

This section describes the symbolic FRU UNM35.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UNM36

This section describes the symbolic FRU UNM36.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UNM38

This section describes the symbolic FRU UNM38.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UNP20

This section describes the symbolic FRU UNP20.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UNU01

This section describes the symbolic FRU UNU01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UNU02

This section describes the symbolic FRU UNU02.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UNU31

This section describes the symbolic FRU UNU31.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UNU32

This section describes the symbolic FRU UNU32.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UPLF1

This section describes the symbolic FRU UPLF1.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UPSUNIT

This section describes the symbolic FRU UPSUNIT.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

USER

This section describes the symbolic FRU USER.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UX201

This section describes the symbolic FRU UX201.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UX202

This section describes the symbolic FRU UX202.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UY1Z1

This section describes the symbolic FRU UY1Z1.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UY1Z2

This section describes the symbolic FRU UY1Z2.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent

you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UY1Z3

This section describes the symbolic FRU UY1Z3.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UY1Z4

This section describes the symbolic FRU UY1Z4.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

UY1Z5

This section describes the symbolic FRU UY1Z5.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

Chapter 32. V Procedures

VPDPART

Unable to retrieve the Vital Product Data from a FRU.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

1. Is the reference code 1*xxx* 8402?
   - Yes, prior to exchanging any parts, verify that the system processor cards are installed. If you are in test mode and have removed all of the system processor cards, disregard this reference code. Otherwise, correct the system processor cards. If the system processor cards are installed correctly, then exchange the service processor card (see "SVCPROC" on page 963). **This ends the procedure.**
   - No, continue with the next step.
2. Is the reference code 1*xxx* 8404, 8405, or 8406?
   - Yes, use Table 296 to find the correct action to take. See Chapter 44, "Location codes in serviceable events," on page 1415 and Chapter 34, "Exchanging parts," on page 991.

Table 296. Reference code repair actions

Reference code	Description/Action
1*xxx* 8404	System processor card mismatch. Exchange system processor card 2 in the primary CEC enclosure. P2-C2.
1*xxx* 8405	This SRC is not expected for the DS8000, call the next level of support. System processor card mismatch. Exchange system processor card 1 in a secondary CEC enclosure. P2-C1.
1*xxx* 8406	This SRC is not expected for the DS8000, call the next level of support. System processor card mismatch. Exchange system processor card 2 in a secondary CEC enclosure. P2-C2.

   This ends the procedure.
   - No, continue with the next step.
3. Is the reference code 1*xxx* 8409?
   - Yes, no system processor cards are installed. If you are in test mode and have removed all of the system processor cards, disregard this reference code. Otherwise, correct the system processor cards. If the system processor cards are installed correctly, exchange all the system processor cards. See Chapter 44, "Location codes in serviceable events," on page 1415 and Chapter 34, "Exchanging parts," on page 991. **This ends the procedure.**
   - No, continue with the next step.
4. Is the reference code 1*xxx* 8413, or 8414?
   - Yes, use Table 297 on page 988 to find the correct action to take. See Chapter 44, "Location codes in serviceable events," on page 1415 and Chapter 34, "Exchanging parts," on page 991.

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Table 297. Reference code repair actions

Reference code	Description/Action
1*xxx* 8413	Exchange system processor card 1.
1*xxx* 8414	Exchange system processor card 2.

This ends the procedure.

- No, continue with the next step.

5. Is the reference code 1*xxx* 8423 or 8424?
   - Yes, use Table 298 to find the correct action to take. If that action does not fix the problem, replace the CEC enclosure I/O backplane assembly. If that action does not fix the problem, return to the serviceable event that sent you here and replace the next part in the FRU list.

Table 298. Reference code repair actions

Reference code	Description/Action
1*xxx* 8423	Exchange system processor card 1, -P2-C1.
1*xxx* 8424	Exchange system processor card 2, -P2-C2.

This ends the procedure.

- No, continue with the next step.

6. Is the reference code 1*xxx* 911C?
   - Yes, two nodes have the same VPD. This error should not occur on a DS8000. Replace other field replaceable units listed in the problem. If this does not resolve the problem, contact your next level of support. They should reference the IBM eServer Hardware Information Center VPDPART topic for more information. **This ends the procedure.**
   - No, return to Chapter 1, "Start here," on page 1. **This ends the procedure.**

Chapter 33. W Procedures

WSAIP01

This section describes the symbolic FRU WSAIP01.

Note:

This procedure is not expected to be used for the DS8000. It is here because this Information Center shares common procedure links with the Information Center for the eServer family. Return to the procedure that sent you here and use the other service information to perform the repair. If there is no other service information, then call the next level of support.

The original eServer system model 570 procedure has been removed.

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Chapter 34. Exchanging parts

This section documents the remove and replace procedures for FRUs.

The following procedures outline instructions for exchanging parts. These are not stand-alone procedures. Customer disruption might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure that you start all service activities at *Starting all service* or that you were guided here by the management console (HMC).

 Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

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Chapter 35. Cables

This section of *Removing and replacing parts* contains detailed information on removing and replacing cables. In general, you should label cables before removing them to facilitate putting them back on the right connector. The structure of this section is to present the removing steps for a cable. Directly below the remove steps, you will find the steps on replacing and reconnecting the cable.

Exchange the battery enclosure to the 208VDC bus bar cable


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice “D005” on page 2138.

Remove the battery enclosure to the 208VDC bus bar cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. To disconnect the cable at the 208VDC bus connector, release one end of the cable at a time **(1)**.

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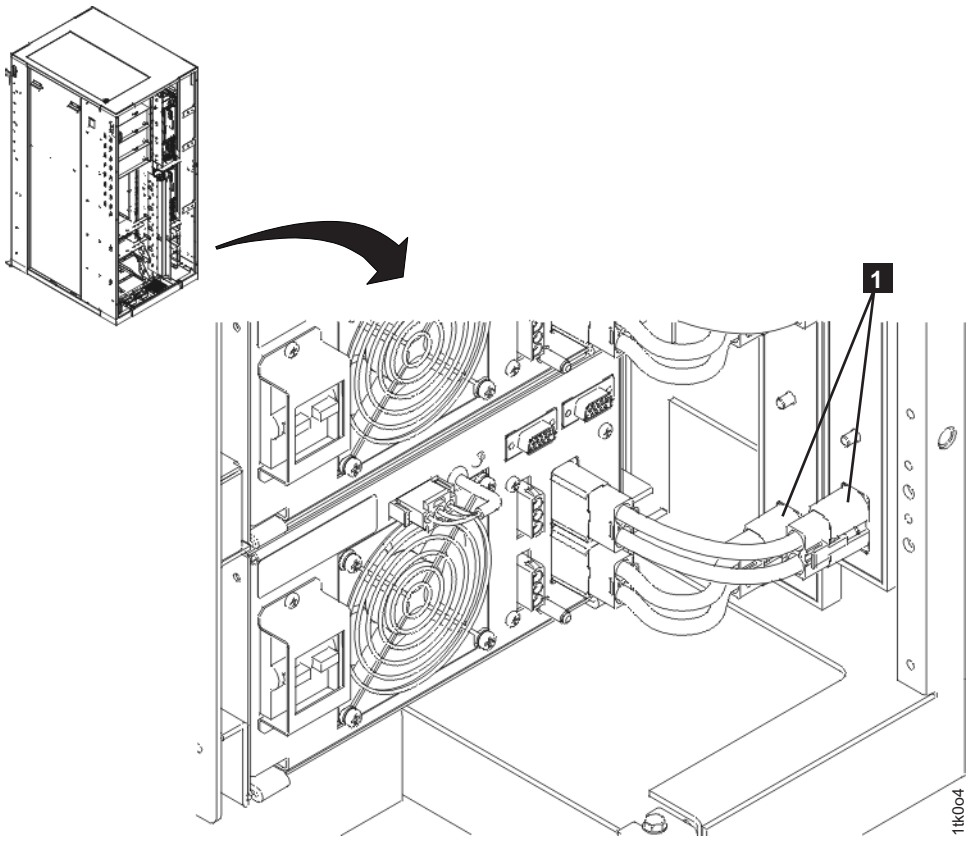


Figure 476. Cables between the battery modules and the 208VDC bus bars

3. Remove the cable retention hardware as needed and then remove the cable.

Install the battery enclosure to the 208VDC bus bar cable

1. Route the cable.
2. Connect the cable to the battery module enclosure **(1)** one end at a time. See Figure 476.
3. Install the cable retention hardware.

Exchange the CEC enclosure to 208VDC bus bar cable

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice "D005" on page 2138.

Remove the CEC enclosure to 208VDC bus bar cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. To disconnect the cable at the CEC enclosure power supply **(1 or 2)**, pull the connector free.

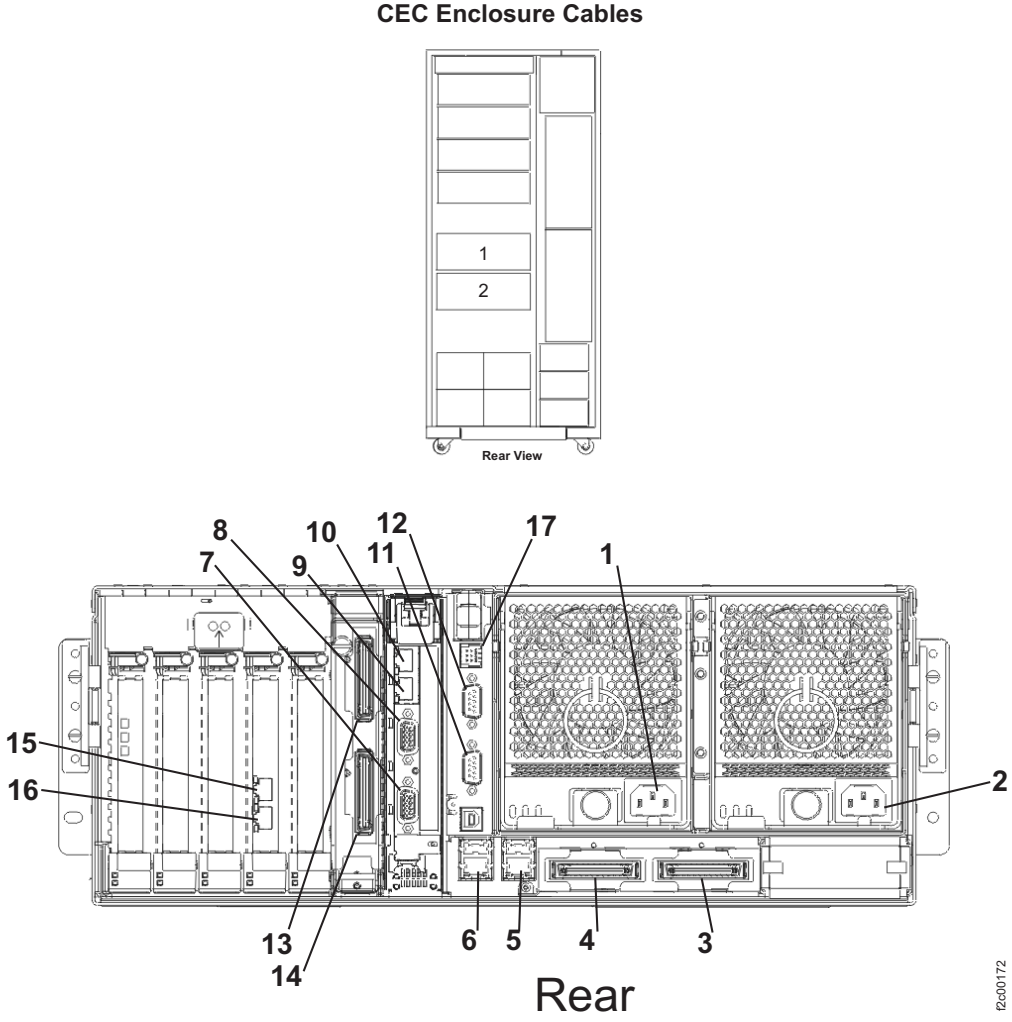


Figure 477. CEC enclosure cables

3. To disconnect the cable at the 200V bus bar connector **(1 or 2)**, squeeze the tab to release it.

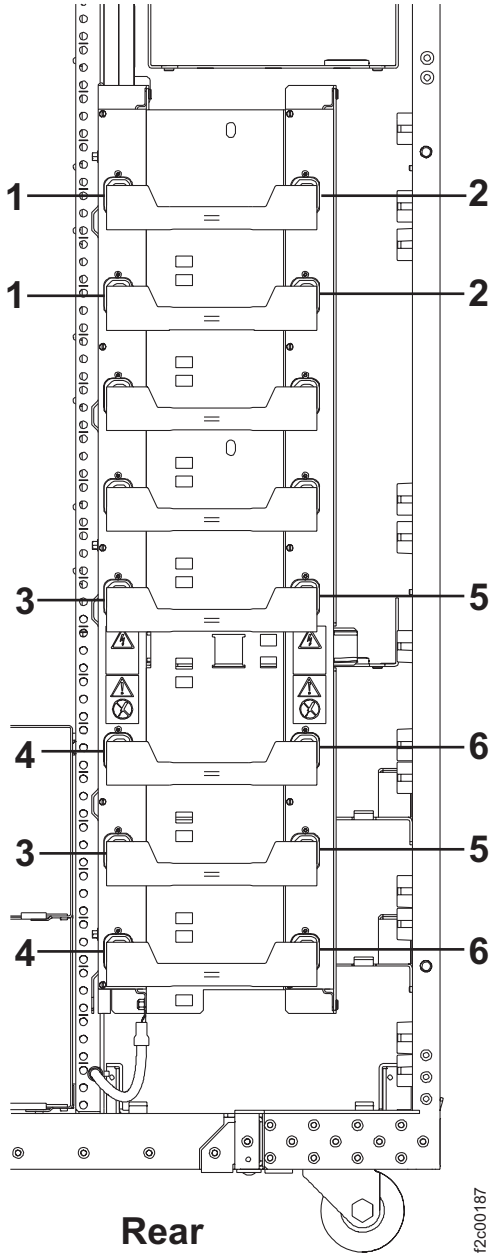


Figure 478. Rack power and cooling 208VDC bus bars (A2 and B2)

4. Remove the cable retention hardware as needed and then remove the cable.

Install the CEC enclosure to 208VDC bus bar cable

1. Route the cable.
2. Connect the cable to the CEC enclosure connector **(1 or 2)**. See Figure 477 on page 995.
3. Connect the cable to the 200V bus bar connector **(1 or 2)**. See Figure 478.
4. Install the cable retention hardware.

Exchange CEC enclosure to RPC card cable


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice “D005” on page 2138.

Remove CEC enclosure to RPC card cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. To disconnect the cable at the CEC enclosure **(1)**, unscrew the jackscrew and pull the connector.

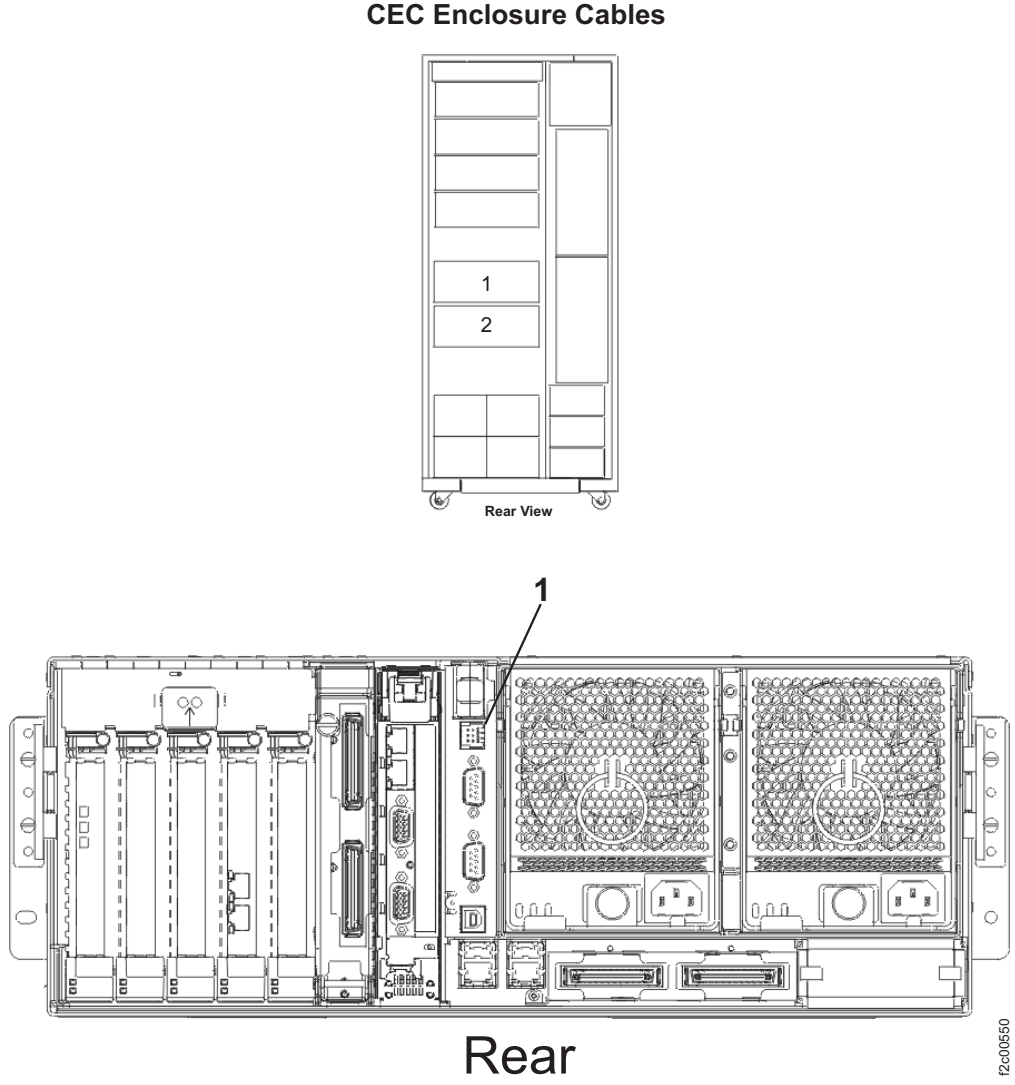


Figure 479. CEC enclosure cable

3. To disconnect the cable at the RPC card, squeeze the tab to release it.
   - The upper CEC enclosure cable connects to **(10)** on both RPC cards.
   - The lower CEC enclosure cable connects to **(14)** on both RPC cards.

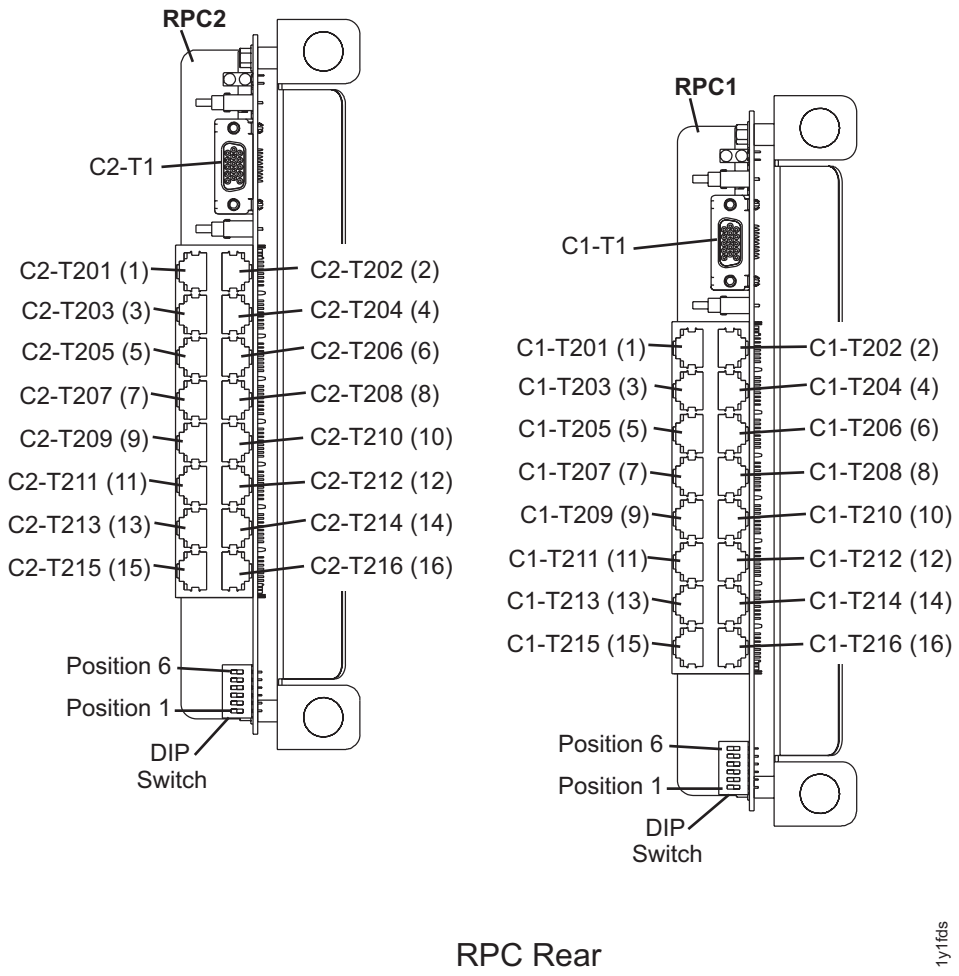


Figure 480. Location codes for the RPC card

4. Remove the cable retention hardware as needed and then remove the cable.

Install CEC enclosure to RPC card cable

1. Route the cable.
2. Connect the cable to the CEC enclosure connector **(1)** in Figure 479 on page 998.
3. Connect the cable to the RPC card connector in Figure 480.
4. Install the cable retention hardware.

Exchange Ethernet cable to service processor card

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice “D005” on page 2138.

Remove the Ethernet cable

1. This cable can be exchanged concurrently. The service processor card and Ethernet switch stay fully powered on.
2. At the rear of the CEC enclosure, disconnect the Ethernet cable **(9 or 10)** from the service processor card connector as listed the serviceable event location code. (P1-C8-T1 or P1-C8-T2).

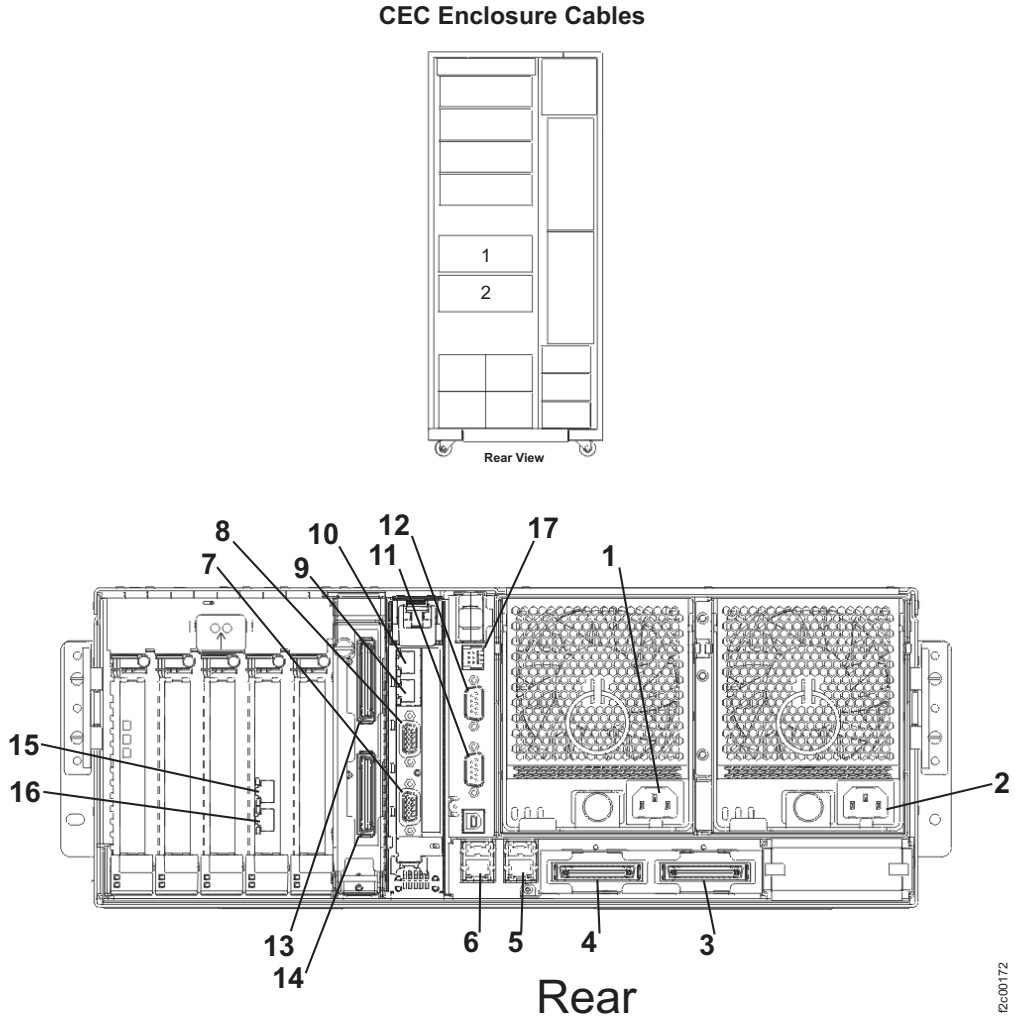


Figure 481. CEC enclosure cables

3. Trace the cable to the Ethernet switch connector and disconnect it.
4. Remove the cable retention hardware as needed and then remove the cable.

Install the Ethernet cable

1. Route the new cable and connect it at both ends. Cable label locations should match connector locations.
2. Reinstall the cable retention hardware as needed.

3. Return to the procedure that sent you here.

Exchange the fan sense card to DASD fan tray cable


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice “D005” on page 2138.

Remove the fan sense card to DASD fan tray cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. To disconnect the cable at the DASD fan tray end **(3 or 4)**, squeeze the tab to release it.

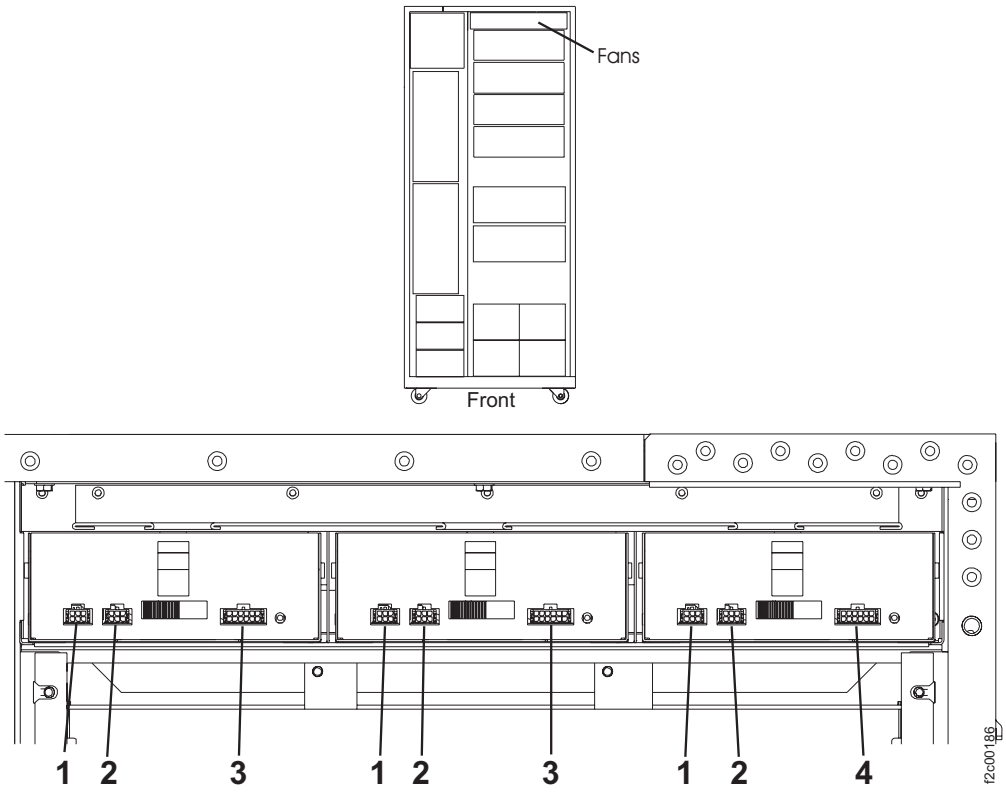


Figure 482. Rack power and cooling fan tray cables

3. To disconnect the cable at the fan sense card connector **(7 or 8)**, squeeze the tab to release it.

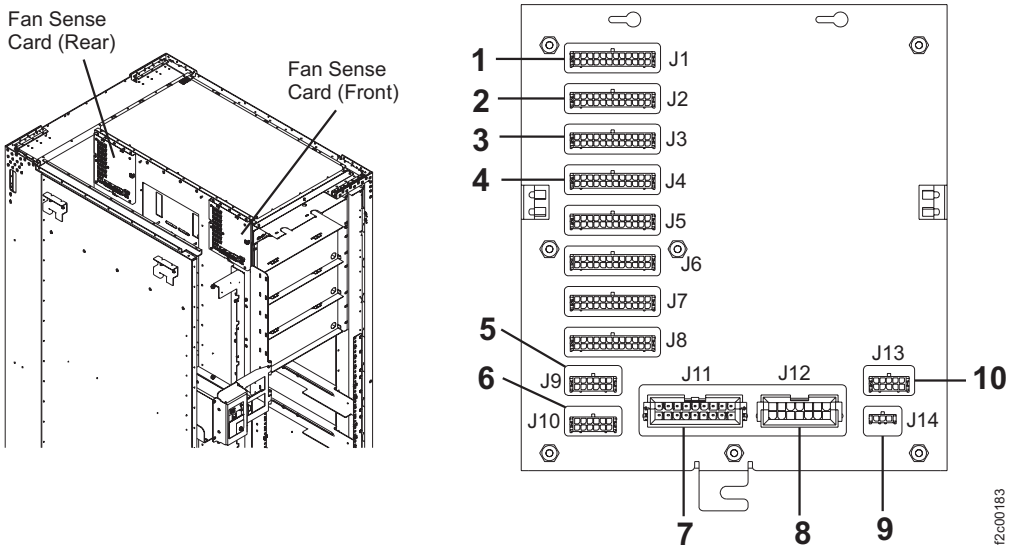


Figure 483. Cables on the fan sense cards

4. Remove the cable retention hardware as needed and then remove the cable.

Install the fan sense card to DASD fan tray cable

1. Route the cable.
2. Connect the cable to the DASD fan tray connector **(3 or 4)**. See Figure 482 on page 1002.
3. Connect the cable to the fan sense card connector **(7 or 8)**. See Figure 483 on page 1002.
4. Install the cable retention hardware.

Exchange the fan sense card to fan sense card cable

 Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice “D005” on page 2138.

Remove the fan sense card to fan sense card cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. To disconnect the cable at the fan sense card, squeeze the tab **(10)** to release the cable.

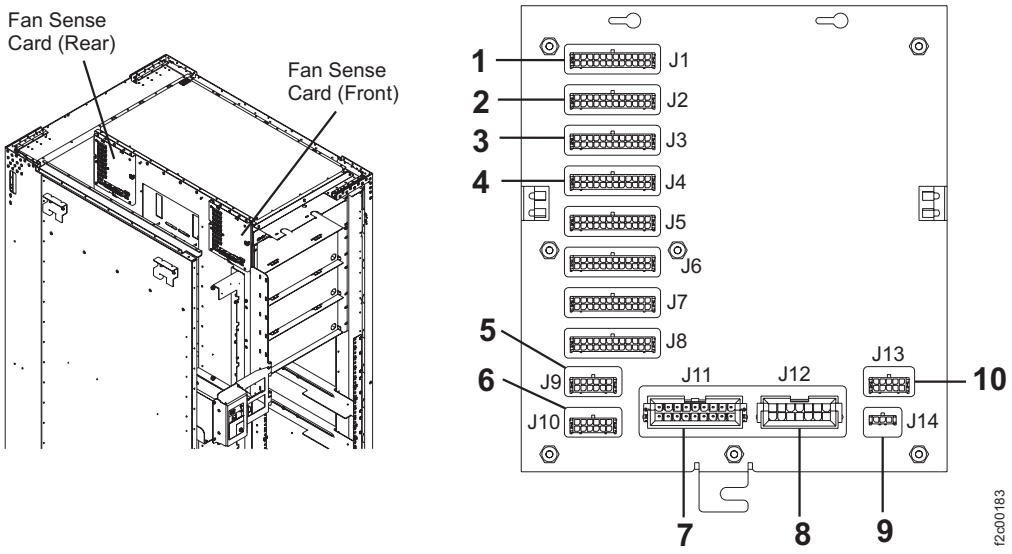


Figure 484. Cables on the fan sense cards

3. Remove the cable retention hardware as needed and then remove the cable.

Install the fan sense card to fan sense card cable

1. Route the cable.
2. Connect the cable to each fan sense card connector **(10)**. See Figure 484.
3. Install the cable retention hardware.

Exchange fan sense card to rack operator panel UEPO switch assembly

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice "D005" on page 2138.

Remove fan sense card to rack operator panel UEPO switch assembly

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.

- Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.

2. To disconnect the cable at the fan sense card, squeeze the tab to release it.

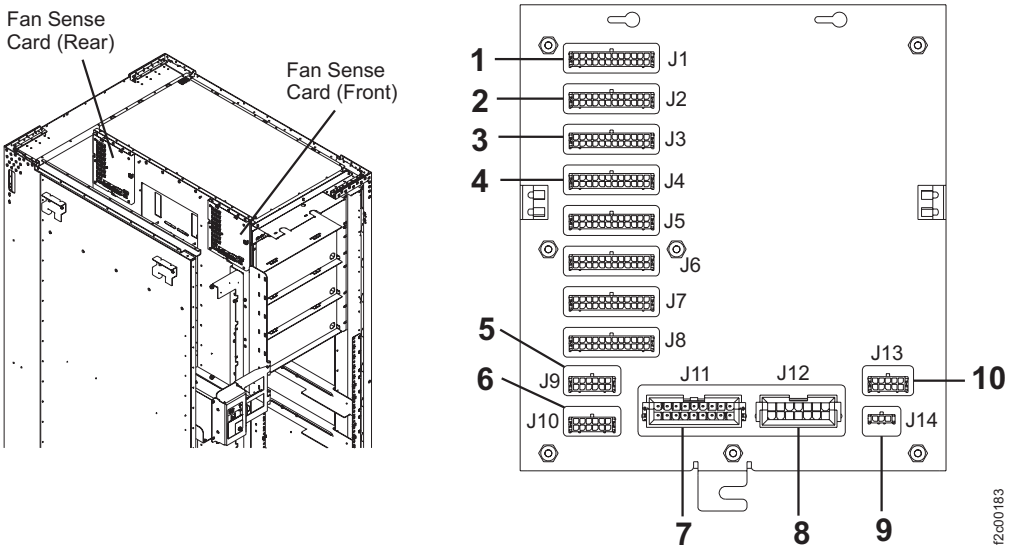


Figure 485. Cables on the fan sense cards

3. To disconnect the cable at the operator panel, squeeze the tab to release it.
4. Remove the cable retention hardware as needed and then remove the cable.

Install fan sense card to rack operator panel UEPO switch assembly

1. Route the cable.
2. Connect the cable to the fan sense card connector. See Figure 485.
3. Connect the cable to the operator panel connector.
4. Install the cable retention hardware.

Exchange the FC-AL cable

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice “D005” on page 2138.

Note: An FC-AL cable can connect an I/O enclosure device adapter card to the Fibre channel interface card in a storage enclosure or it can connect a Fibre channel interface card in one storage enclosure to the Fibre channel interface card in another storage enclosure.

Remove FC-AL cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. The serviceable event FRU list should display the location code of both ends of the FC-AL cable. If the location code of both ends are not listed, do the following:
   a. Stop and call the next level of support.
   b. Refer to the information center. Navigate to **Reference → Cable diagrams → FC-AL cables**. See the section for your model to help determine the location of the end that is not listed in the FRU list.
   c. Manually trace the old cable from one end to the other (this process can be very difficult).
3. Read the following information on FC-AL cables.
   - The cables are bundled in groups of 4 or more in the rack.
   - Replacement bundles are not field stocked.
   - Four general length FC-AL cables are stocked. When you enter the P/N of the cable bundle that contains the cable to be replaced, the parts ordering system will substitute one of the four generic length cables that is long enough.
   - The old cable will be left in the cable bundle. The new cable will be routed along side the existing cable bundle. After the repair is successful, the connectors on both ends of the old cable should be cut off.
   - See Table 374 on page 1409 and Table 375 on page 1412 in the Storage Enclosure part numbers section of the service information center.
4. Disconnect each end of the FC-AL cable. Do one or both of the following steps as needed.
   a. To disconnect the cable at an I/O enclosure device adapter card connector **(Cx)**, squeeze the left side of the connector to unlatch it, then gently pull the connector clear. See Figure 486 on page 1007.

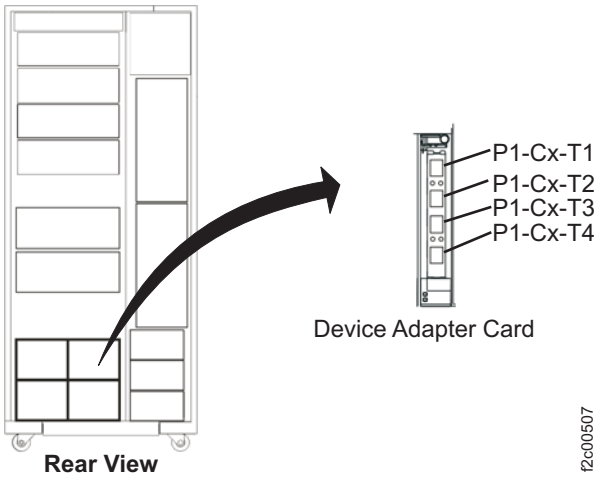


Figure 486. Location codes for the device adapter card

b. To disconnect the cable at a storage enclosure fiber channel interface card **(C1 and C2)**, squeeze the left side of the connector to unlatch it, then gently pull the connector clear. See Figure 487.

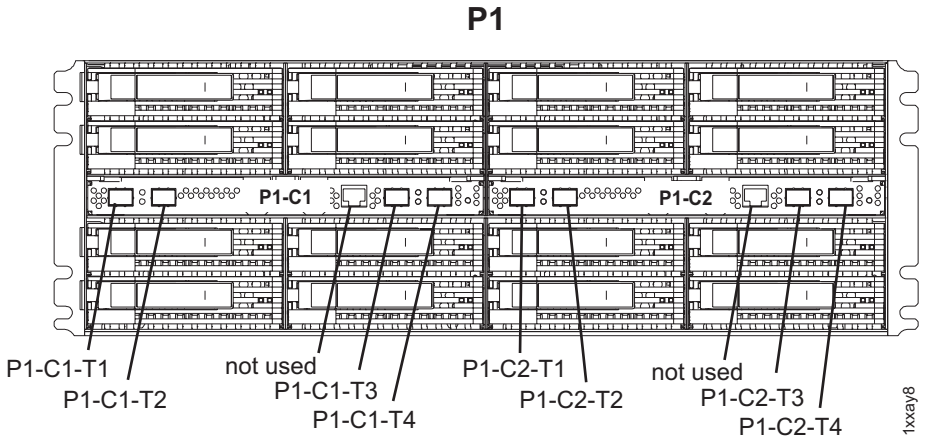


Figure 487. Storage enclosure locations

5. Do not attempt to remove the cable from the cable bundle. After the repair has been completed successfully, cut the connector off each end of the old cable.

Install FC-AL cable

1. Route the new cable along side the cable bundle containing the old cable.
2. Do one or both of the following steps as needed.
   a. Connect the cable to the I/O enclosure device adapter card connector **(Cx)**. See Figure 486.
   b. Connect the cable to the storage enclosure fiber channel interface card connector. See Figure 487.
3. Neatly store the extra cable length away from either end of the cable.
4. Use the existing cable retention hardware to also fasten the new cable.
5. Return to the procedure that sent you here.

Exchange the host cable from host adapter card

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice "D005" on page 2138.

Remove host cable from host adapter card

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. At the rear of the rack, disconnect the host cable **(1)** from the host adapter card in the I/O enclosure. See Figure 488.

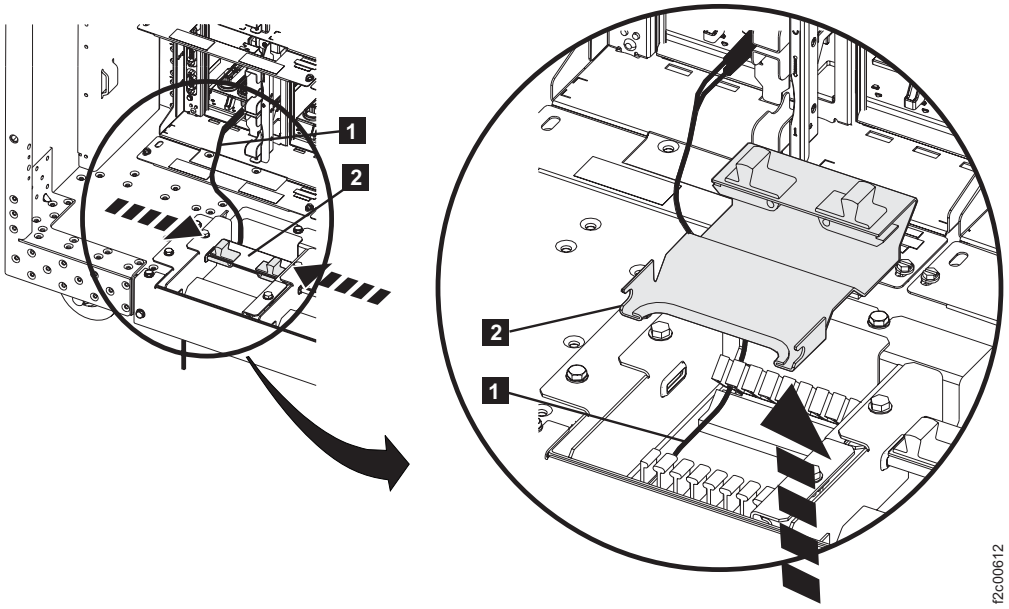


Figure 488. Tailgate cable and fibre channel cable retention

3. Squeeze the black release levers **(2)**, pivot the retention bracket upward, and remove it.
4. Release the host cable from the slots under the retention bracket and remove the cable from the rack.

Note: If there is not enough room to remove the cable through the opening, remove the two screws and lift the assembly partially up.

Install host cable to host adapter card

1. Route the host cable **(1)** up through the tailgate and connect it to the host adapter card connector in the I/O enclosure. See Figure 488 on page 1008.

   Note: If there is not enough room to route the cable through the opening, remove the two screws and lift the assembly partially up.
2. Leave some slack in the host cable between the host adapter card and the tailgate. Secure the cable in the black cable retention slots.
3. Install the cable retention bracket, pivot it downward, and ensure that the two black release levers are secured.

Exchange the I/O enclosure power cable


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice “D005” on page 2138.

Remove I/O power cable

Note: The I/O enclosure must be fully removed from the rack for this procedure.

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. At the front of the rack, unplug the input power cable to both power supplies in the I/O enclosure. See Figure 489 on page 1010.

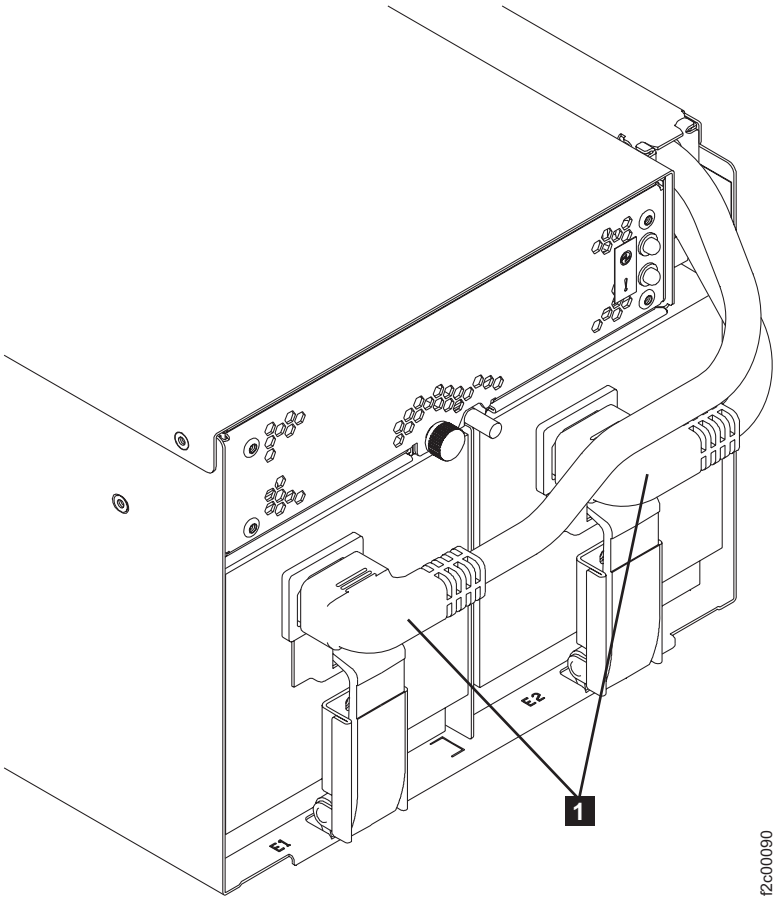


Figure 489. I/O enclosure power supply plugs

3. At the rear of the rack, unplug all the cables (ID **(1)**, SPCN **(2)**, RIO **(3)**, FC-AL **(4)** and customer host **(5)**). Ensure cable is labeled so it can be properly replugged. See Figure 490 on page 1011.

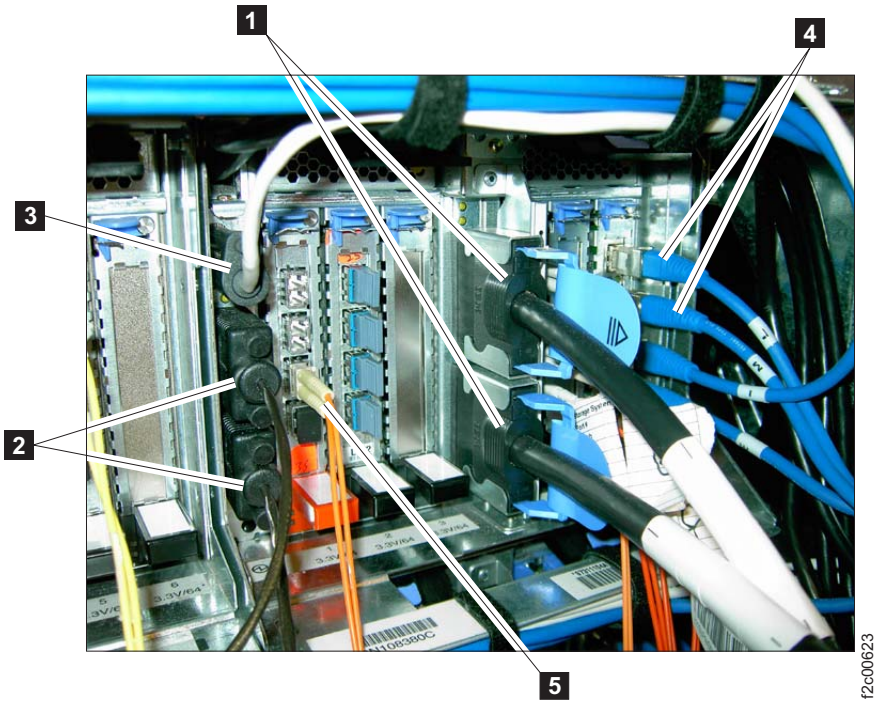


Figure 490. RIO cable connector

Note: To unplug the RIO cable **(1)**, gently pull the RIO cable connector blue release handle towards you and then pull the cable connector free of the sheetmetal guide bracket.

4. Unplug the two black power cables from the 208VDC bus bars. From the rear of the rack (see Figure 491 on page 1012):
   a. Trace the power cables **(1)** from the upper left corner of the I/O enclosure to the 208VDC secondary bus bars **(2)**.
   b. Gently pull the blue retention bracket **(3)** and then slide it to the side to allow the cable to be unplugged.
   c. Unplug the black power cable **(1)** from the bus bar connector **(2)**.
   d. Remove any cable retention hardware to allow the cables to hang free.

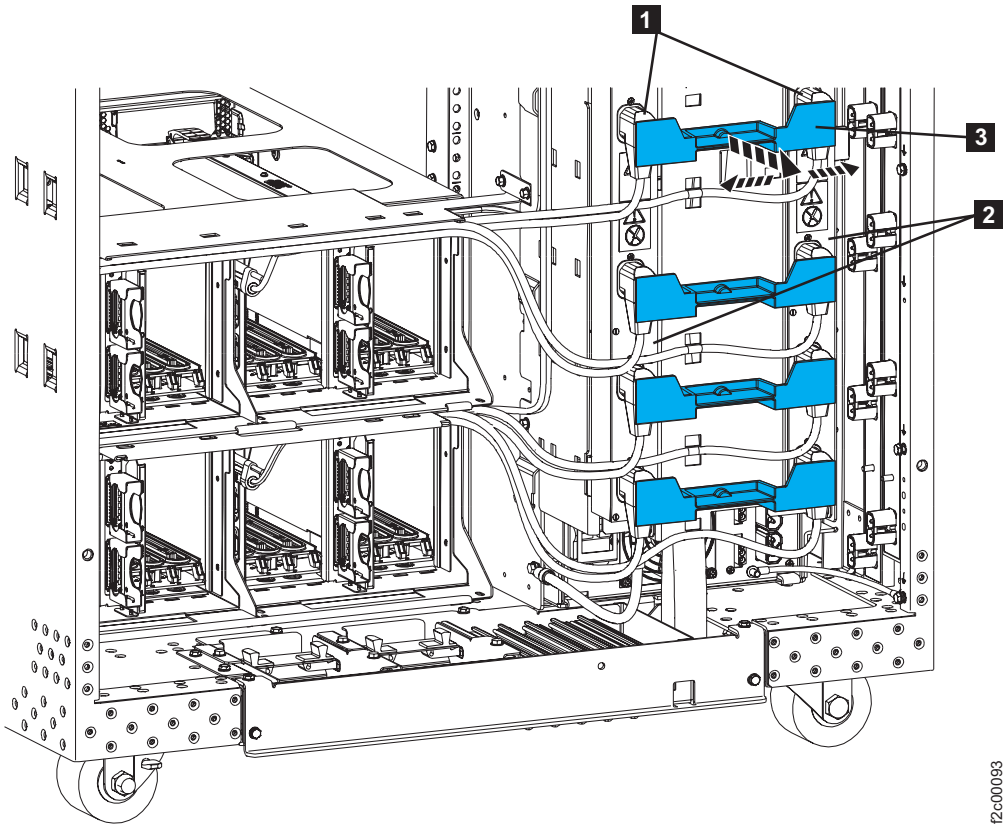


Figure 491. I/O with power cables

5. Remove the I/O enclosure chassis from the rack. See Figure 492 on page 1013.

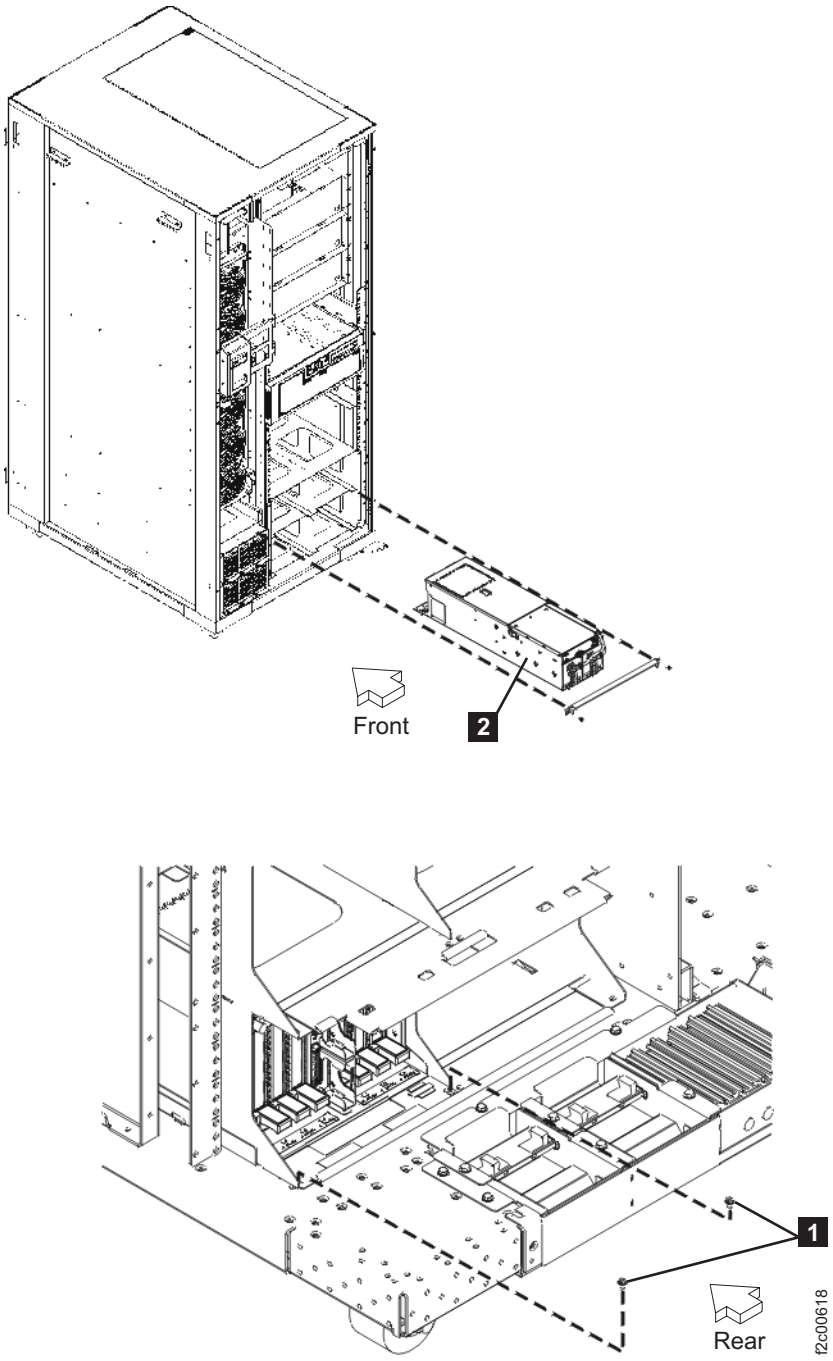


Figure 492. Remove the I/O enclosure chassis

a. At the rear of the rack, remove the two hold down screws **(1)**.
b. Push the I/O enclosure forward towards the front of the rack **(2)**.
c. At the front of the rack, pull the I/O enclosure out the front being careful to balance it when it is free of the rack.
d. Place the I/O enclosure on a static free surface.

6. Remove the sheet metal cover over the RIO and adapter cards.
   a. Remove the small screw securing the sheet metal cover tab.

b. Insert a screwdriver into the gap behind the cover and then twist the screwdriver to pry the cover towards the rear of the I/O enclosure.

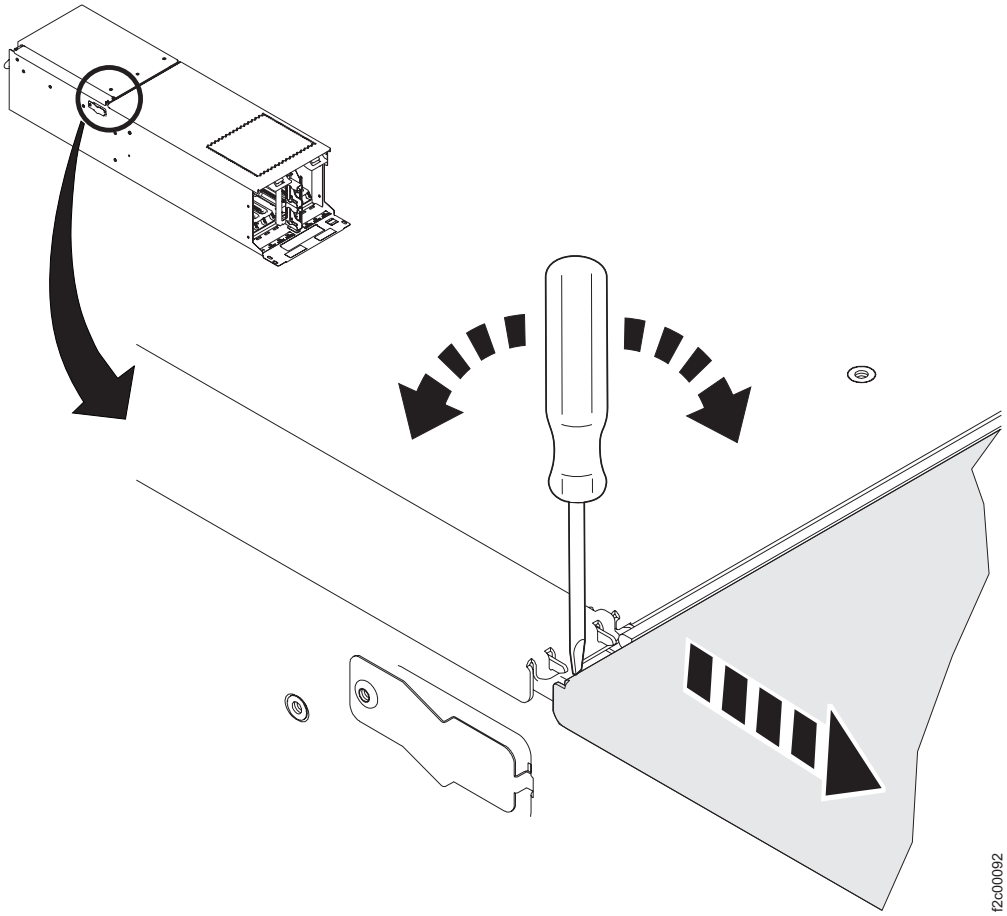


Figure 493. I/O enclosure (pry off)

c. Slide the cover about 1 inch (2.54 cm) back until it can be lifted up and removed.

7. Remove the small screw **(1)** securing the sheet metal cover **(2)** at the top front of the I/O enclosure. Slide the cover towards the rear until it is free and can be removed. See Figure 494 on page 1015.

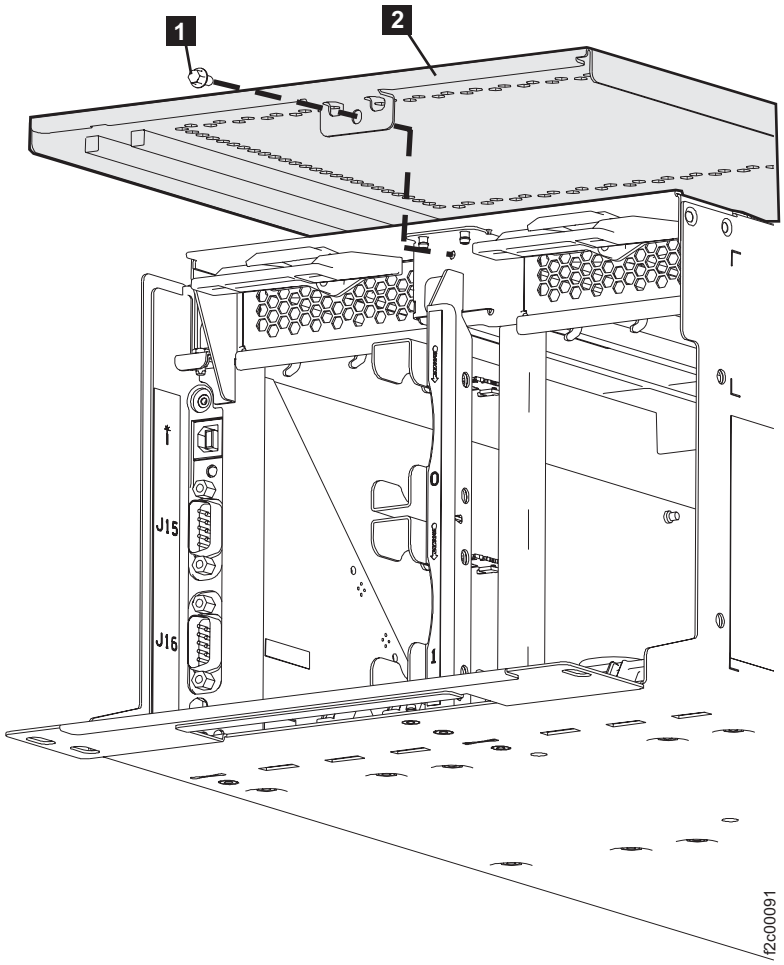


Figure 494. RIO card (remove sheet metal screw)

8. Remove the failing power cable.

Install I/O power cable

1. Install the new power cable.
2. Install the two sheet metal covers.
3. Slide the I/O enclosure back into the rack and install the two hold down screws.
4. Connect all the cables at the rear of the I/O enclosure.
5. Connect the two black power cables to the power supplies.
6. Route and connect the power cables to the 208VDC bus bars.
7. Slide the blue retention bracket back in position.
8. Reinstall the cable retention hardware.
9. Return to the procedure that sent you here.

Exchange the I/O enclosure power supply to 208VDC bus cable

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice "D005" on page 2138.

Remove the I/O power supply to 208VDC bus cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. To disconnect the cable at the I/O enclosure power supply, pull the connector free.

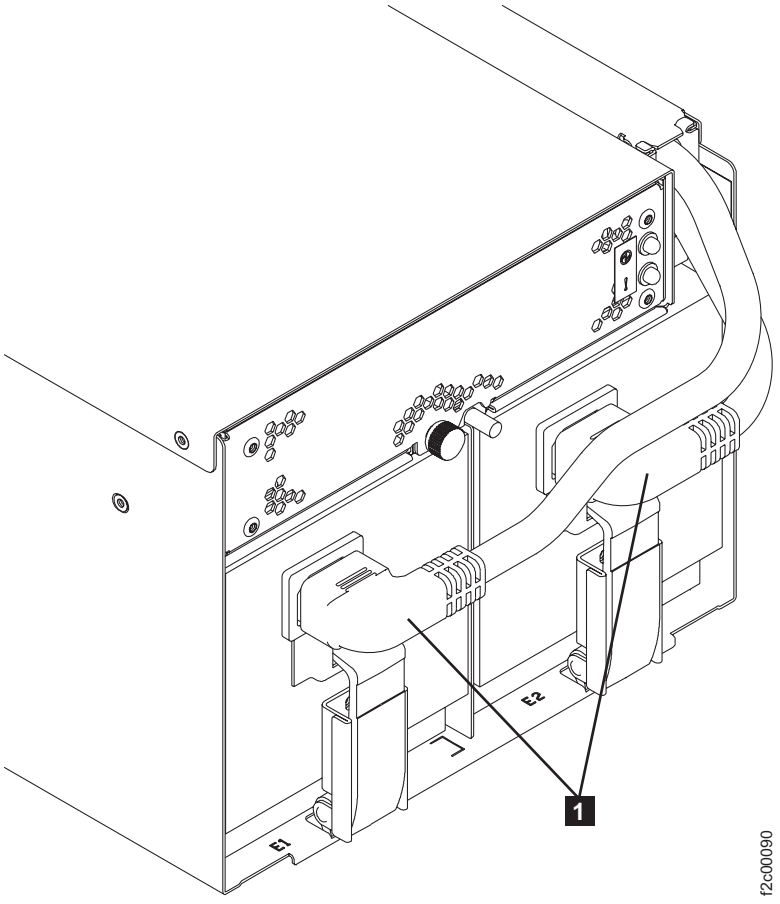


Figure 495. I/O enclosure power supply plugs

3. To disconnect the cable at the 208VDC bus connector, squeeze the tab to release it.

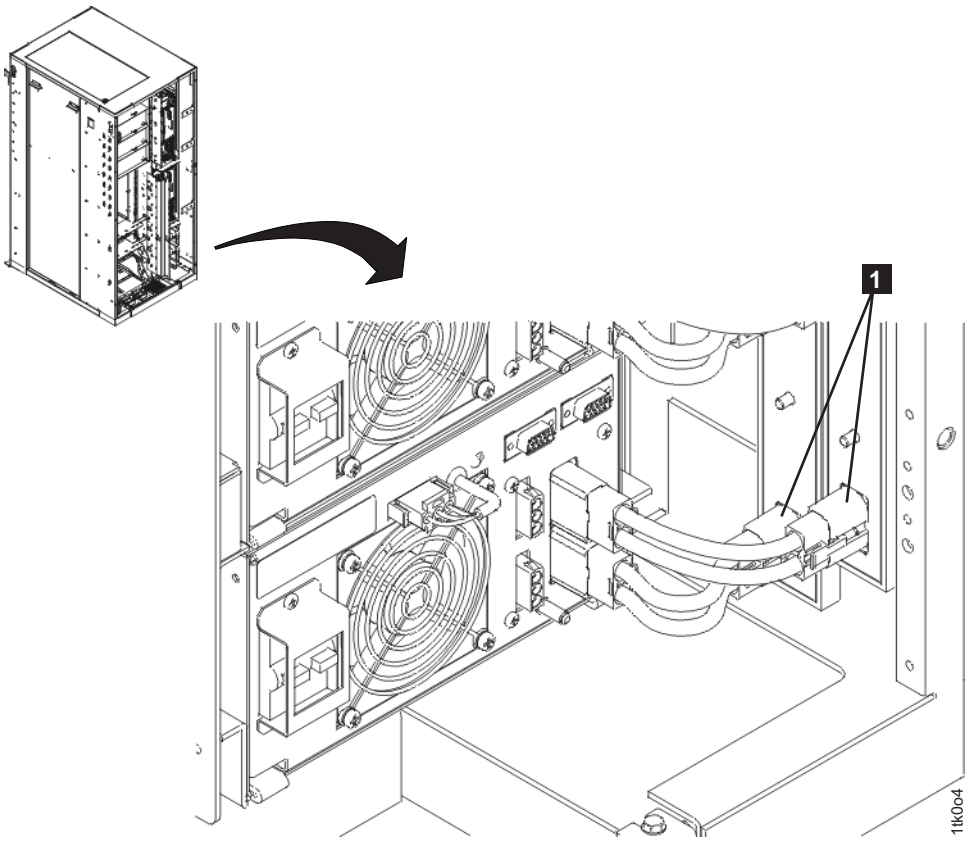


Figure 496. Cables between the battery modules and the 208VDC bus bars

4. Remove the cable retention hardware as needed and then remove the cable.

Install the I/O power supply to 208VDC bus cable

1. Route the cable.
2. Connect the cable to the CEC connector. See Figure 495 on page 1016.
3. Connect the cable to the 208VDC bus connector. See Figure 496.
4. Install the cable retention hardware.

Exchange the I/O enclosure to rack identity card cable

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

2. Read and fully understand the danger statement in Safety Notice "D005" on page 2138.

Remove the I/O enclosure to rack identity card cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. To disconnect the cable at the I/O enclosure, unscrew the jackscrew and pull the connector **(7)**.

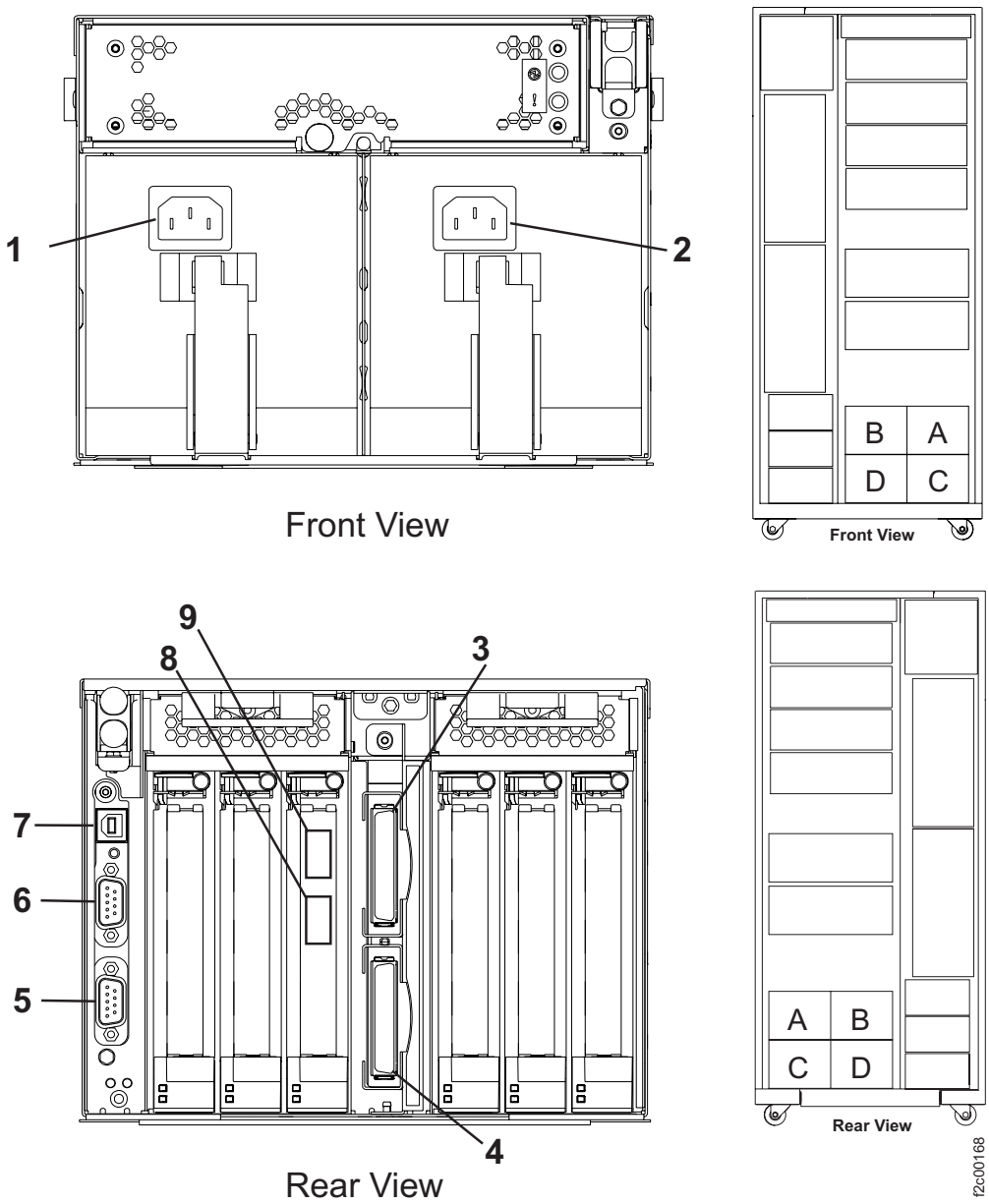


Figure 497. I/O enclosure cables

3. To disconnect the cable at the rack identity card **(5, 6, 7, or 8)**, squeeze the tab to release it.

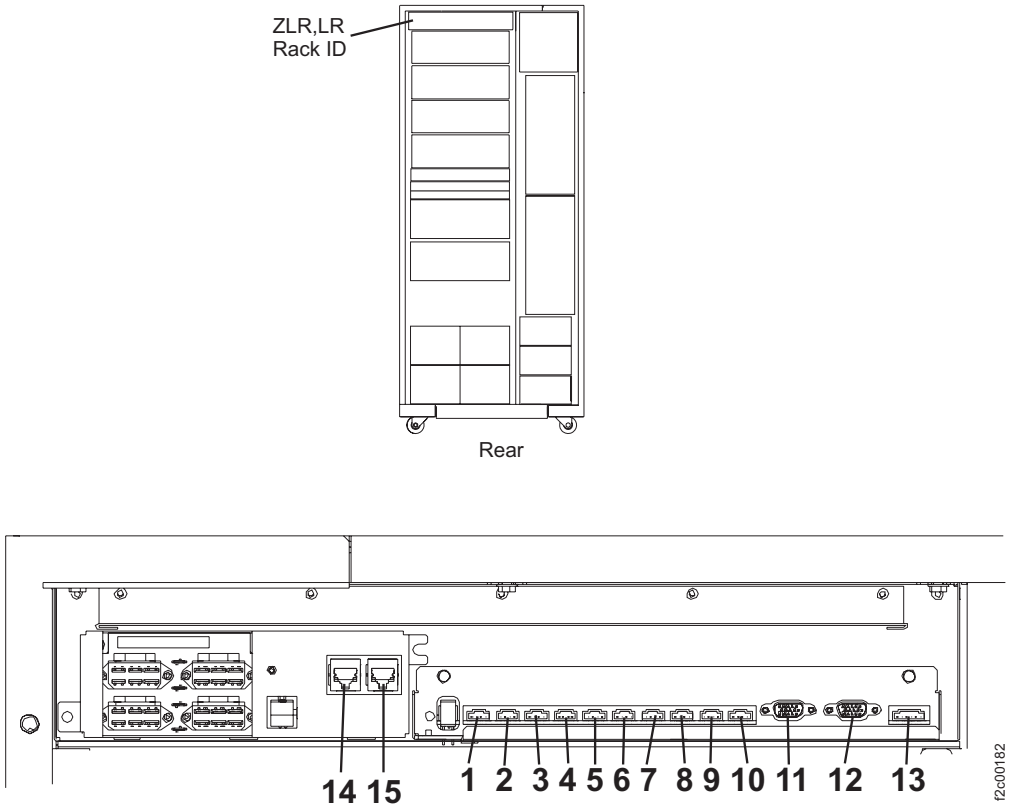


Figure 498. Rack power and cooling local remote and rack identity card cables

4. Remove the cable retention hardware as needed and then remove the cable.

Install the I/O enclosure to rack identity card cable

1. Route the cable.
2. Connect the cable to the I/O enclosure connector **(7)**. See Figure 497 on page 1019
3. Connect the cable to the rack identity card connector **(5, 6, 7, or 8)**. See Figure 498
4. Install the cable retention hardware.

Exchange the main line power cable

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

2. Read and fully understand the danger statement in Safety Notice "D005" on page 2138.

Remove the main line power cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. Instruct the customer to switch off the circuit breaker that supplies mainline AC voltage to the power receptacle for the main line power cable you are replacing.
3. Attention: Attach a "Do Not Operate" tag (S229-0237) and the safety lockout padlock to the customer's AC voltage circuit breaker. Refer to the *Electrical Safety for IBM Customer Engineers* book.
4. Remove the two screws **(1)** and open the 208VDC bus bar gate to the service position.

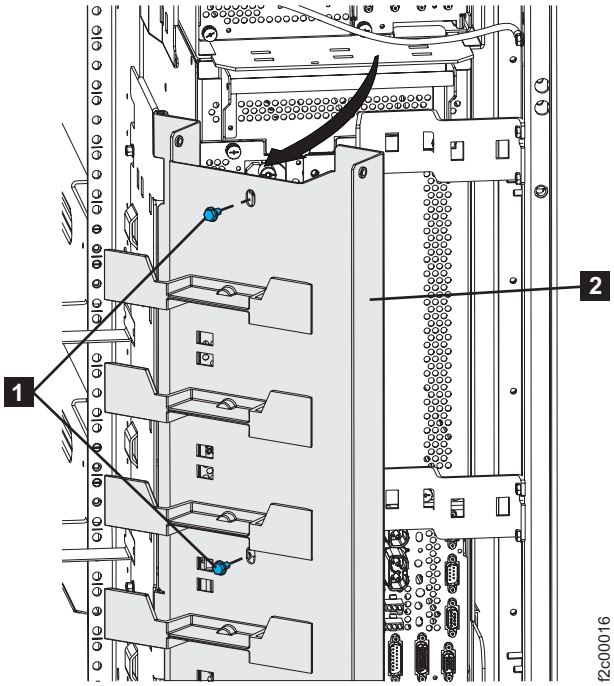


Figure 499. 208VDC bus bar gate service position

5. Ensure the Primary Power Supply (PPS) MAIN LINE CB00 **(1)** is switched off.

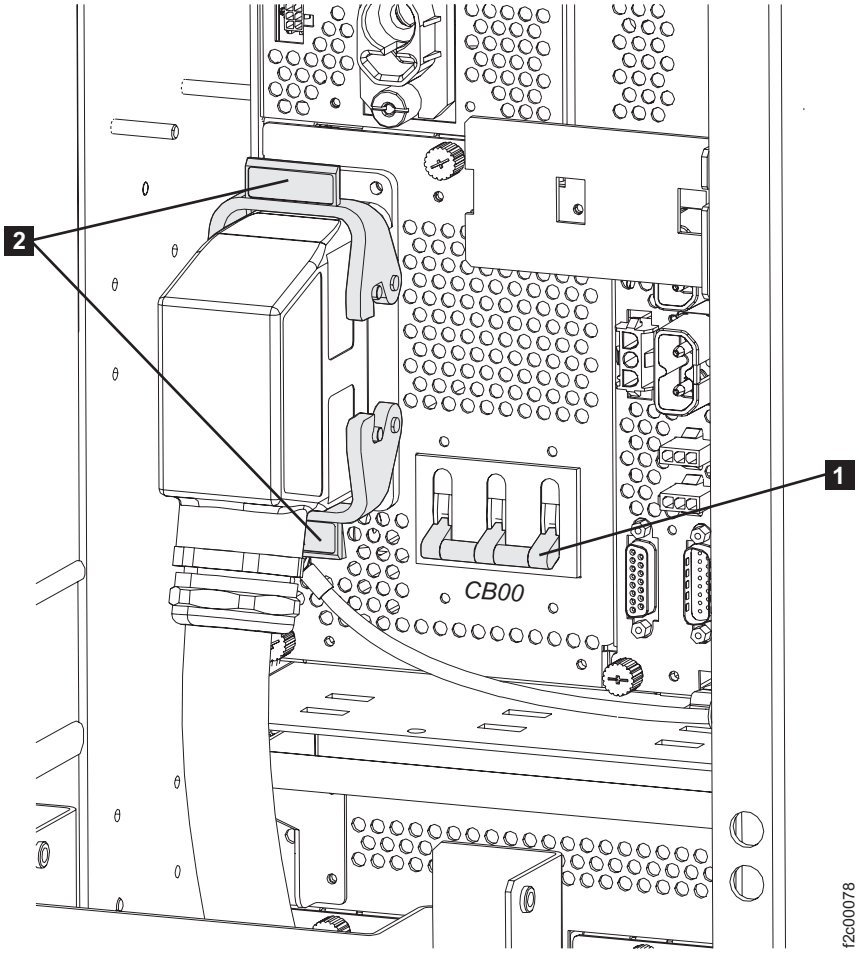


Figure 500. Power supply main line CB00 switch

6. Remove the tailgate frame bracket. Remove two screws **(2)**. Loosen but do not remove two screws **(1)**. Slide the bracket out.

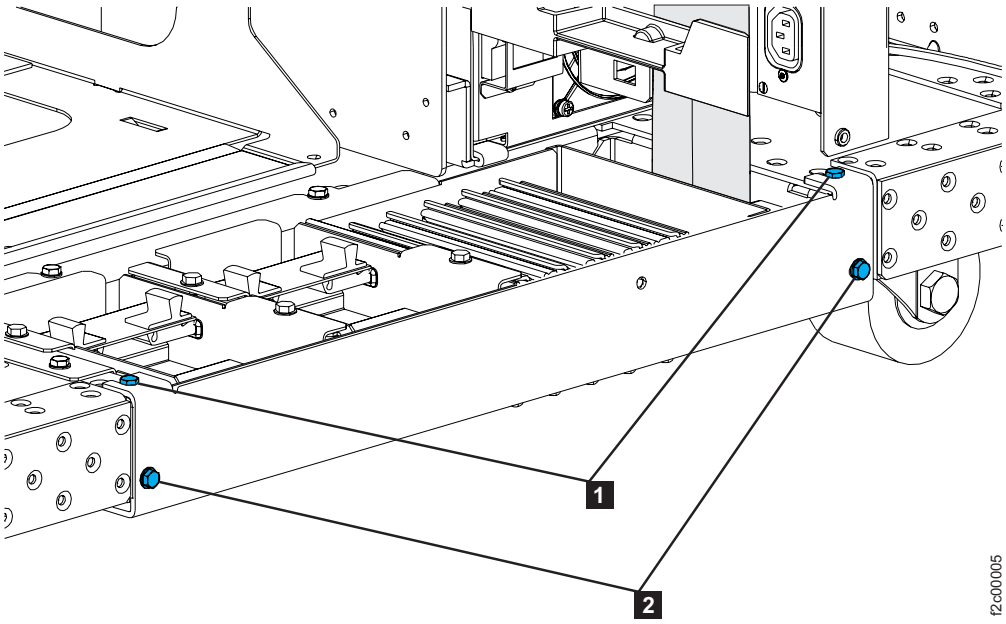


Figure 501. Tailgate frame bracket

7. At the PPS, unlatch the two retaining levers on the main line power cable and disconnect the cable. See Figure 500 on page 1022.
8. Carefully pull the mainline cable away from the rack and the tailgate.

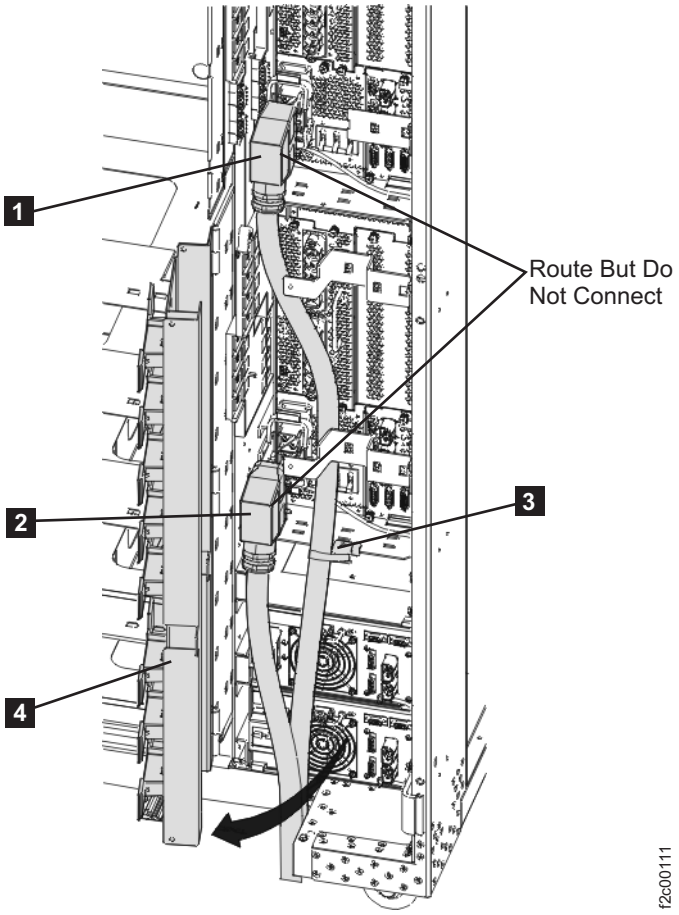


Figure 502. Base rack power cables

9. Disconnect the customer end of the cable:
   - If the customer end of the cable has a connector fitting, disconnect it.
   - If the customer end of the cable is hard wired to the customer power, have the customer electrician disconnect it.

Install the main line power cable

1. Connect the main line power cable to the customer power.
   - If the customer end of the cable has a connector fitting, connect it.
   - If the customer end of the cable is hard wired to the customer power, have the customer electrician connect it.
2. Connect the mainline power cable to the PPS and ensure both latches are secure. See **(2)** in Figure 500 on page 1022.
3. Instruct the customer to switch on the mainline circuit breaker that supplies mainline ac voltage to the power receptacle for the PPS that you are replacing.
4. At the AC input power module, set the CB00 **(1)** to on in Figure 500 on page 1022.
5. Route the cable down through the tailgate **(1)**. See Figure 501 on page 1023.
6. Pivot the 208VDC bus bar gate closed being careful that both mainline power cables lay in the space between the two 208VDC bus bars. Fasten the gate shut with the two screws.

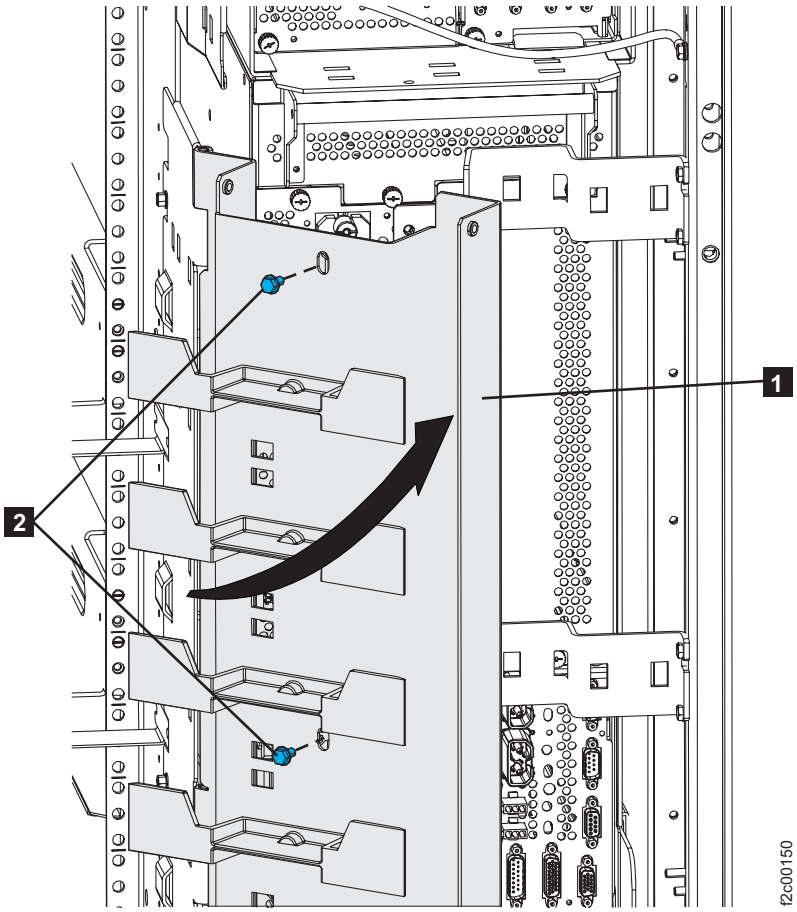


Figure 503. Bus bar gate closing

7. Reinstall the tailgate bracket with all four screws. See Figure 501 on page 1023.
8. Return to the procedure that sent you here.

Exchange the PPS to battery module chassis I2C signal cable

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice “D005” on page 2138.

Remove the PPS to battery module chassis I2C signal cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:

- Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
- Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.

2. To disconnect the cable at the primary power supply connector **(12)**, squeeze the tab to release it.

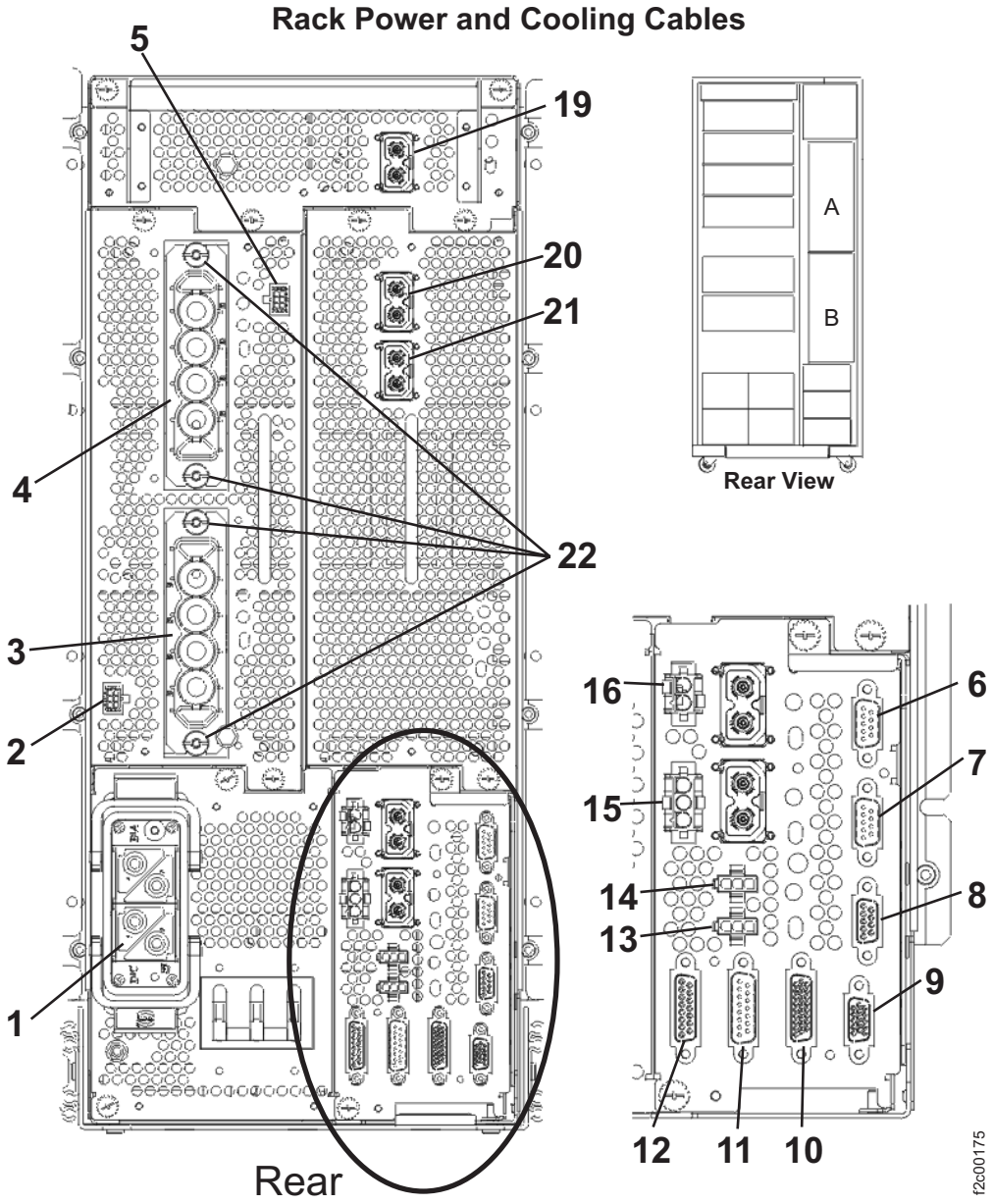


Figure 504. Rack power and cooling cables

3. To disconnect the cable at the battery module chassis connector **(1 or 2)**, squeeze the tab to release it.

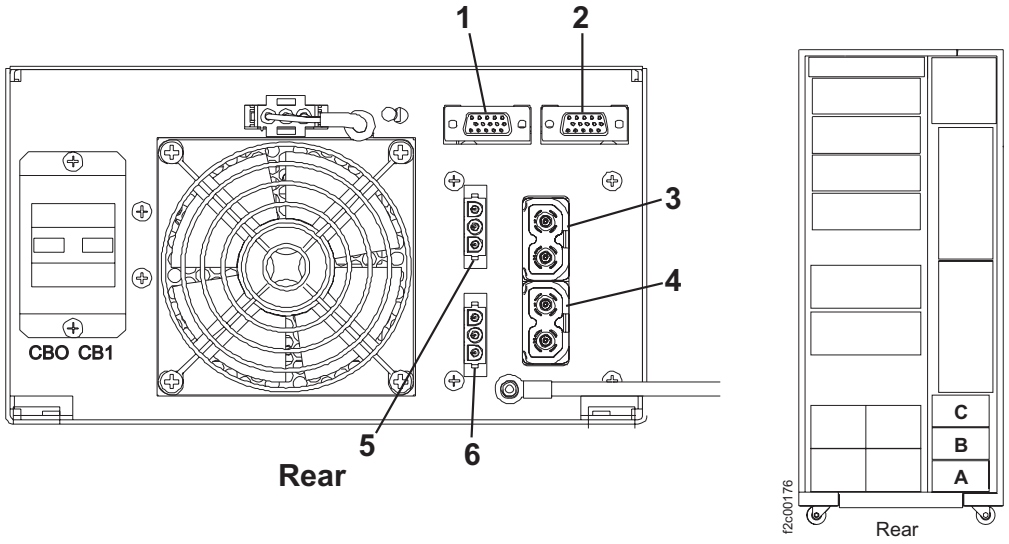


Figure 505. Rack power and cooling battery module set cables

4. Remove the cable retention hardware as needed and then remove the cable.

Install the PPS to battery module chassis I2C signal cable

1. Route the cable.
2. Connect the cable to the primary power supply connector **(12)**. See Figure 504 on page 1026.
3. Connect the cable to the battery module chassis unit connector **(1 or 2)**. See Figure 505.
4. Install the cable retention hardware.

Exchange the PPS to battery module chassis charging cable

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice "D005" on page 2138.

Remove the PPS to battery module chassis charging cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.

- Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.

2. To disconnect the cable at the primary power supply connector **(15)**, squeeze the tab to release it.

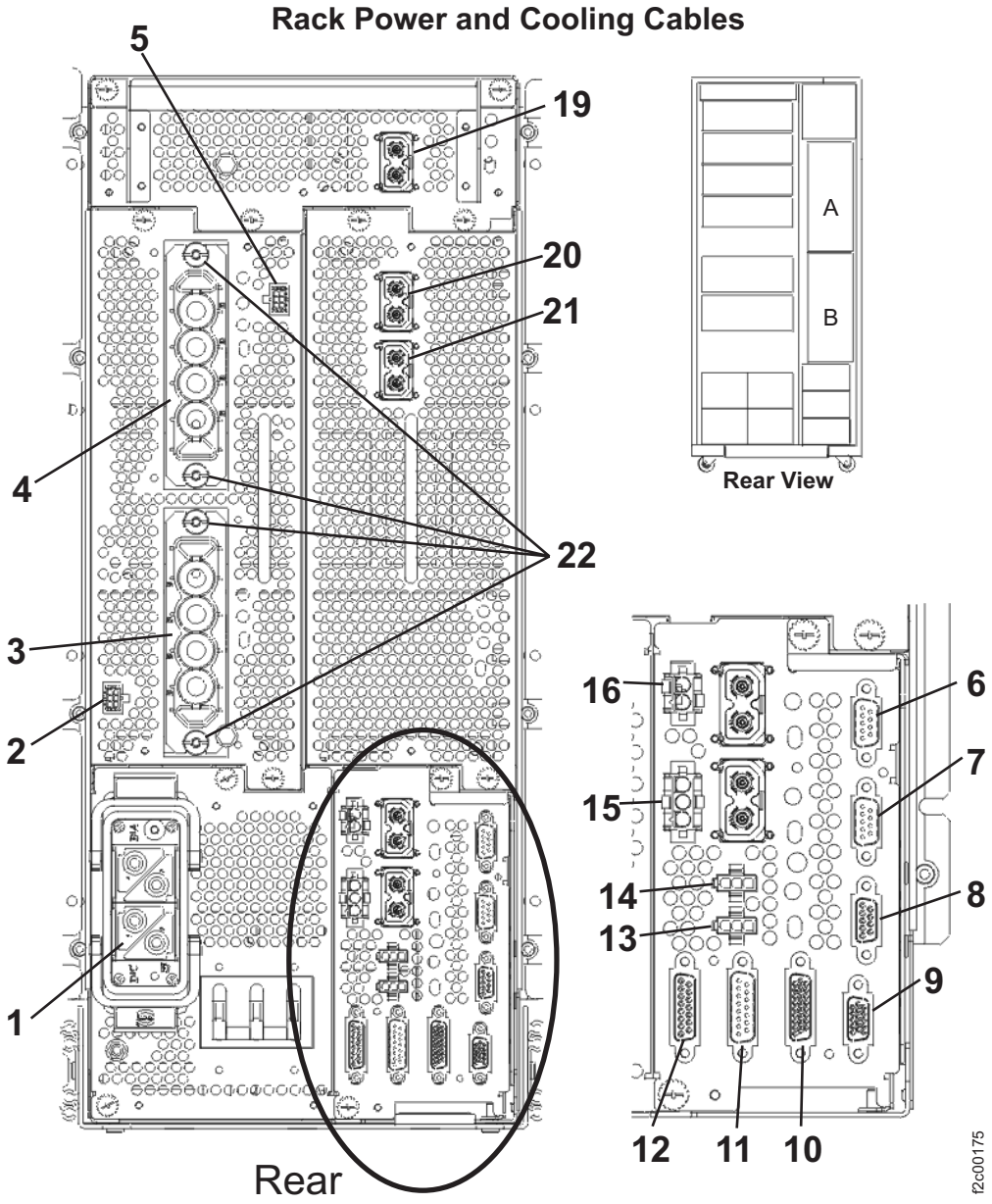


Figure 506. Rack power and cooling cables

3. To disconnect the cable at the battery module chassis connector **(5 or 6)**, squeeze the tab to release it.

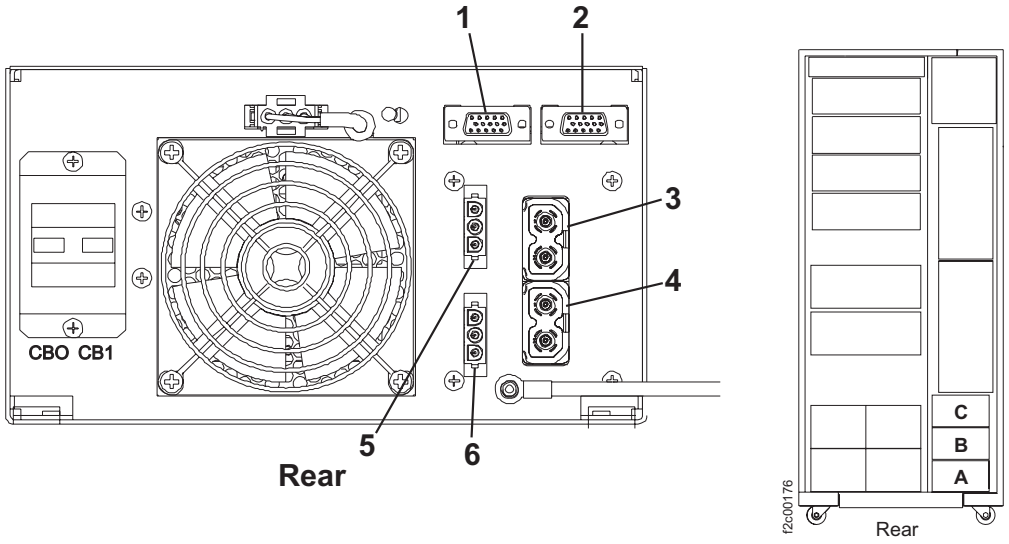


Figure 507. Rack power and cooling battery module set cables

4. Remove the cable retention hardware as needed and then remove the cable.

Install the PPS to battery module chassis charging cable

1. Route the cable.
2. Connect the cable to the primary power supply connector **(15)**. See Figure 506 on page 1028.
3. Connect the cable to the battery module chassis connector **(5 or 6)**. See Figure 507.
4. Install the cable retention hardware.

Exchange the PPS to fan sense card cable

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice “D005” on page 2138.

Remove the PPS to fan sense card cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.

- Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.

2. To disconnect the cable at the primary power supply connector **(10 or 11)**, squeeze the tab to release it.

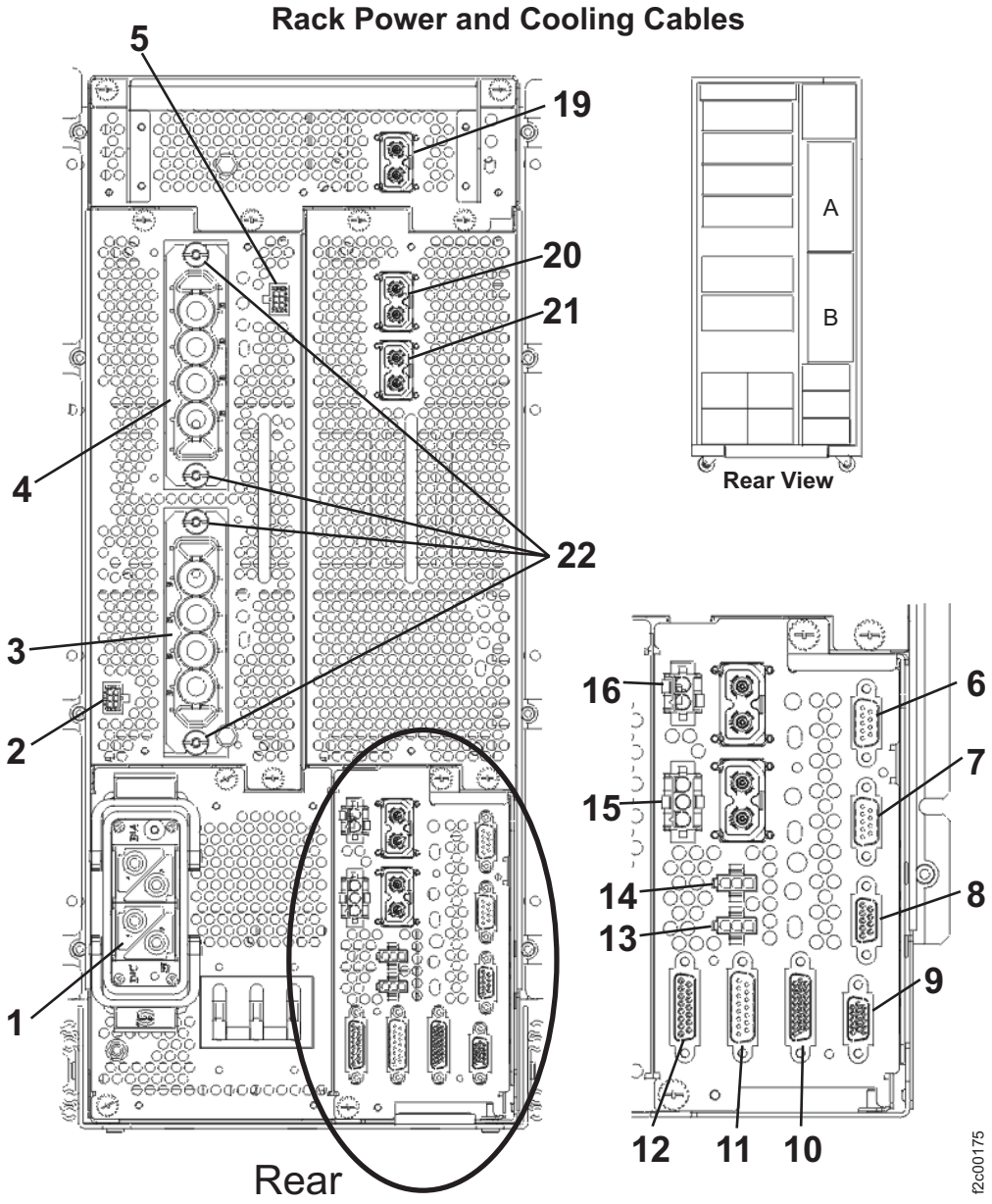


Figure 508. Rack power and cooling cables

3. To disconnect the cable at the fan sense card connector **(5 or 6)**, squeeze the tab to release it.

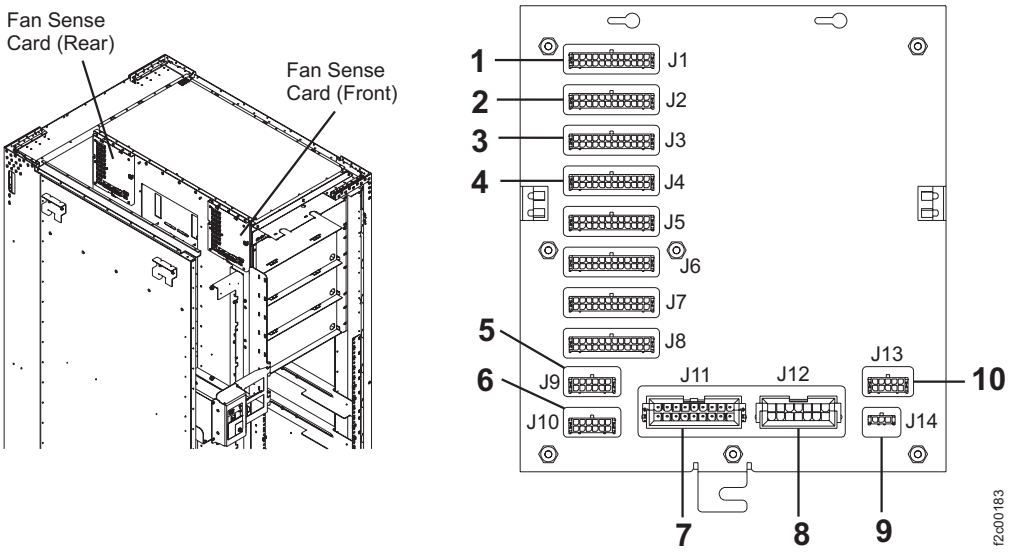


Figure 509. Cables on the fan sense cards

4. Remove the cable retention hardware as needed and then remove the cable.

Install the PPS to fan sense card cable

1. Route the cable.
2. Connect the cable to the primary power supply connector **(10 or 11)** in Figure 508 on page 1030.
3. Connect the cable to the fan sense card connector **(5 or 6)** in Figure 509.
4. Install the cable retention hardware.

Exchange PPS to fan sense card cable

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice "D005" on page 2138.

Remove fan sense card to rack operator panel UEPO switch assembly

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.

- Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.

2. To disconnect the cable at the fan sense card, squeeze the tab to release it.

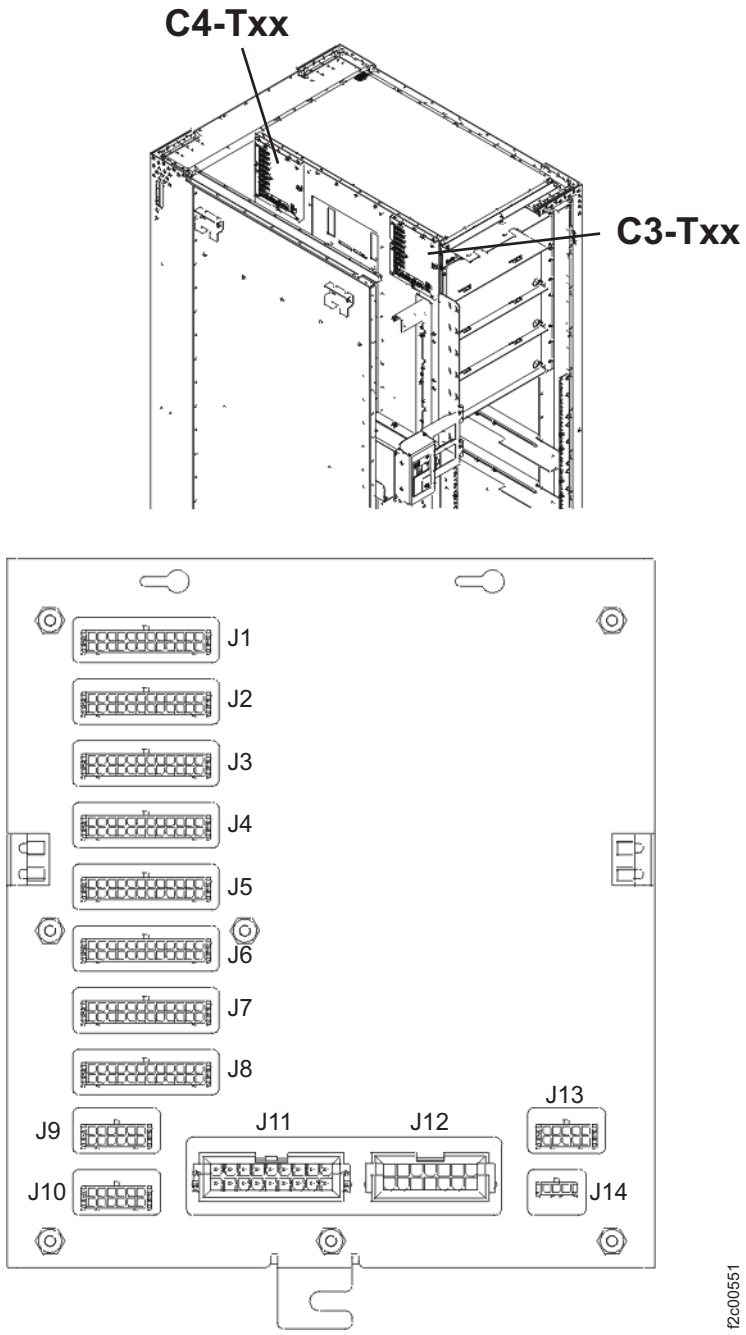


Figure 510. Rack power and cooling fan sense card cables

3. To disconnect the cable from the PPS sequencer module, unscrew the jackscrews and remove the cable. (Connector T11 or T12 as required.)

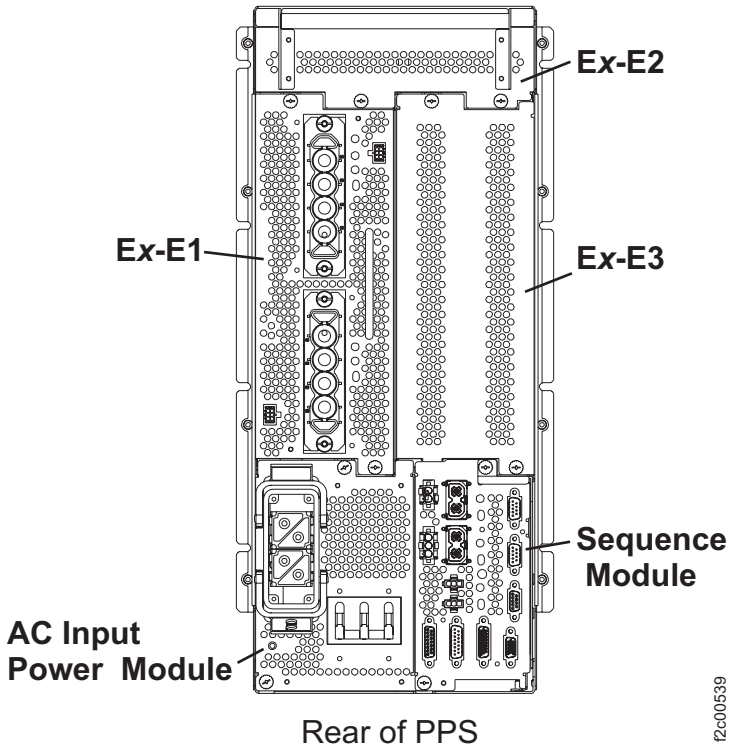


Figure 511. Location codes for the PPS (rear)

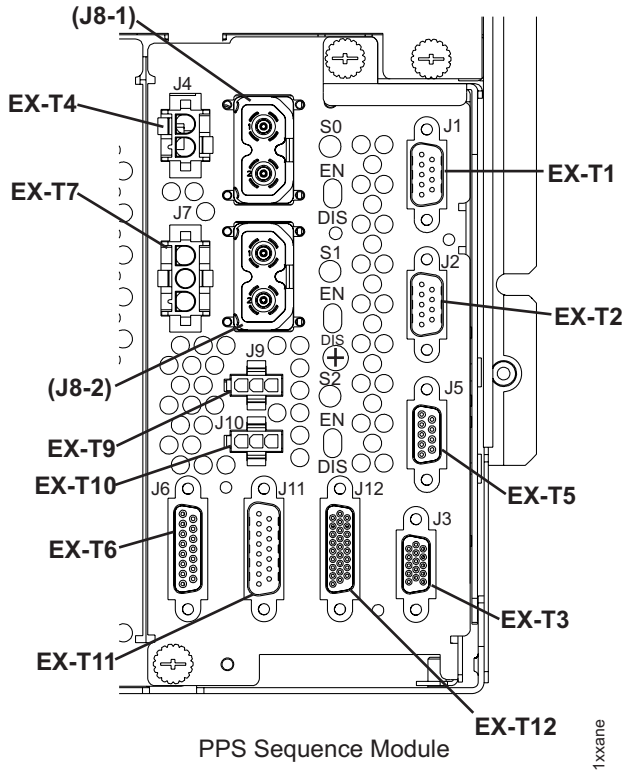


Figure 512. Location codes for the sequencer module

4. Remove the cable retention hardware as needed and then remove the cable.

Install fan sense card to rack operator panel UEPO switch assembly

1. Route the cable.
2. Connect the cable to the fan sense card connector.
3. Connect the cable to the PPS sequencer module connector.
4. Install the cable retention hardware.

Exchange the PPS to PPS cable

 Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice “D005” on page 2138.

Remove the PPS to PPS cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. To disconnect the cable at the primary power supply connector, squeeze the tab to release it.

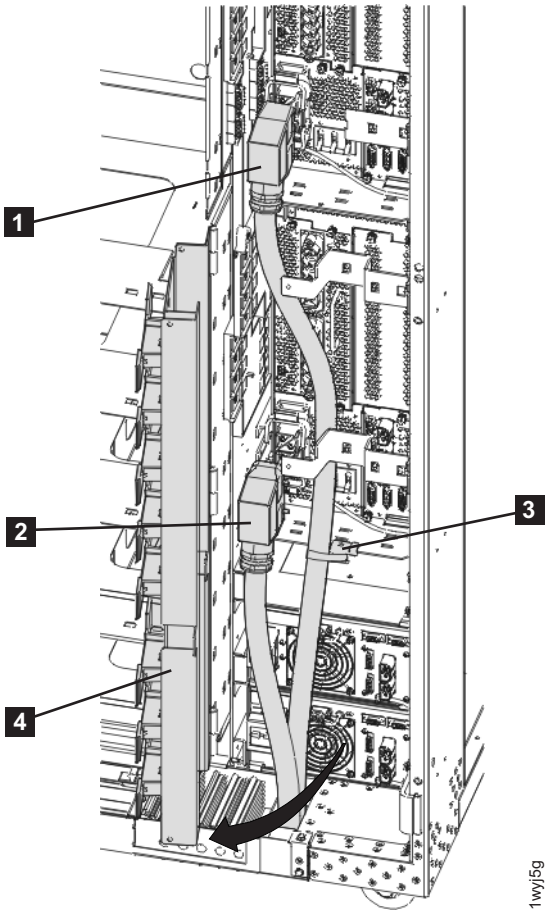


Figure 513. AC line cord and distribution assembly

3. Remove the cable retention hardware as needed and then remove the cable.

Install the PPS to PPS cable

1. Route the cable.
2. Connect the cable to the primary power supply connector. See Figure 513.
3. Install the cable retention hardware.

Exchange the PPS to rack identity card cable

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

2. Read and fully understand the danger statement in Safety Notice "D005" on page 2138.

Remove the PPS to rack identity card cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. To disconnect the cable at the primary power supply connector **(8)**, squeeze the tab to release it.

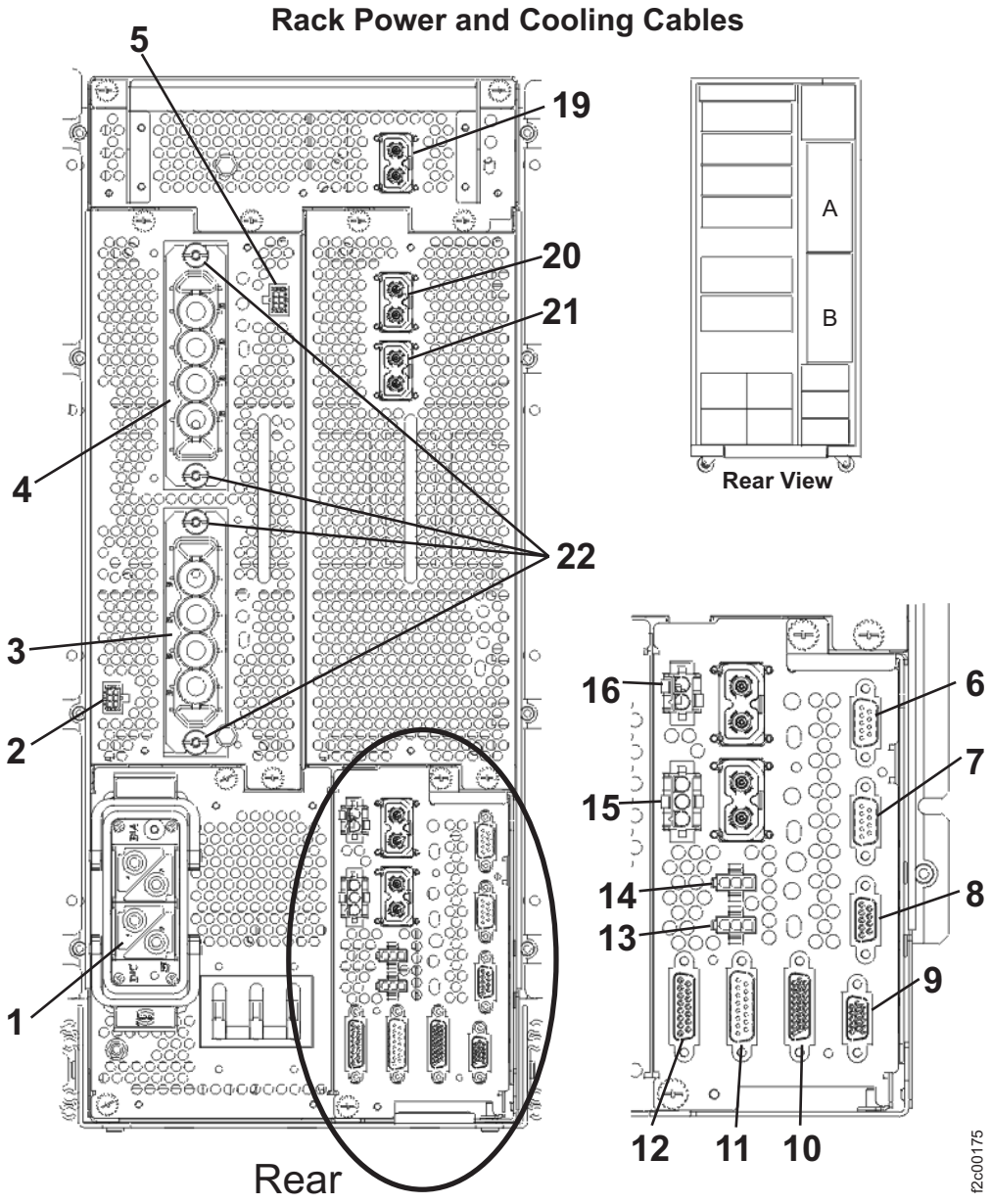


Figure 514. Rack power and cooling cables

3. To disconnect the cable at the rack identity card connector **(9 or 10)**, squeeze the tab to release it.

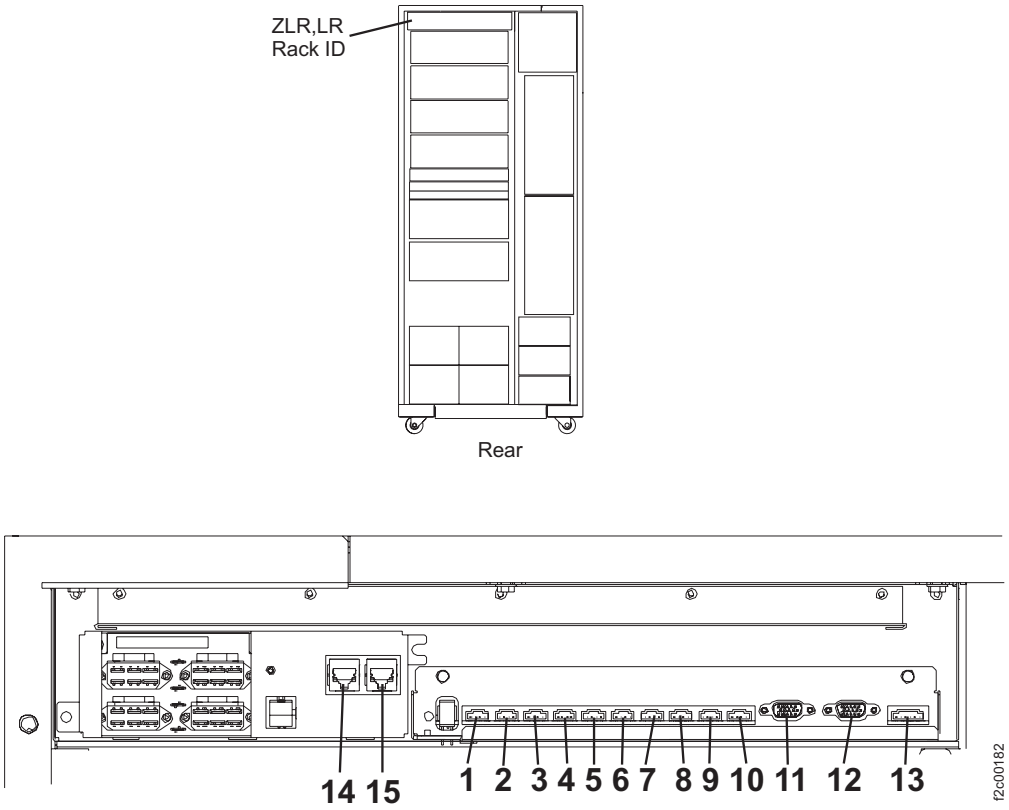


Figure 515. Rack power and cooling local remote and rack identity card cables

4. Remove the cable retention hardware as needed and then remove the cable.

Install the PPS to rack identity card cable

1. Route the cable.
2. Connect the cable to the primary power supply connector **(8)**. See Figure 514 on page 1036.
3. Connect the cable to the rack identity card connector **(9 or 10)**. See Figure 515.
4. Install the cable retention hardware.

Exchange the PPS to rack operator panel UEPO switch assembly cable

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

2. Read and fully understand the danger statement in Safety Notice "D005" on page 2138.

Remove the PPS to rack operator panel UEPO switch assembly cable

1. Ensure that all the rack in this storage facility are powered off.
2. Log off and shutdown the management console (HMC).
3. Switch off (down) the PPS-1 and PPS-2 power input circuit breakers.
4. At the rear of both primary power supplies, unplug the cables from the sequencer module connector **16**, squeeze the tab to release it.

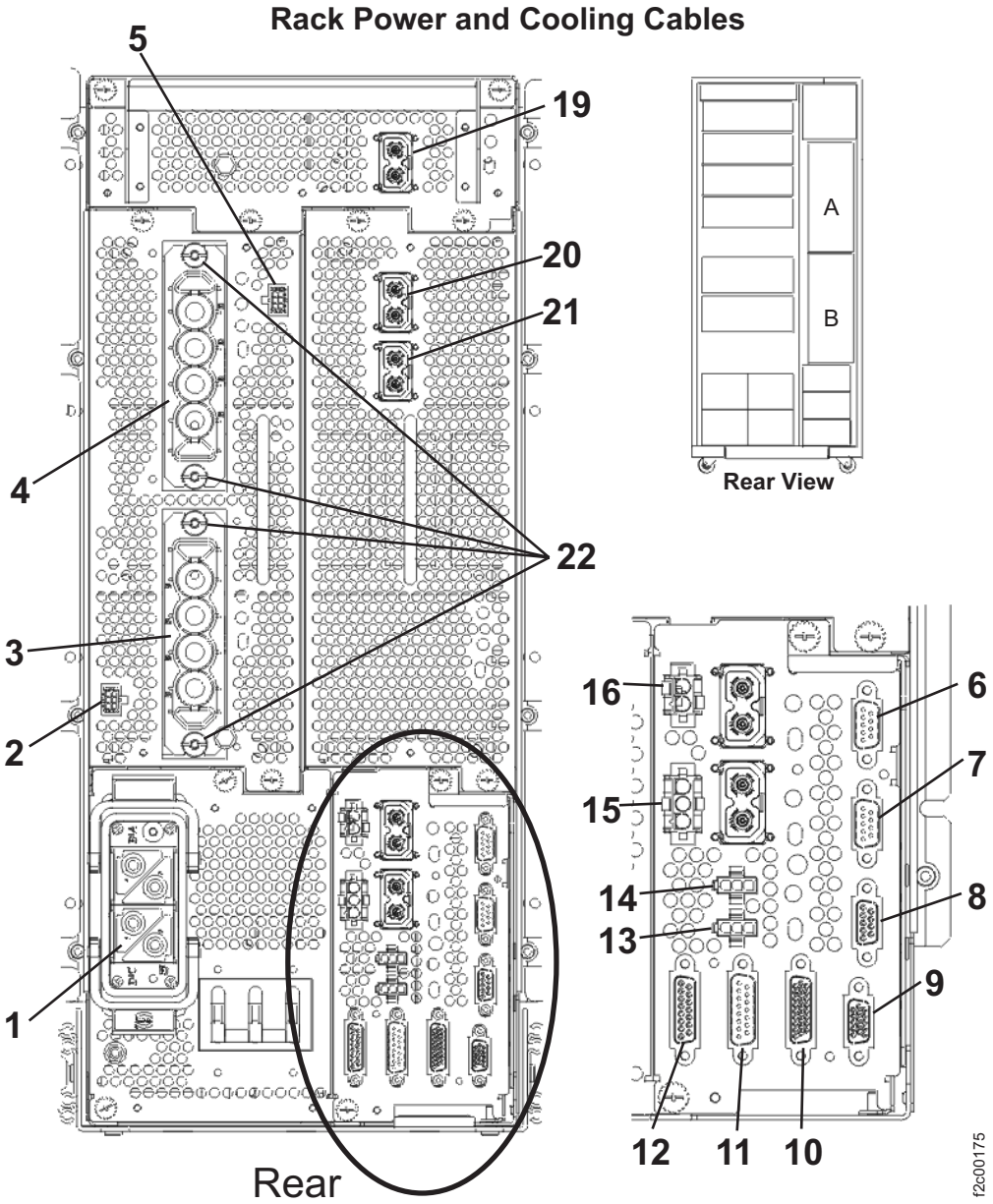


Figure 516. Rack power and cooling cables

5. At the front of the rack, remove the two screws and swing out the rack operator panel.

6. Remove the four screws (two in front and two on the left side) that hold the rear sheet metal cover that blocks access to the rear of the UEPO switch.
7. Remove the two screws fastening the UEPO switch to the operator panel and remove the UEPO switch.

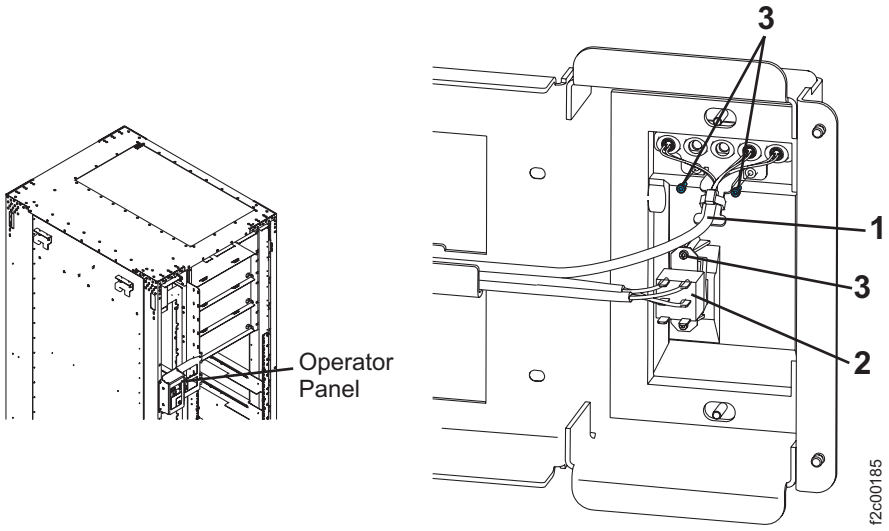


Figure 517. Rack operator panel UEPO switch cables

8. Remove the cable retention hardware as needed and then remove the cable.

Install the PPS to rack operator panel UEPO switch assembly cable

1. Route the cable.
2. Observe the ″top″ label on the UEPO switch and ensure it is facing up. (There are two version of the switch, one has the wires connected to the bottom four pins, the other connects to the top four pins. The ″top″ label ensures it is installed in the correct orientation). Use the two screws to install the UEPO switch to the rack operator panel.
3. Use the four screws to install the sheet metal rear access cover to the rack operator panel.
4. Connect both cables to the PPS connector J16.
5. Install the cable retention hardware.
6. Switch on (up) the input circuit breakers on both PPSs.
7. Wait a couple of minutes for the management console green LED power indicator to slow blink, then switch on the management console.
8. Power on the storage facility using the normal management console **Manage Power Control** menu options. Refer to “MAP1211 Controlling DS8000 power from the management console” on page 481.

Exchange the rack identity card to operator panel cable

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice "D005" on page 2138.

Remove rack identity card to operator panel cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. To disconnect the cable at the rack identity card **(13)**, squeeze the tab to release it.

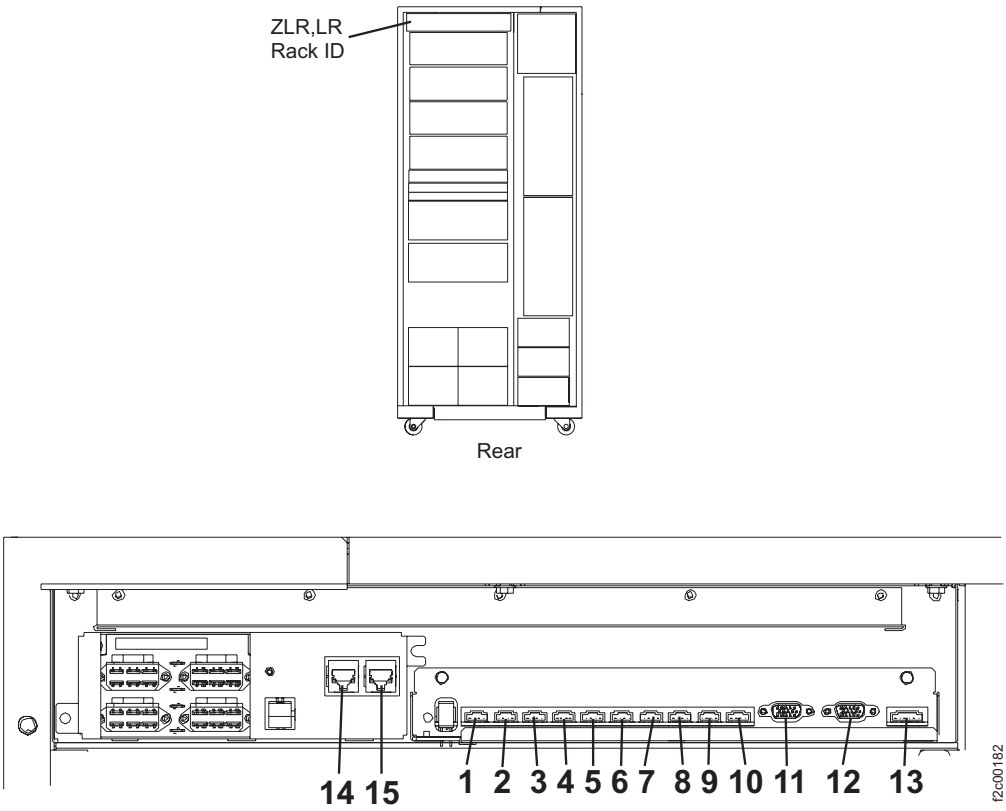


Figure 518. Rack power and cooling local remote and rack identity card cables

3. To disconnect the cable at the operator panel, squeeze the tab to release it.

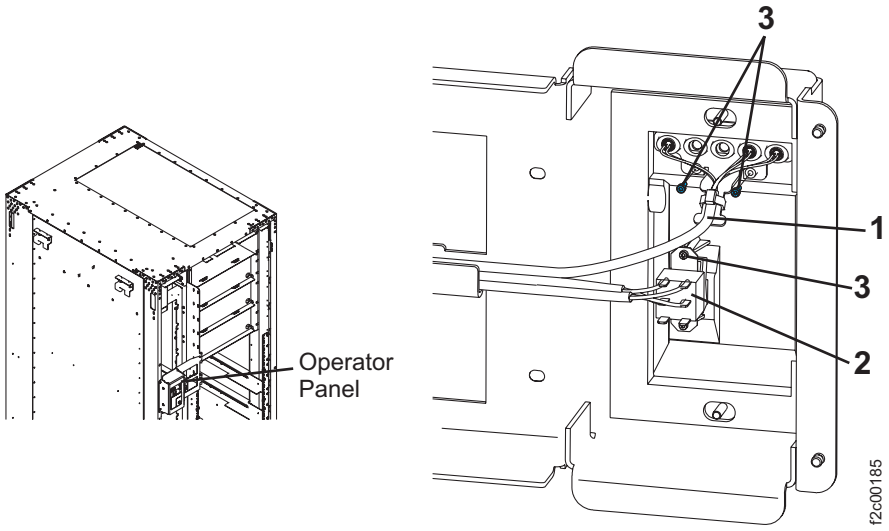


Figure 519. Rack operator panel UEPO switch cables

4. Remove the cable retention hardware as needed and then remove the cable.

Install rack identity card to operator panel cable

1. Route the cable.
2. Connect the cable to the rack identity card connector **(13)**. See Figure 518 on page 1040.
3. Connect the cable to the operator panel connector. See Figure 519.
4. Install the cable retention hardware.

Exchange the RIO cable

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice "D005" on page 2138.

Note: Both ends of the RIO cable use the same connector.

Remove the RIO cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.

- Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.

2. Gently pull the RIO cable connector blue release handle towards you and then pull the cable connector free of the sheet metal guide bracket.

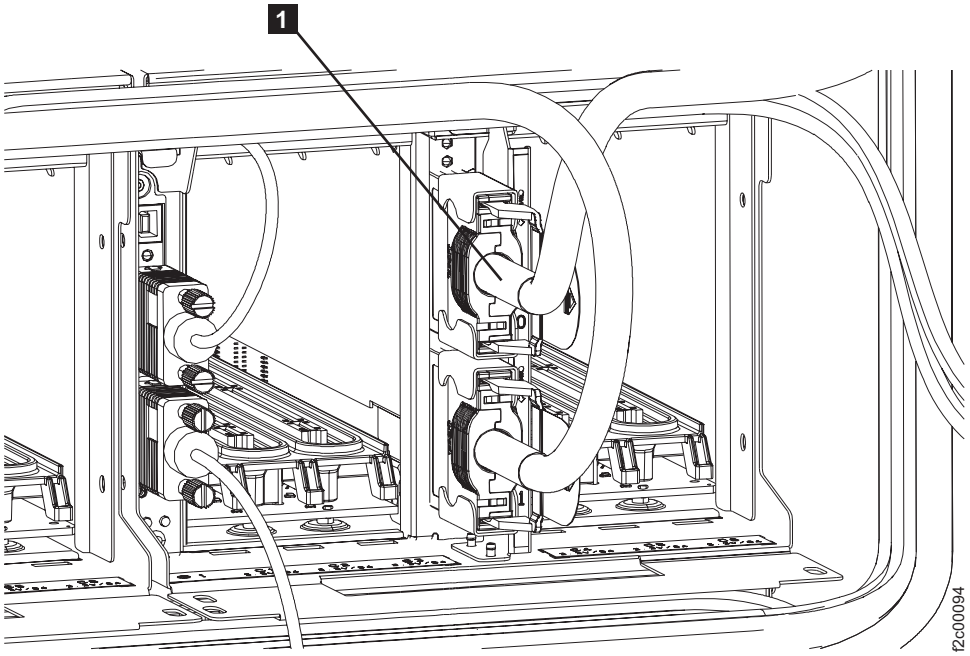


Figure 520. RIO cable connector

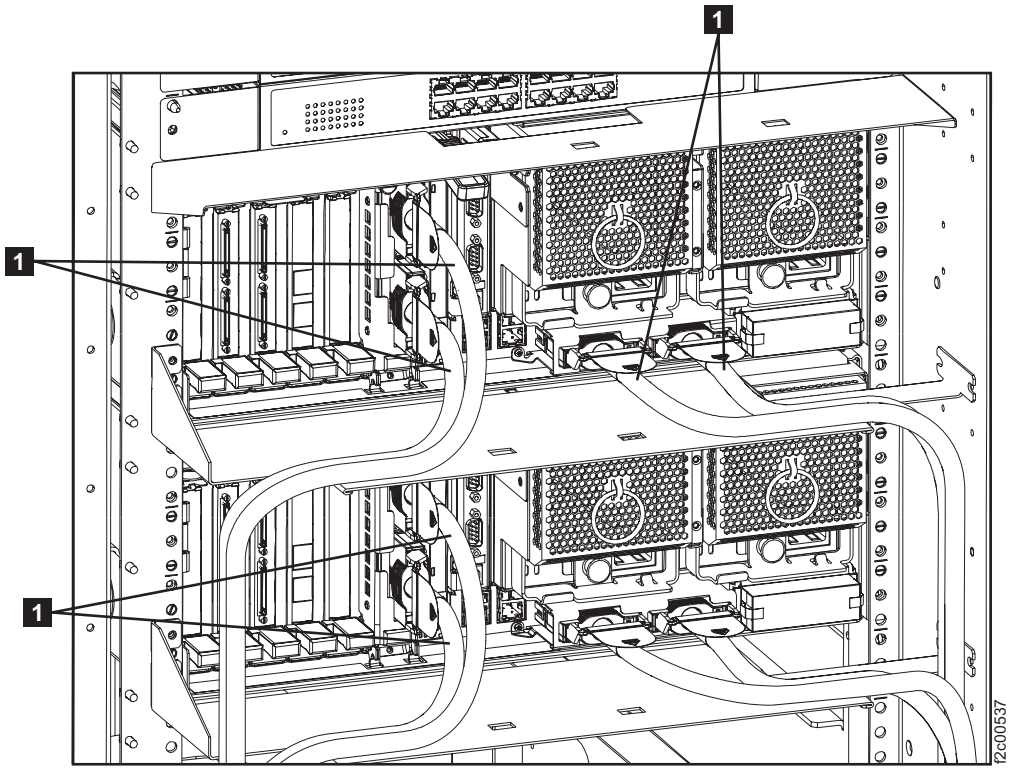


Figure 521. RIO cable connector, both ends

Install the RIO cable

1. Align the RIO cable connector with the sheet metal guide bracket and then gently push it in until it fully seats and latches.
2. Ensure the connector is properly latched. Do not touch the blue release handle, instead gently pull on the black cable.
3. Return to the procedure that sent you here.

Exchange the RPC card to CEC enclosure cable


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice “D005” on page 2138.

Remove RPC card to CEC enclosure cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. To disconnect the cable at the RPC card connector **(10 or 14)**, squeeze the tab to release it.

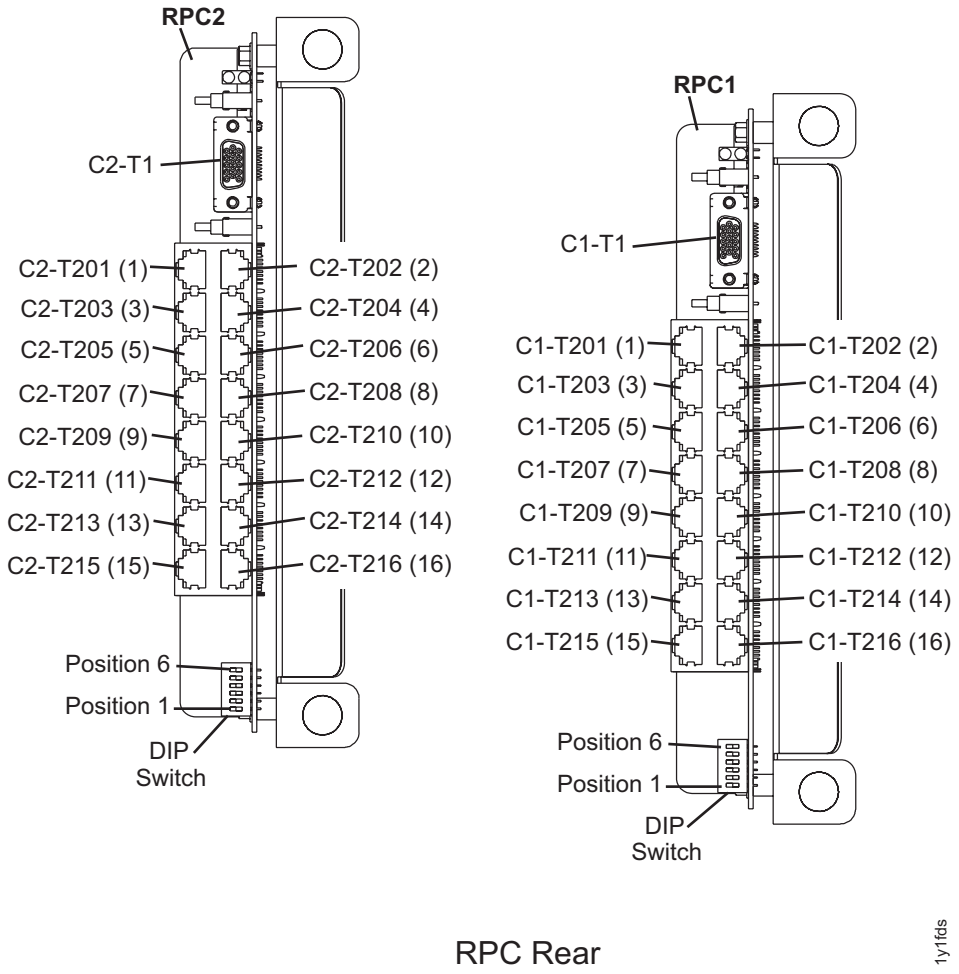


Figure 522. Location codes for the RPC card

3. To disconnect the cable at the CEC enclosure connector **(17)**, squeeze the tab to release it. See Figure 522.
4. Remove the cable retention hardware as needed and then remove the cable.

Install RPC card to CEC enclosure cable

1. Route the cable.
2. Connect the cable to the RPC card connector **(10 or 14)**. See Figure 522.
3. Connect the cable to the CEC **(17)** enclosure connector. See Figure 522.
4. Install the cable retention hardware.

Exchange the RPC card to expansion rack PPS cable

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice "D005" on page 2138.

Remove RPC card to expansion rack PPS cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. To disconnect the cable at the RPC card connector **(5),** squeeze the tab to release it.

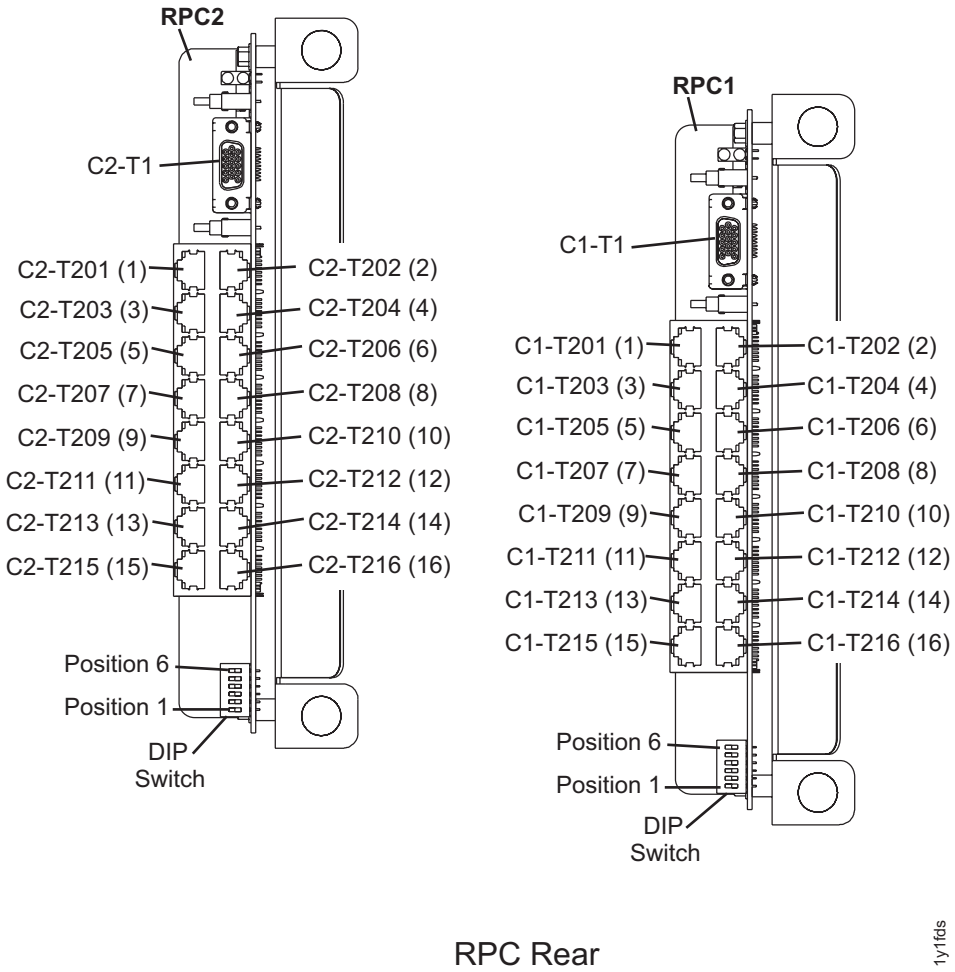


Figure 523. Location codes for the RPC card

3. To disconnect the cable at the primary power supply connector, squeeze the tab to release it.
4. Remove the cable retention hardware as needed and then remove the cable.

Install RPC card to expansion rack PPS cable

1. Route the cable.
2. Connect the cable to the RPC card connector. See Figure 523 on page 1045.
3. Connect the cable to the primary power supply connector.
4. Install the cable retention hardware.

Exchange the RPC card to local remote switch card cable

 Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice “D005” on page 2138.

Remove RPC card to local remote switch card cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. To disconnect the cable at the RPC card connector **(4)**, squeeze the tab to release it.

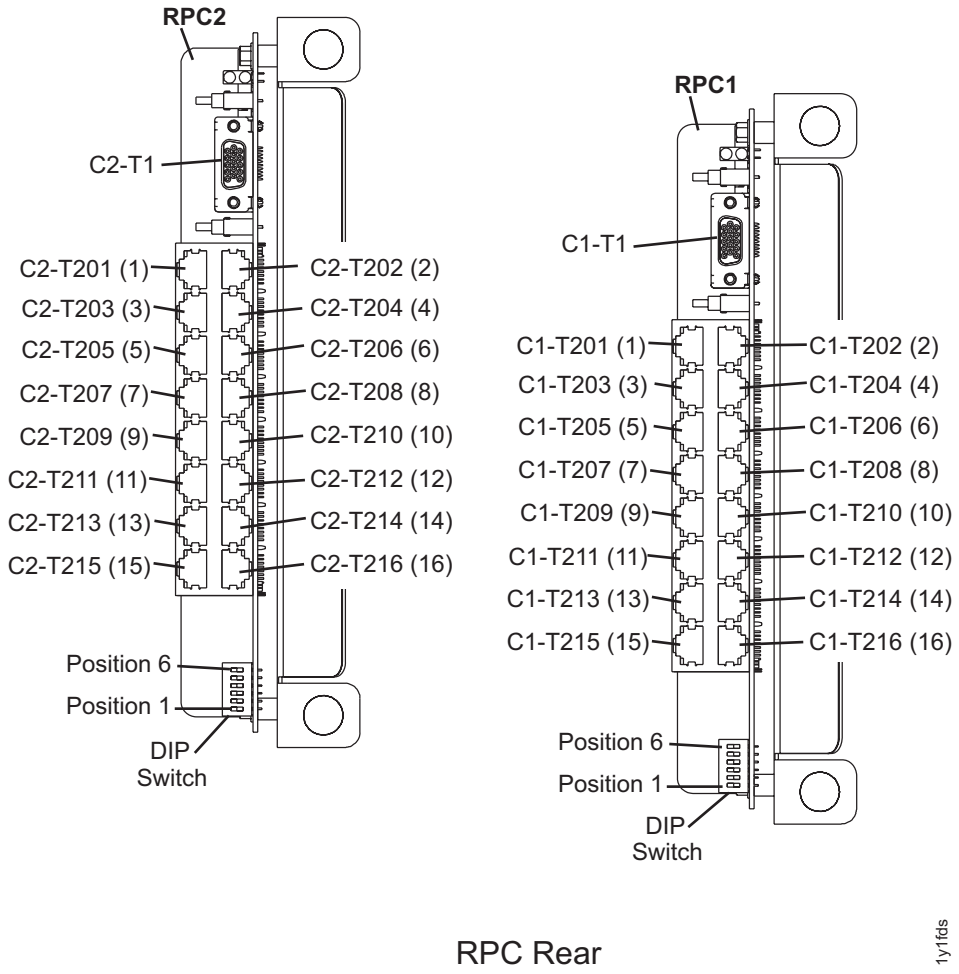


Figure 524. Location codes for the RPC card

3. To disconnect the cable at the local remote switch card connector **(T1)**, squeeze the tab to release it.

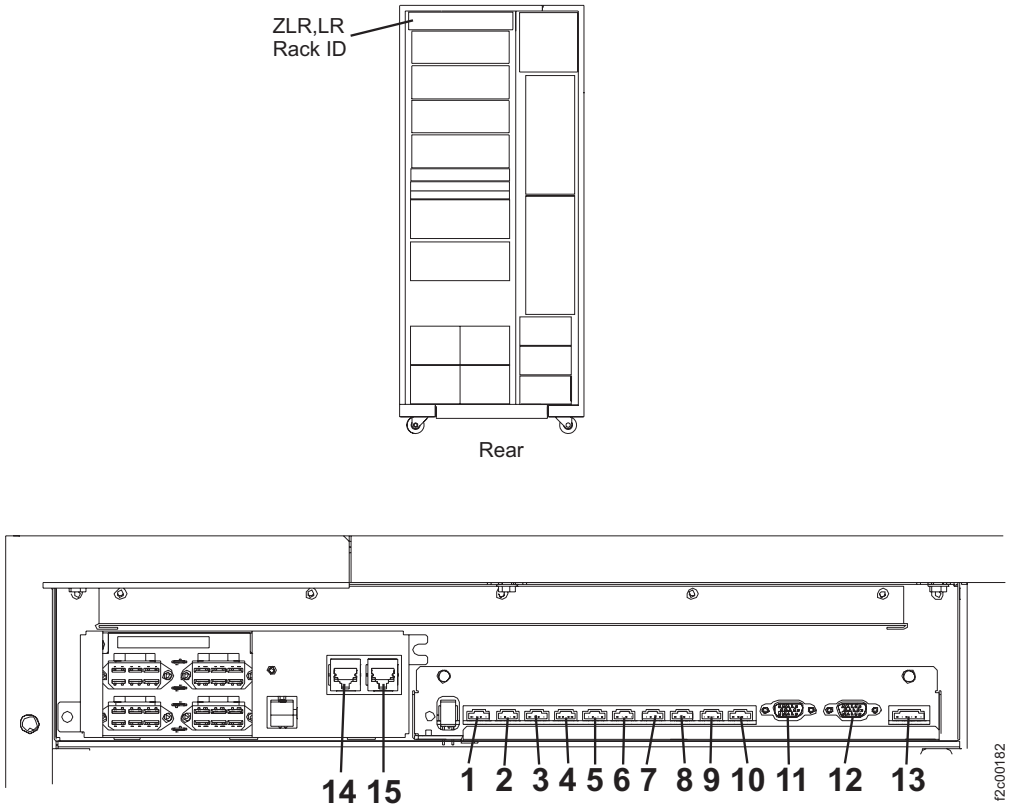


Figure 525. Rack power and cooling local remote and rack identity card cables

4. Remove the cable retention hardware as needed and then remove the cable.

Install RPC card to local remote switch card cable

1. Route the cable.
2. Connect the cable to the RPC card connector **(4)**. See Figure 524 on page 1047.
3. Connect the cable to the local remote switch card connector **(T1)**. See Figure 525.
4. Install the cable retention hardware.

Exchange the RPC card to primary power supply cable

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice "D005" on page 2138.

Remove RPC card to primary power supply cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. To disconnect the cable at the RPC card connector **(1)**, squeeze the tab to release it.

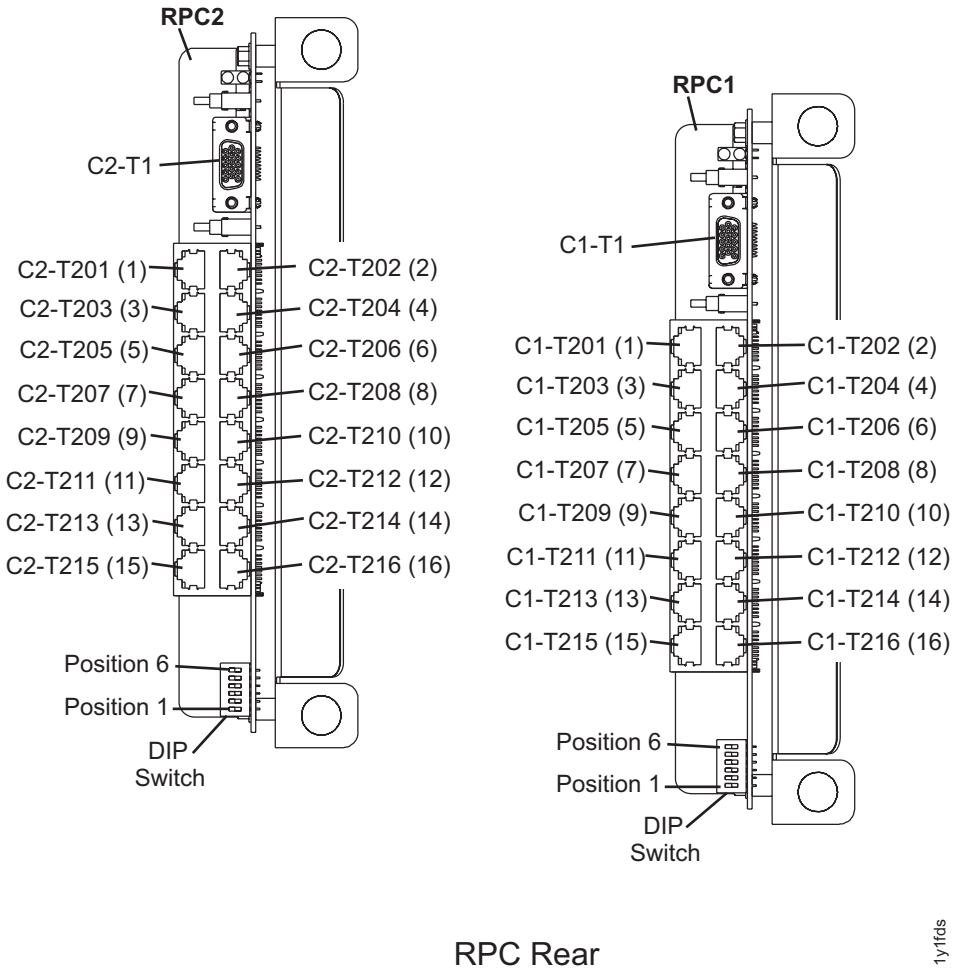


Figure 526. Location codes for the RPC card

3. To disconnect the cable at the primary power supply connector **(6 or 7)**, squeeze the tab to release it.

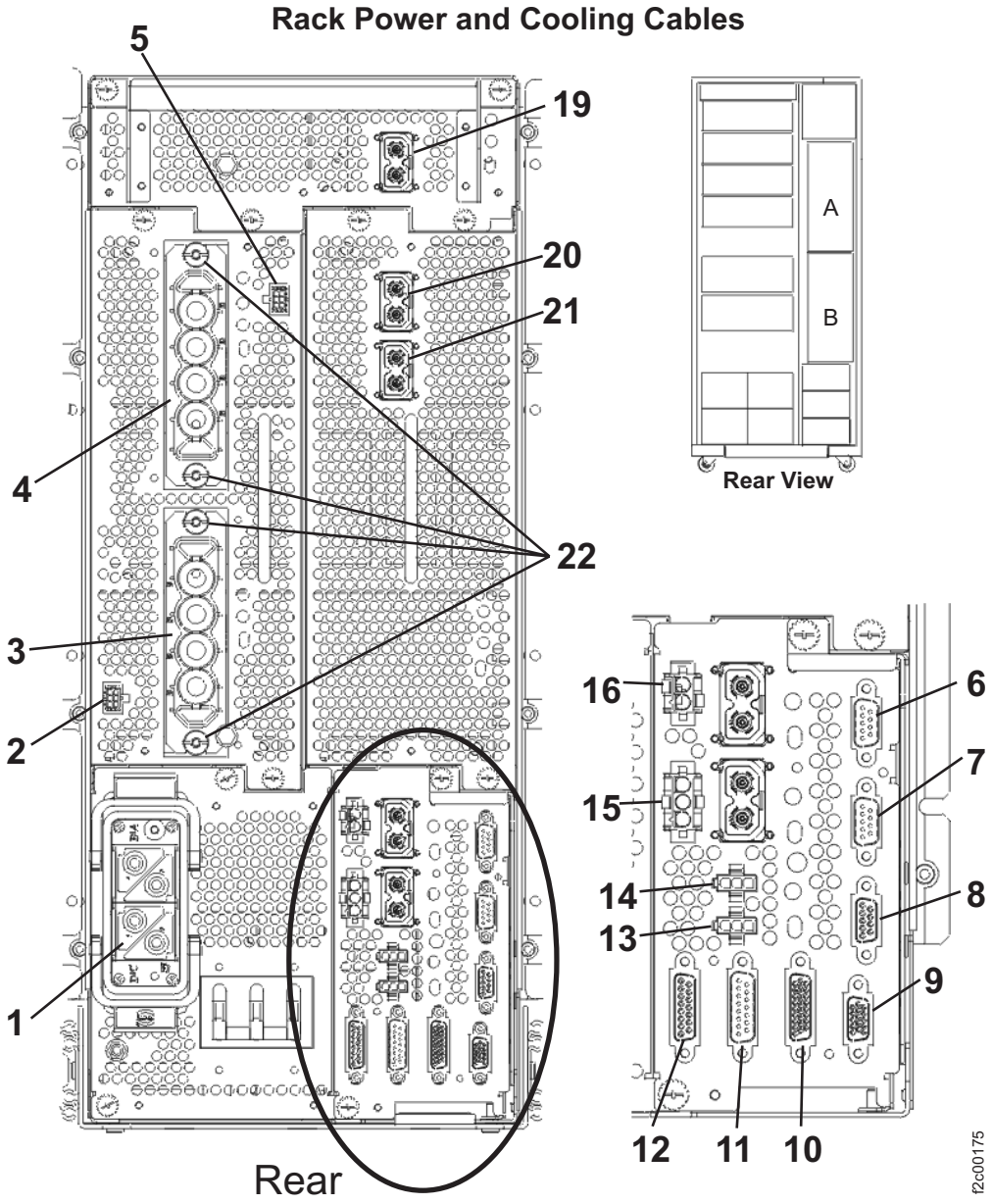


Figure 527. Rack power and cooling cables

4. Remove the cable retention hardware as needed and then remove the cable.

Install RPC card to primary power supply cable

1. Route the cable.
2. Connect the cable to the RPC card connector **(1)**. See Figure 526 on page 1049.
3. Connect the cable to the primary power supply connector **(6 or 7)**. See Figure 527.
4. Install the cable retention hardware.

Exchange the RPC card to rack identity card cable


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice “D005” on page 2138.

Remove RPC card to rack identity card cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. To disconnect the cable at the RPC card connector **(T1)**, squeeze the tab to release it.

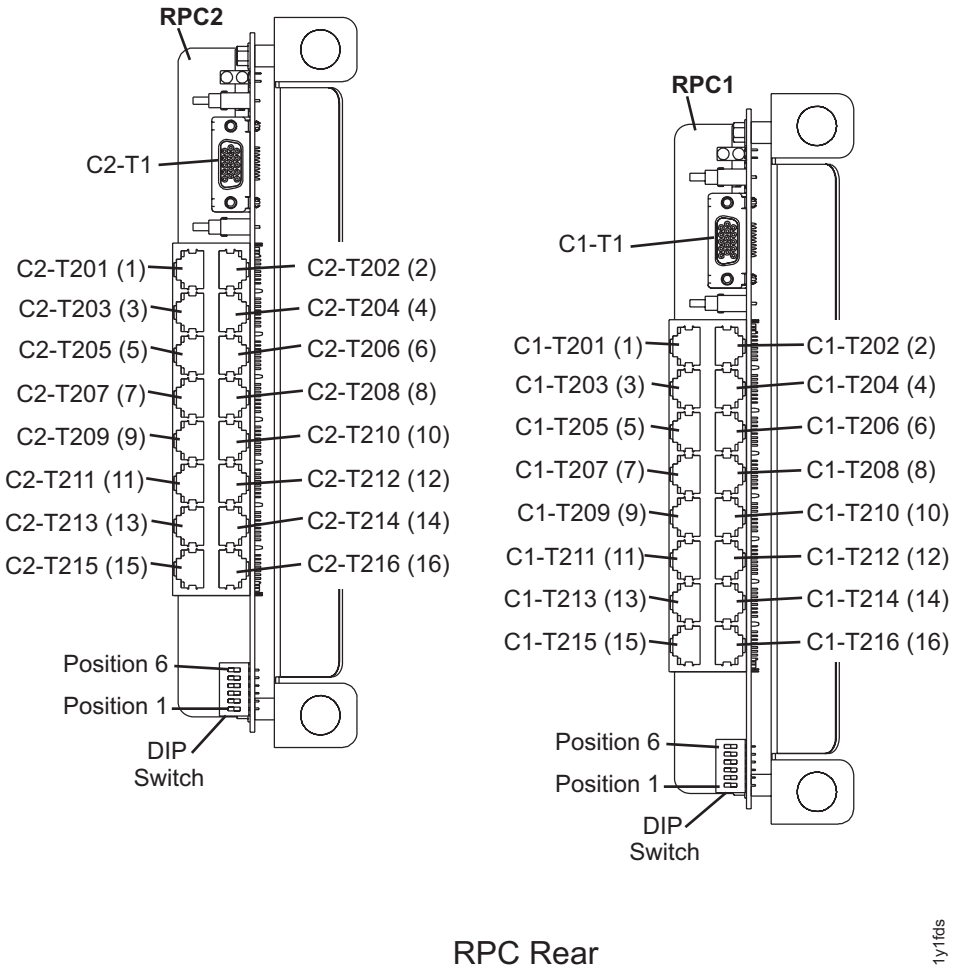


Figure 528. Location codes for the RPC card

3. To disconnect the cable at the rack identity card **(T11)**, squeeze the tab to release it.
4. Remove the cable retention hardware as needed and then remove the cable.

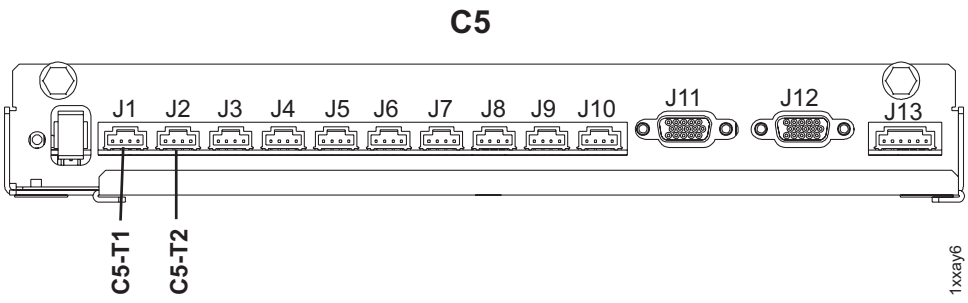


Figure 529. Location codes for the rack identity card

Install RPC card to rack identity card cable

1. Route the cable.
2. Connect the cable to the RPC card connector **(T1)**. See Figure 528.
3. Connect the cable to the rack identity card connector **(T11)**. See Figure 529.
4. Install the cable retention hardware.

Exchange the RPC card to RPC card cable


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice “D005” on page 2138.

Remove RPC to RPC cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. To disconnect the cable at the RPC card connector **(8)**, squeeze the tab to release it.

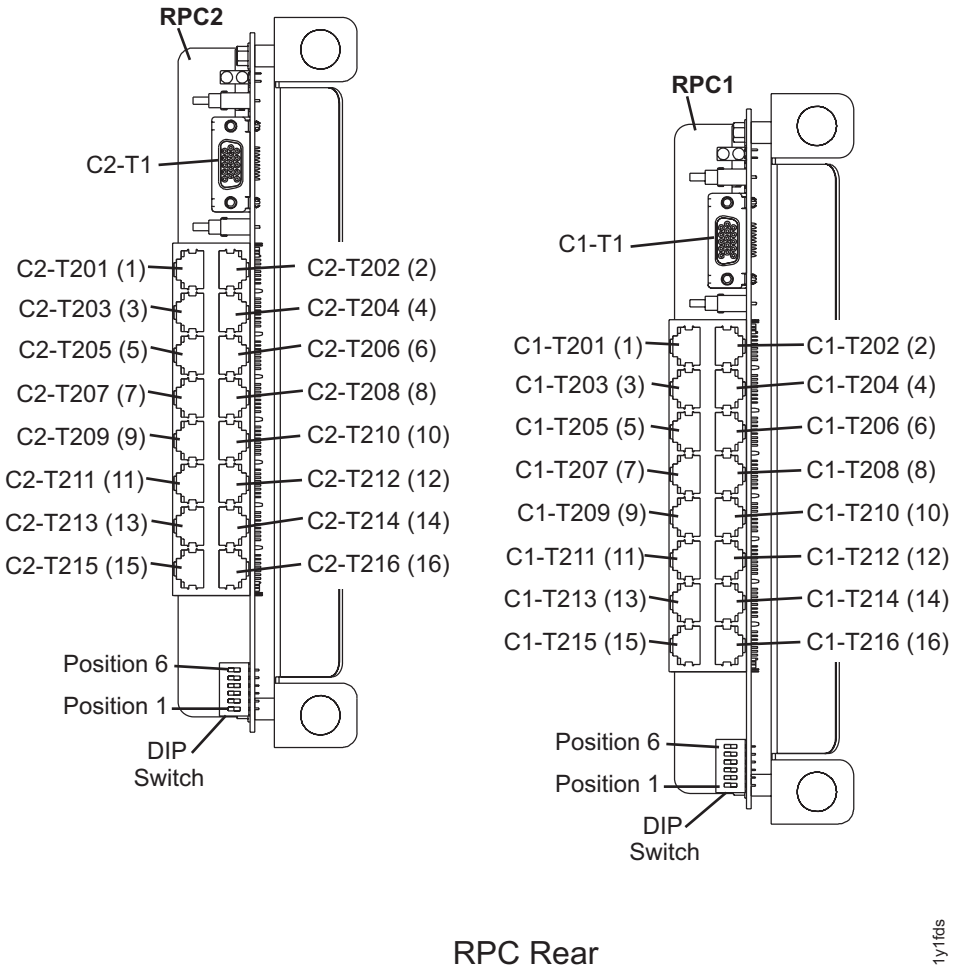


Figure 530. Location codes for the RPC card

3. Remove the cable retention hardware as needed and then remove the cable.

Install RPC to RPC cable

1. Route the cable.
2. Connect the cable to the RPC card connector **(8)**. See Figure 530
3. Install the cable retention hardware.

Exchange the SPCN cable

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

2. Read and fully understand the danger statement in Safety Notice "D005" on page 2138.

Remove the SPCN cable

Note: Both ends of the SPCN cable use the same connector.

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. This cable can be exchanged concurrently, the service processor card and I/O enclosure stay fully powered on.
3. At the rear of the CEC enclosure, disconnect the cable from the service processor card connector as listed in the serviceable event location code: either **1** (P1-C8-T3) or **2** (P1-C8-T4).
4. Trace the cable to the I/O enclosure connector and disconnect it: either P1-C*x*-T2 **(1)** or P1-C*x*-T3 **(2)**.

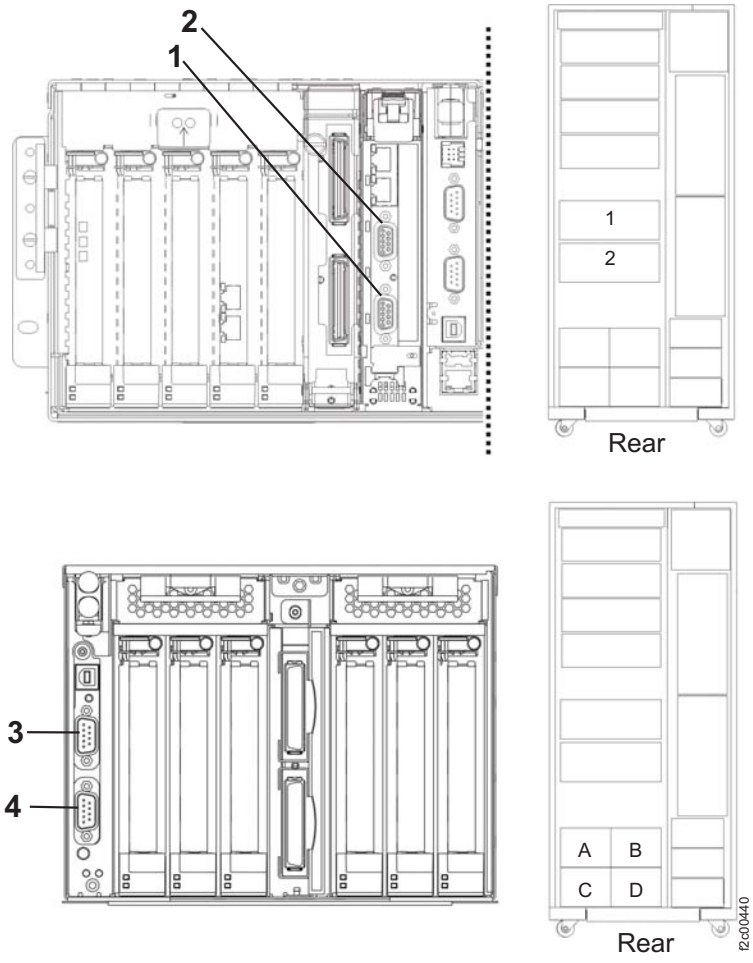


Figure 531. SPCN cable connections for CEC enclosure and I/O enclosure

Install the SPCN cable

1. Route the new cable and connect it at both ends.
2. Reinstall the cable retention hardware as needed.
3. Return to the procedure that sent you here.

Exchange the storage enclosure power sense cable

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice “D005” on page 2138.

Note: The FC-AL fabric for this and the directly associated storage enclosures must be in the proper state to protect the customer from data loss.

Remove storage enclosure power sense cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. Each disk drive module (DDM) **(1)**, fibre channel interface card **(2)** and FC-AL cable **(3)** must be reinstalled in the exact same position. See Figure 532 on page 1057.
3. Observe the cable labeling to ensure you will be able to reconnect the cables correctly. Disconnect the FC-AL cables **(3)** from the two fibre channel interface (FCIC) cards**(2)**. Squeeze the top of the FC-AL cable connector to release it from the FCIC card. See Figure 532 on page 1057.

   Note: There will be four FC-AL cables if this is the last storage enclosure in this group. There will be eight FC-AL cables if this is not the last storage enclosure in this group.
4. Remove each DDM **(1)** from the storage enclosure and set in a safe place. See Figure 532 on page 1057.

   Note: It is recommended you write down the serial number and position of each DDM prior to removing them.

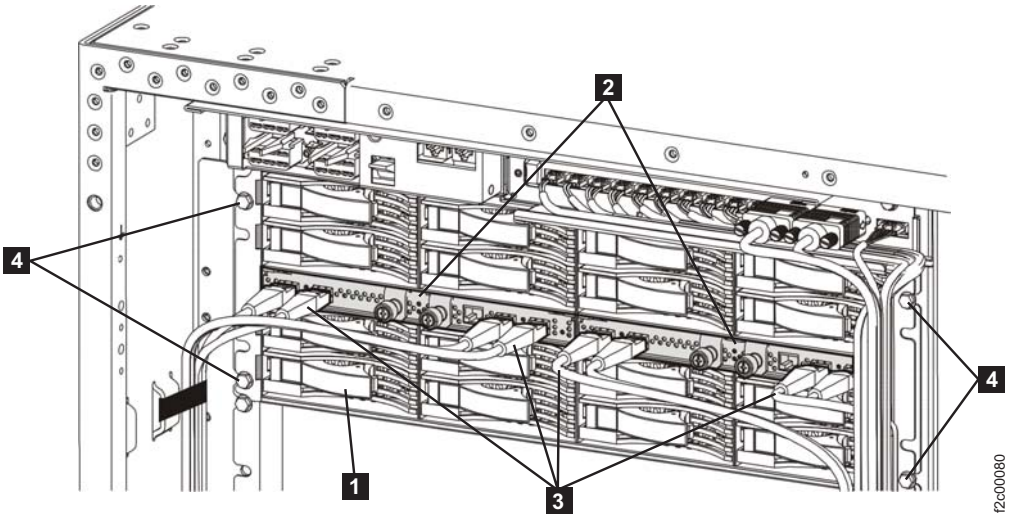


Figure 532. DDM Fibre Channel cable

a. Press the blue latch **(1)** to release the DDM handle. See Figure 533.
b. Pull the handle out and to your left **(2)**. This action partly ejects the DDM out of its slot. See Figure 533.
c. Pull the DDM **(3)** toward you and completely out of the slot. See Figure 533.

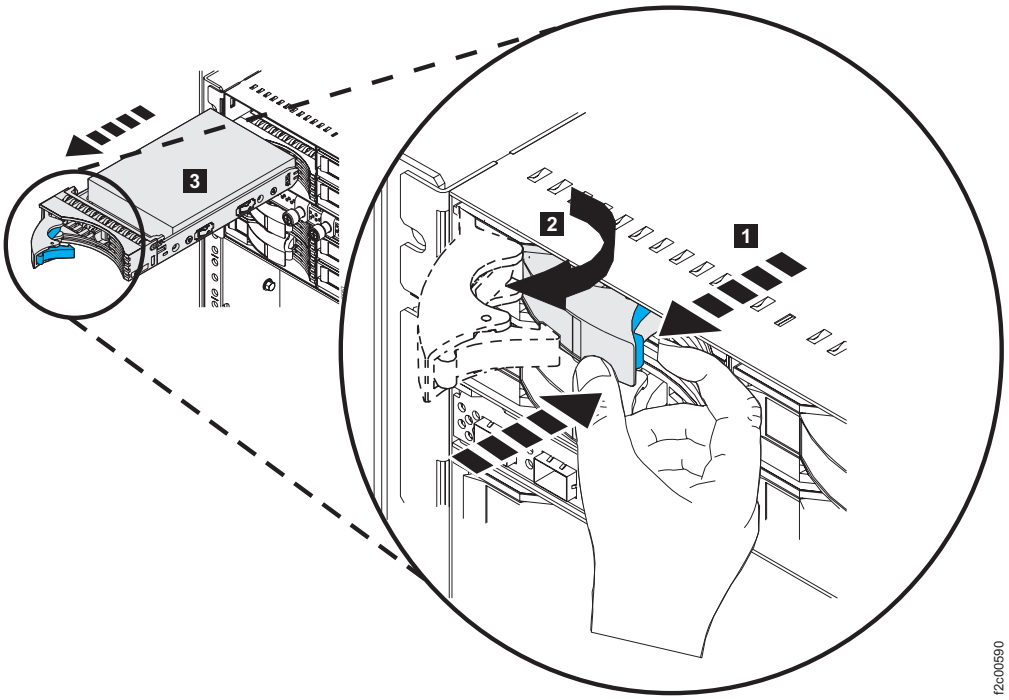


Figure 533. Installing the disk drive module

5. Remove each FCIC card from the storage enclosure and set in a safe place. It is recommended you write down the serial number and position of each part prior to removing them.
   a. Unplug the FC-AL cables.

b. Loosen the thumb screws and pull the card levers away from each other. This will eject the card from its slot.See Figure 534.

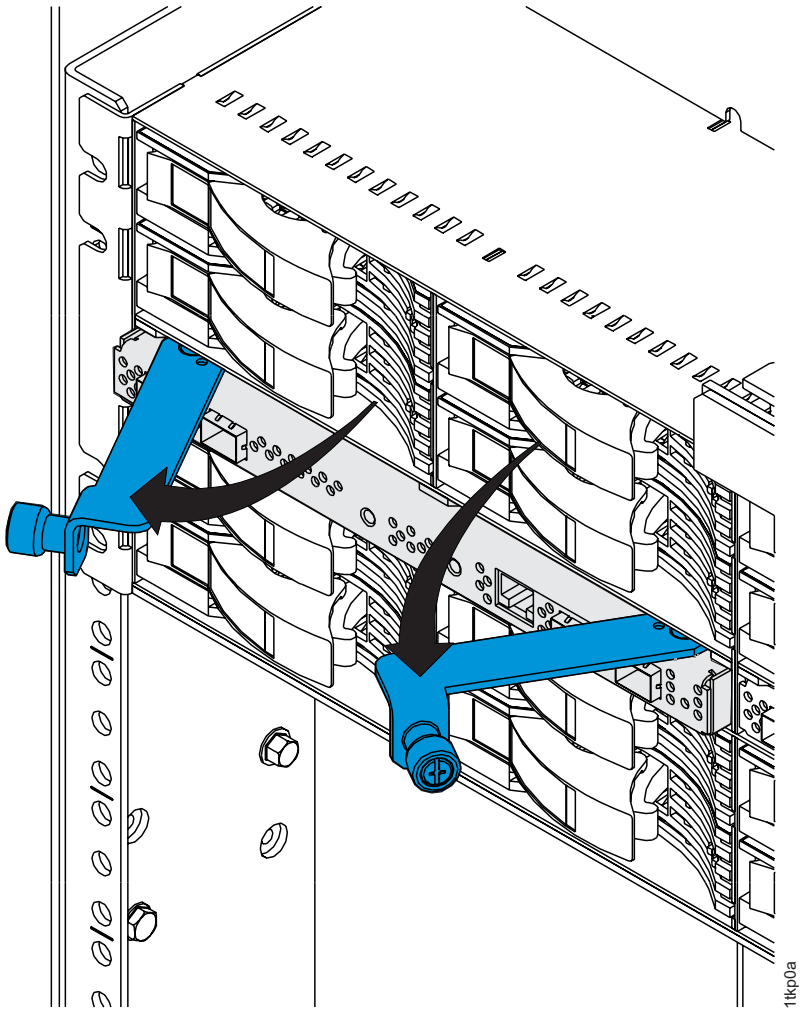


Figure 534. Removing the FCIC card (1 of 2)

c. Gently pull the card from its slot using both hands. See Figure 535 on page 1059.

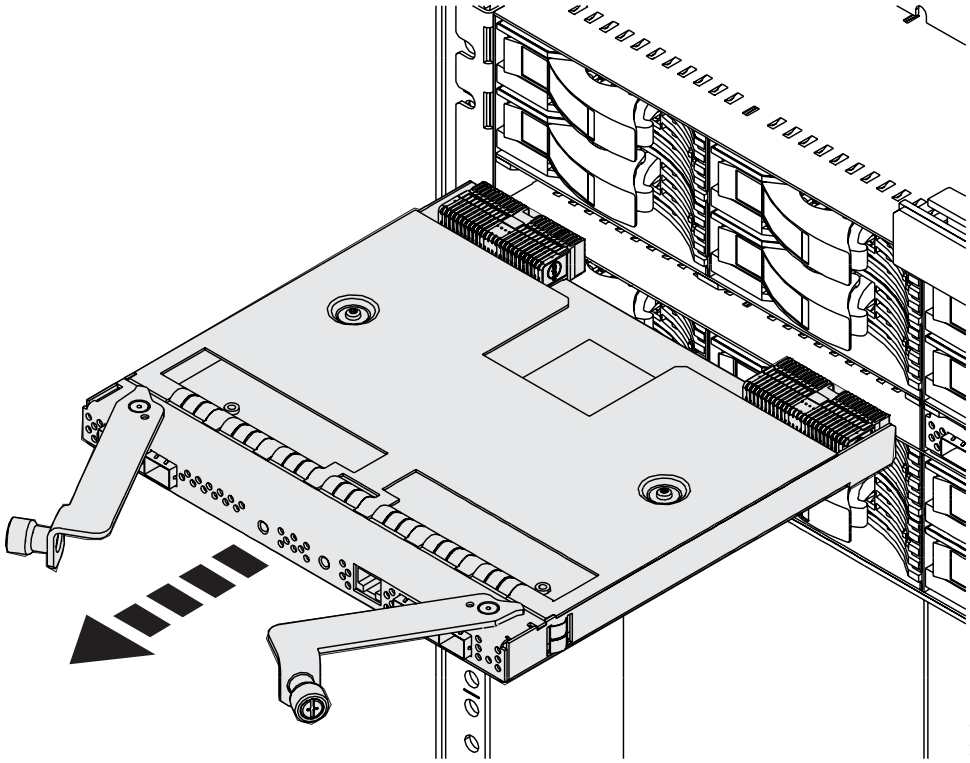


Figure 535. Removing the FCIC card (2 of 2)

6. Remove the four screws **(2)** fastening the storage enclosure to the rack mount rails and then remove the storage enclosure from the rack. See Figure 536 on page 1060.

   Note: Anytime you are not replacing the cable, latch the sheet metal air flap in the down position. This ensures the remaining storage enclosures maintain adequate cooling air flow.

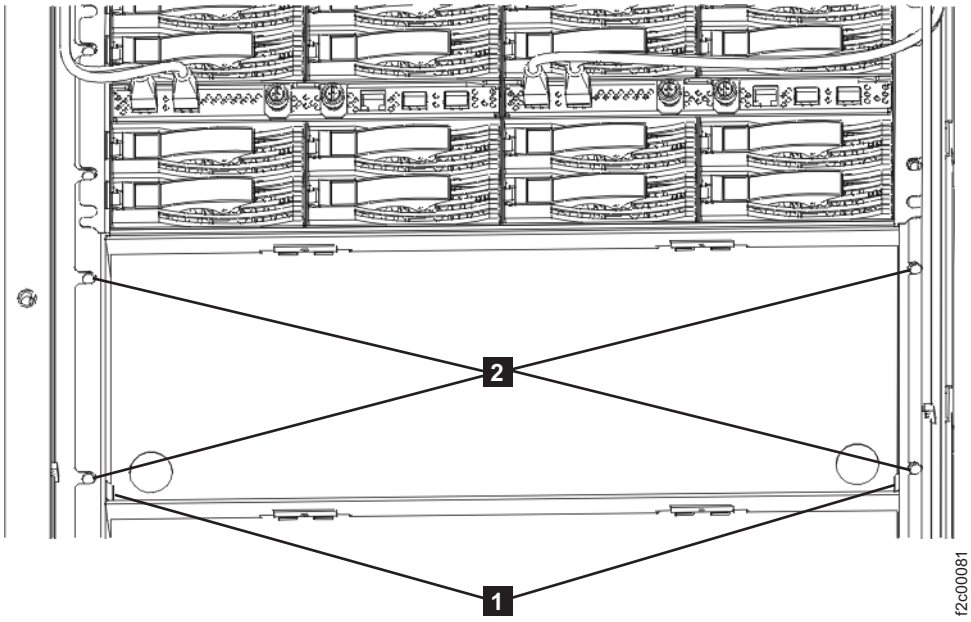


Figure 536. Storage enclosure sheet metal air flap

7. Disconnect the cable from the power connector **(1)** and the sense connector **(2)**. Loosen the two screws **(3)**, slide the connector assembly to the left until the keyhole slots are free. Remove the cable assembly from the rack. See Figure 537 on page 1061.

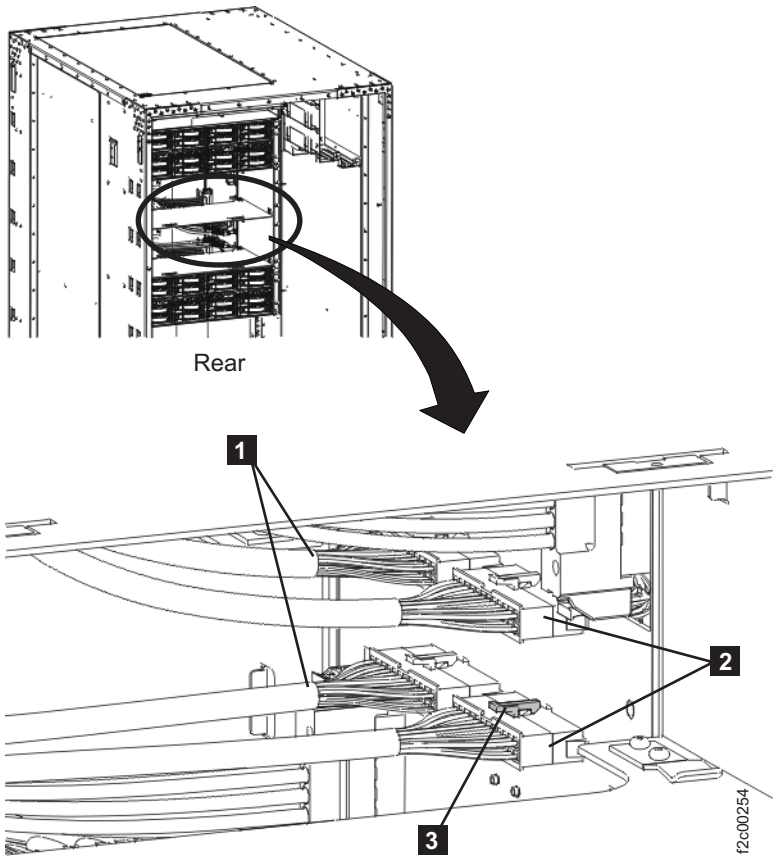


Figure 537. Sense cable connectors

Install storage enclosure power sense cable

1. Unlatch the sheet metal air flap so it can swing to the up position.
2. Install the new cable.
3. Install the storage enclosure in the rack and fasten it with the four screws.
4. Install each disk drive module (DDM) and fibre channel interface card in the exact same position.
5. Install each FC-AL cable in the exact same position as it was in the old storage enclosure.
6. Return to the procedure that sent you here.

Exchange the storage enclosure to upper fan sense card cable

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. Read and fully understand the danger statement in Safety Notice “D005” on page 2138.

Note: This procedure is disruptive and requires that the storage facility be powered off.

Upper versus lower cable

Determine the condition that applies:

- You are here to replace a sense cable in a base rack, go to step 1.
- You are here to replace a sense cable connected to storage enclosures in the upper half of an expansion rack, go to step 1.
- You are here to replace a sense cable connected to storage enclosures in the lower half of an expansion rack, go to *Cable, Storage Enclosure to Fan Sense Card, lower*.

Remove storage enclosure to upper fan sense cable

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU.
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. Power off the storage facility subsystem and management console.
   a. Use the management console to power off the storage facility subsystem.
   b. Set the local/remote switch card white switch **1** to Local (down). This will prevent the rack from being unexpectedly powered up by the HMC (or remote power control if the feature is installed). See Figure 538 on page 1063.

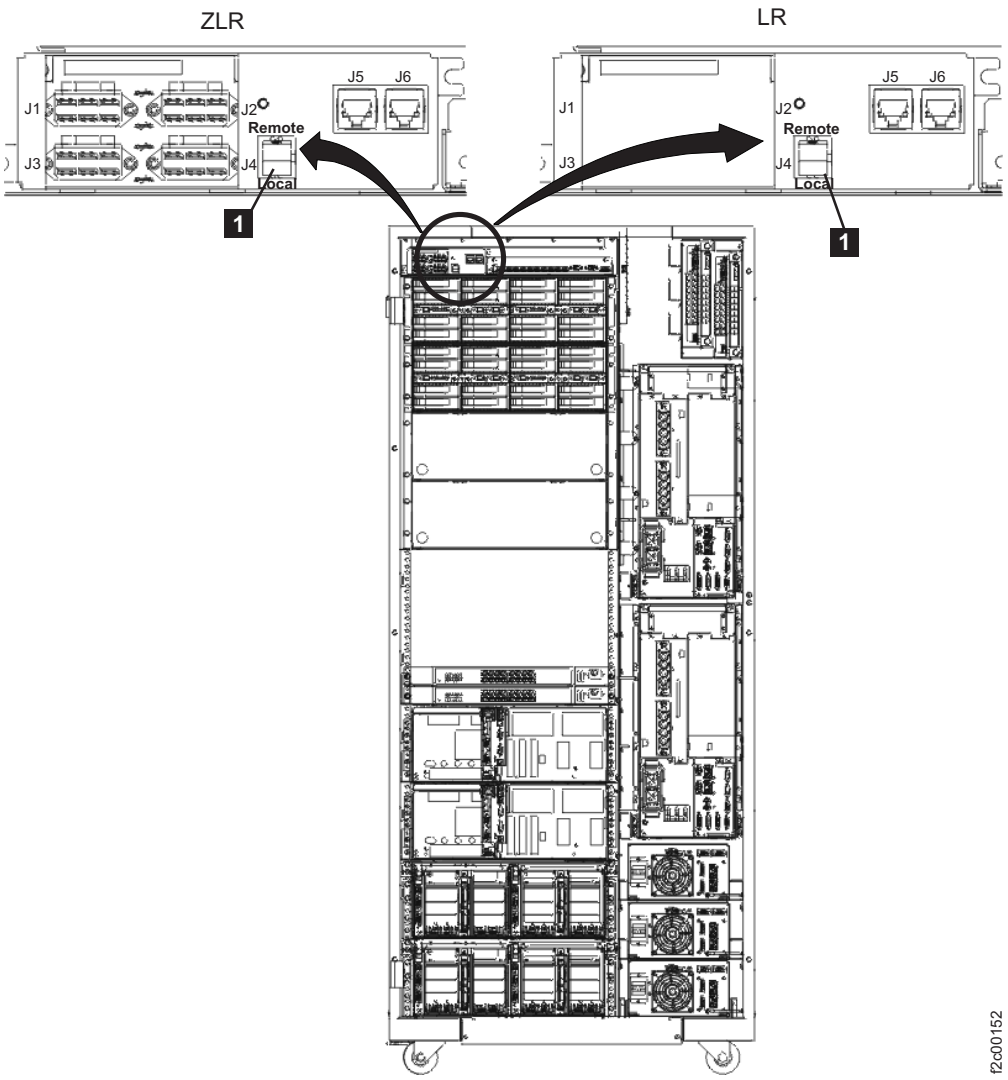


Figure 538. Location of the local remote switch card and the zSeries local remote switch card

c. Does the rack you are repairing contain an integrated management console (HMC)? See Figure 539 on page 1064.

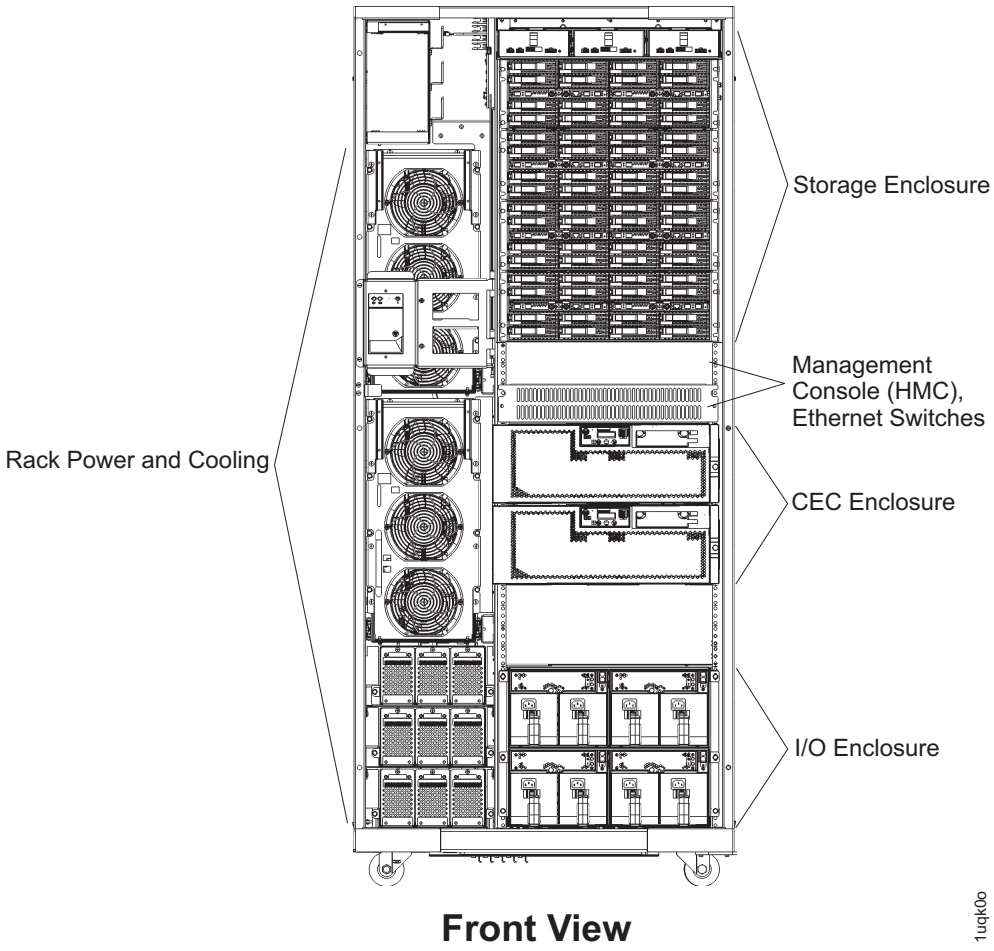


Figure 539. Visual index of Rack-1 (front)

- Yes, go to the next step.
- No, go to the 208VDC bus bar gate to service position in step 5 on page 1065.

3. Is this management console being used to guide this repair?
   - Yes, you will need to use the DS8000 Information Center software to guide this FRU replacement. Bring up the Information Center CD in a PC platform. Go to Chapter 39, "Rack Power and Cooling," on page 1197 and select this FRU procedure. Then go to the next step.
   - No, go to the next step.
4. Shutdown the management console.
   a. At the Hardware Management Console GUI window click **Console** to open the drop down menu.
   b. Click **Exit**.
   c. At the Exiting Hardware Management Console pop up, click **Exit Now**
   d. From the listed exit options, select **Shutdown Console**.
   e. Wait for the management console to display: `The system will be halted immediately. Master Resource Control: renlevel 0 has been.....reached.`

Note: The management console Power LED in the lower right corner of the management console server will stay lit. In this state, when the rack power is restored, the server will automatically power on.

f. Power off the management console display.

5. Open the 208VDC bus bar gate to service position.
   a. Remove the two screws 1 and open the 208VDC bus bar gate 2 to the service position. See Figure 540.

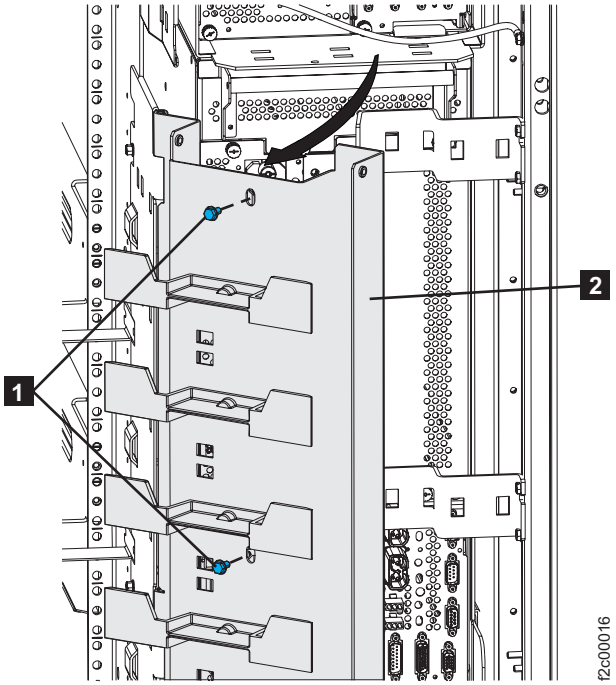


Figure 540. 208VDC bus bar gate service position

6. Remove power from the storage facility.
   a. Instruct the customer to switch off the circuit breakers that supply mainline ac voltage to both power receptacles for the main line power cables to the rack that will have the bus bar FRU replaced.

      Note: Attach a "Do Not Operate" tag, S229-0237, and the safety lockout padlock to the customer's AC voltage circuit breaker. Refer to the *Electrical Safety for IBM Customer Engineers* book.

   b. At the front of the rack, observe the PPS AC INPUT GOOD LED. Is the LED off on both PPS?
      - Yes, go to the next step.
      - No, return to step 1 on page 1062.
   c. At both PPSs, set the AC input power module CB00 switch to Off (down).
   d. At both PPSs, disconnect the mainline power cord from the AC input power module. Push the two release levers 1. See Figure 541 on page 1066.
   e. Remove the "hook and loop" fastener 2 securing the mainline power cable to PPS 2 (lower PPS). See Figure 541 on page 1066.
   f. Remove the screw and mainline power cable bracket 3. See Figure 541 on page 1066.

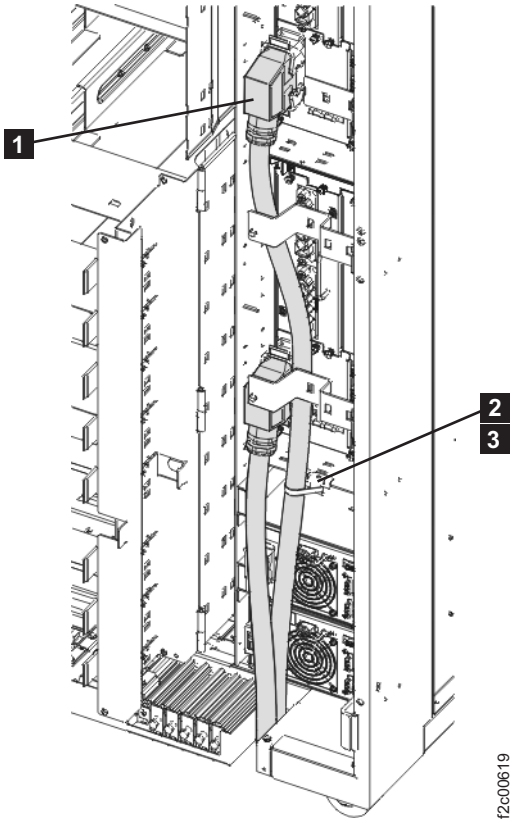


Figure 541. Power supply main line CB00 switch

7. At both PPS, disconnect the rear cables:
   a. At the rear of both PPS, disconnect all the cables.
   b. Remove the ″hook and loop″ fastener cable straps at both PPS.
   c. Remove the green/yellow ground wire from the both PPS. Keep the serrated washers.
   d. At the front of the rack (see Figure 542 on page 1067):

      Remove the two screws **1** and swing open the rack operator panel **2**.

      Remove the two screws **3** and remove the door latch bracket **4**.

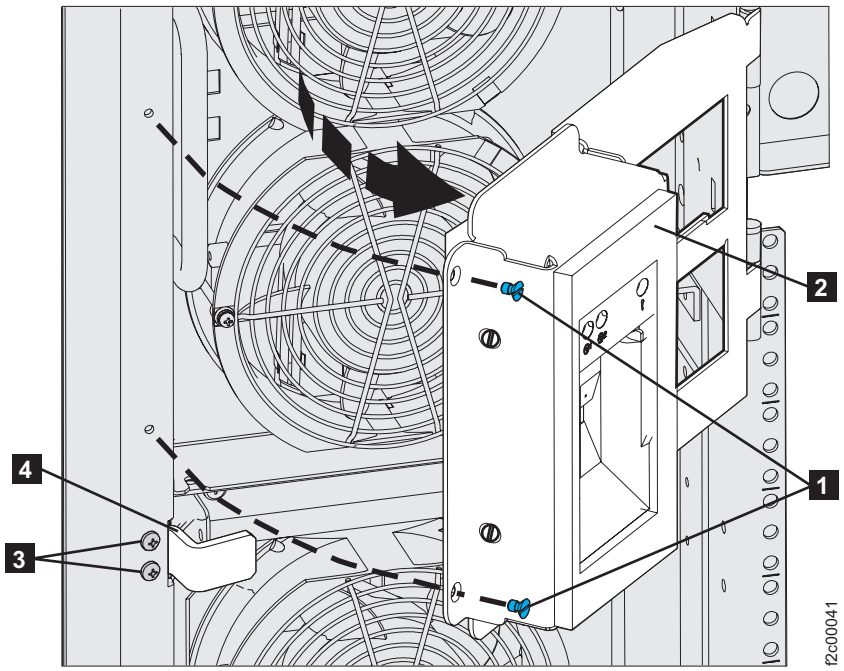


Figure 542. Rack and power operator panel UEPO open

8. Put PPS 1 (upper) in service position 2.
   a. At the front of the rack, remove the eight black hex head screws that fasten PPS 1 chassis to the rack. See Figure 543 on page 1068.

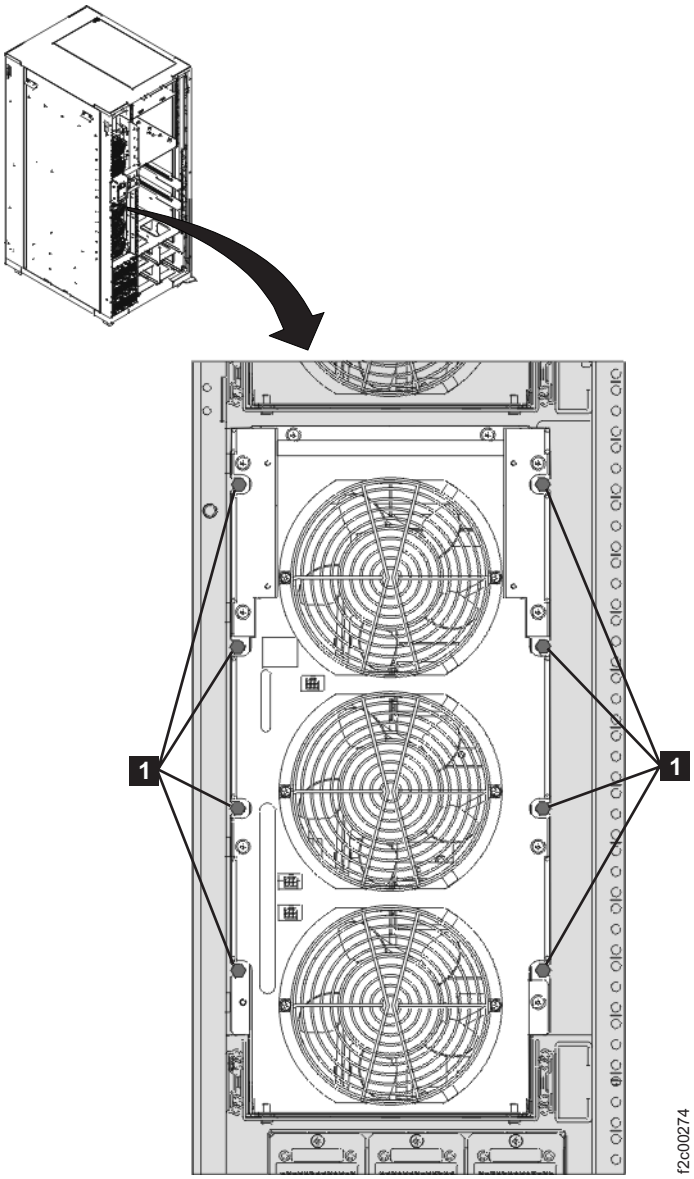


Figure 543. PPS chassis remove

b. Slide PPS 1 fully out to service position 2. The PPS rail detents will click at service position 1 and then will prevent the PPS from being pushed back in to the normal position. See Figure 544 on page 1069.

   Note: To allow the PPS to be pushed back in, you must pull the PPS out to service position 2 (fully extended), release both slide detents **1** and then push the PPS chassis in fully.

c. At the front of the rack, remove the two screws **2** securing the PPS to the sheet metal tray. See Figure 544 on page 1069.

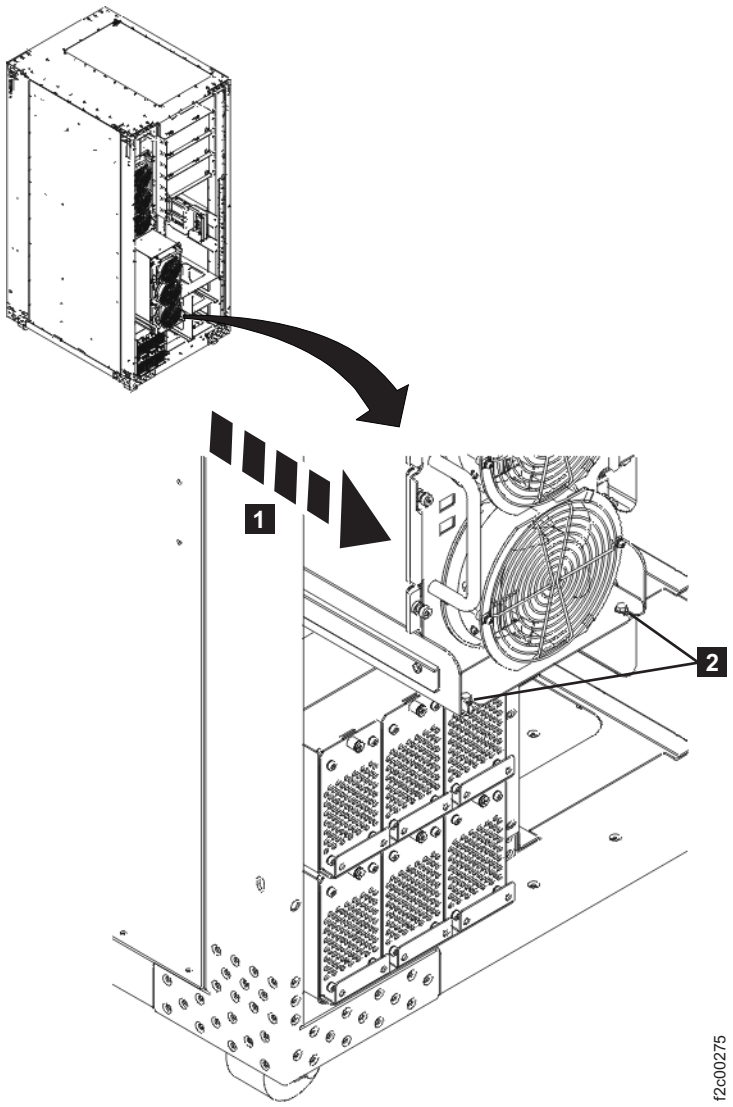


Figure 544. PPS sheet metal screws

d. Pull the PPS out **1** about 5 cm (2 inches) further on the sheet metal tray as shown. (This will give more clearance at the back of the PPC for the next step.) See Figure 545 on page 1070.

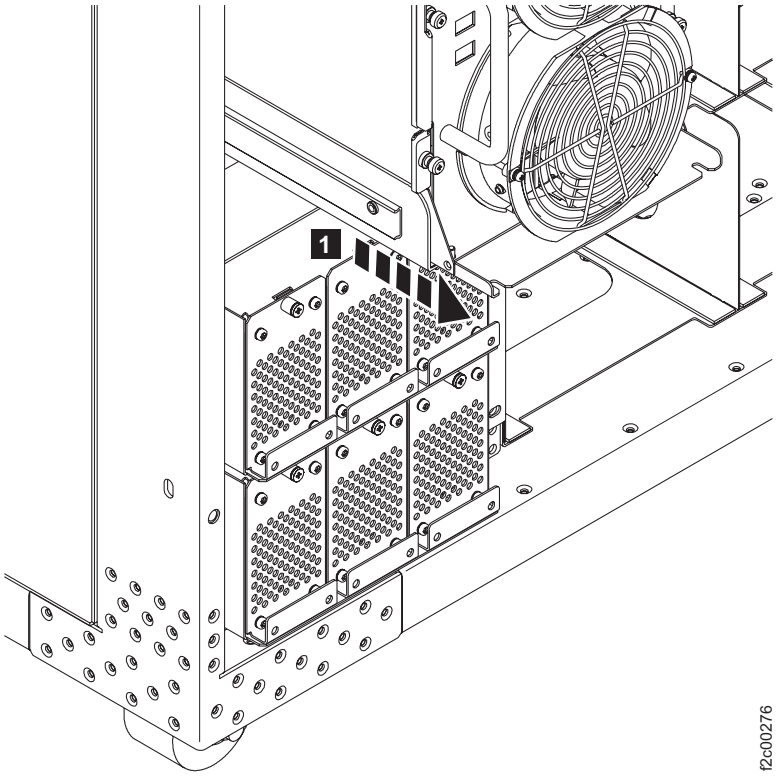


Figure 545. Sliding PPS out on sheet metal tray

9. Remove the primary to secondary tie bars.
   a. At the rear of the rack, remove the primary to secondary tie bar plastic cover. Loosen but do not remove the two screws **1** . The plastic cover has keyhole slots. The cover has tabs that slide behind the upper and low tie bar. Slide the cover **2** up, and then remove it. See Figure 546 on page 1071.

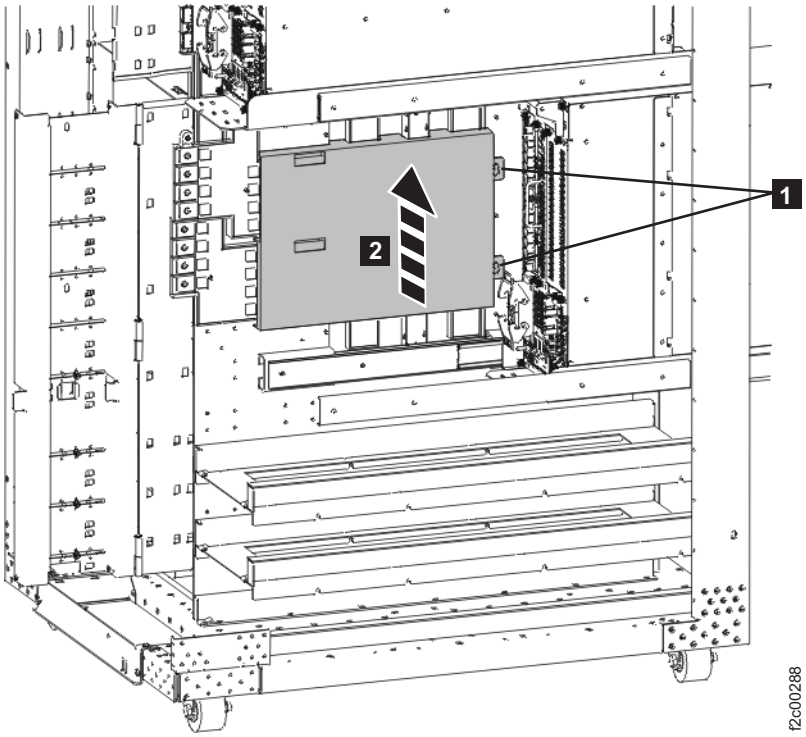


Figure 546. Bus bar cover

b. Remove the bolt securing each end of the four upper tie bars **1** and remove the tie bars **2** . Do not remove the lower four tie bars. See Figure 547.

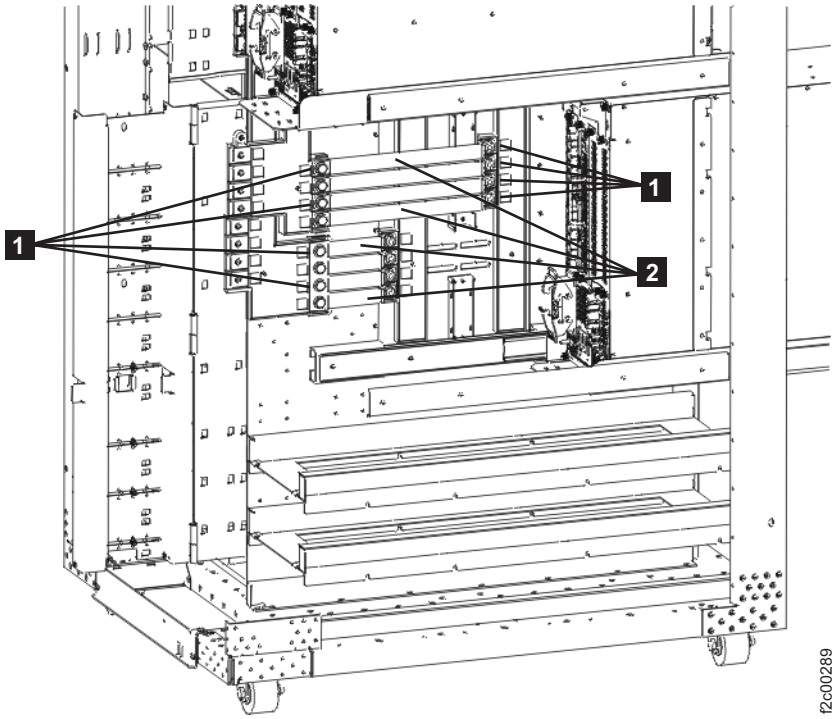


Figure 547. Lower tie bars

10. Remove two storage enclosures **1** if installed.
    a. At the rear of the rack, remove middle two storage enclosures (if installed). See Figure 548.

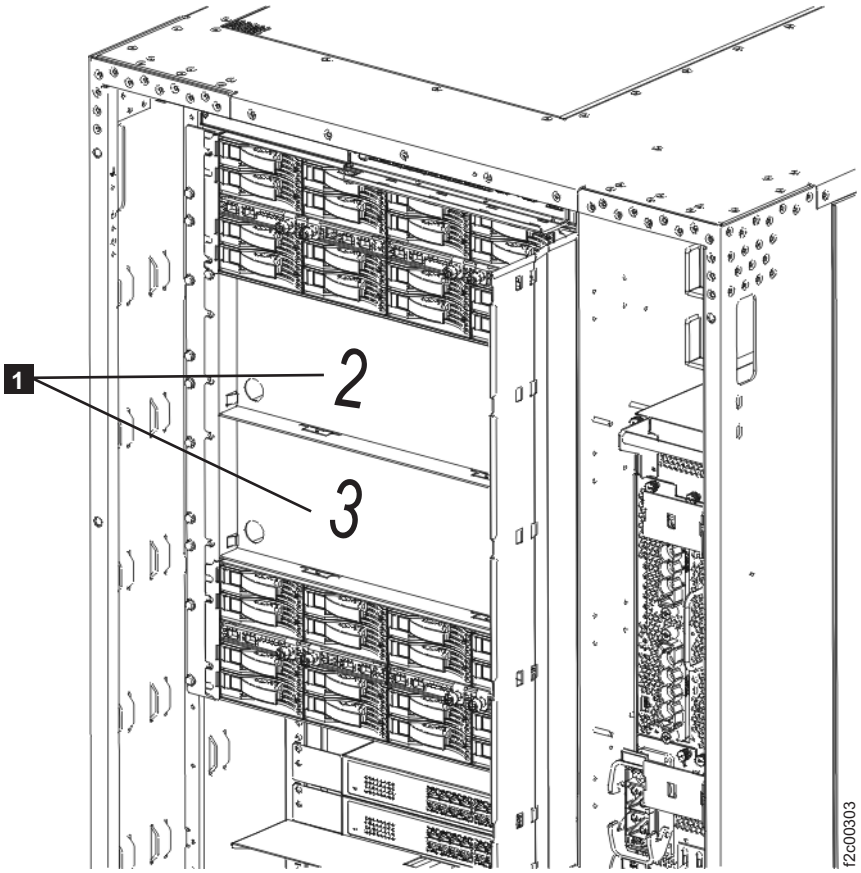


Figure 548. Middle storage enclosures

    b. Each storage enclosure, disk drive module (DDM) **1**, fibre channel interface card **2** and FC-AL cable **3** **must be** in the exact same position when reinstalled in later steps.
    c. Observe the cable labeling to ensure you will be able to replug the cables correctly. Disconnect the FC-AL cables from the two fibre channel interface cards (FCIC) by squeezing the top of the FC-AL cable connector **3** to release it from the FCIC card. See Figure 549 on page 1073.

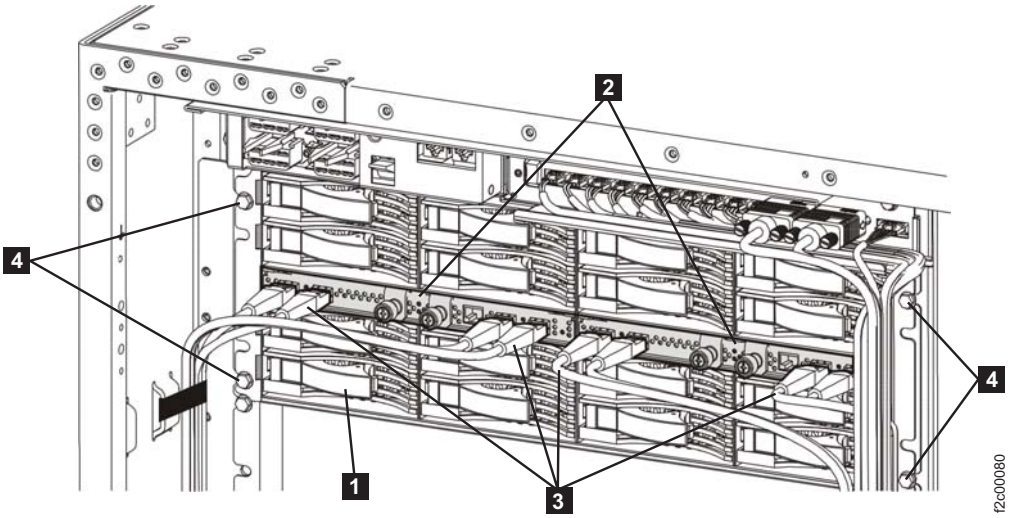


Figure 549. DDM Fibre Channel cable

Note: There will be four FC-AL cables if this is the last storage enclosure in this group. There will be eight FC-AL cables if this is not the last storage enclosure in this group.

d. Remove the four screws fastening the storage enclosure to the rack mount rails.

e. Remove each DDM **1** and FCIC card **2** from the storage enclosure and set in a safe place. You must ensure each one will be plugged in the same position in the new storage enclosure. It is recommended you write down the serial number and position of each part prior to removing them. See Figure 549.

11. Remove the sense cables.

a. Use the two storage enclosure slots that are now empty to access the sense cable connectors. Disconnect the four storage enclosure power/sense cables from the white connectors.

- If you are replacing the sense cable to the front sense card, only disconnect the cables that connect to the four front storage enclosures.
- If you are replacing the sense cable to the rear sense card **1**, only disconnect the cables that connect to the four rear storage enclosures. Squeeze the release tab **2** and then unplug the cable.

b. Squeeze the tabs **2** on both ends of the white connector to release it from the sheet metal and push it towards the PPS.

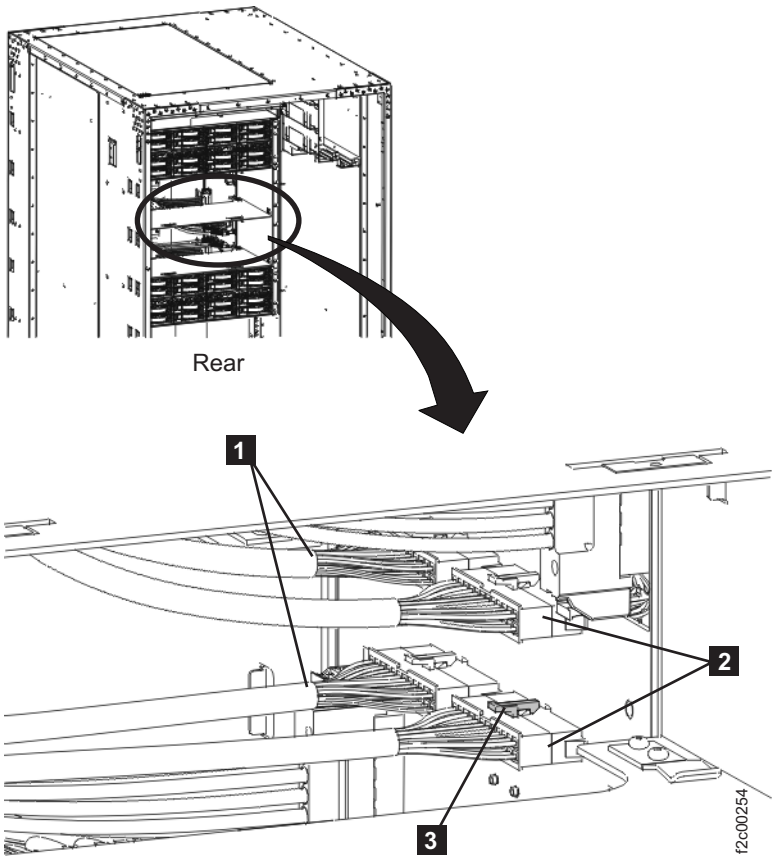


Figure 550. Sense cable connectors

c. If you are replacing the sense cable to the front fan sense card, the upper front connectors **4** and lower connectors **2** should be hanging loose. If you are replacing the sense cable to the rear fan sense card, the upper rear connectors **3** and lower connectors **1** should be hanging loose. See Figure 551 on page 1075.
   - If you are replacing the sense cable to the front fan sense card, the upper front connectors **4** and lower connectors **2** should be hanging loose.
   - If you are replacing the sense cable to the rear fan sense card, the upper rear connectors **3** and lower connectors **1** should be hanging loose.

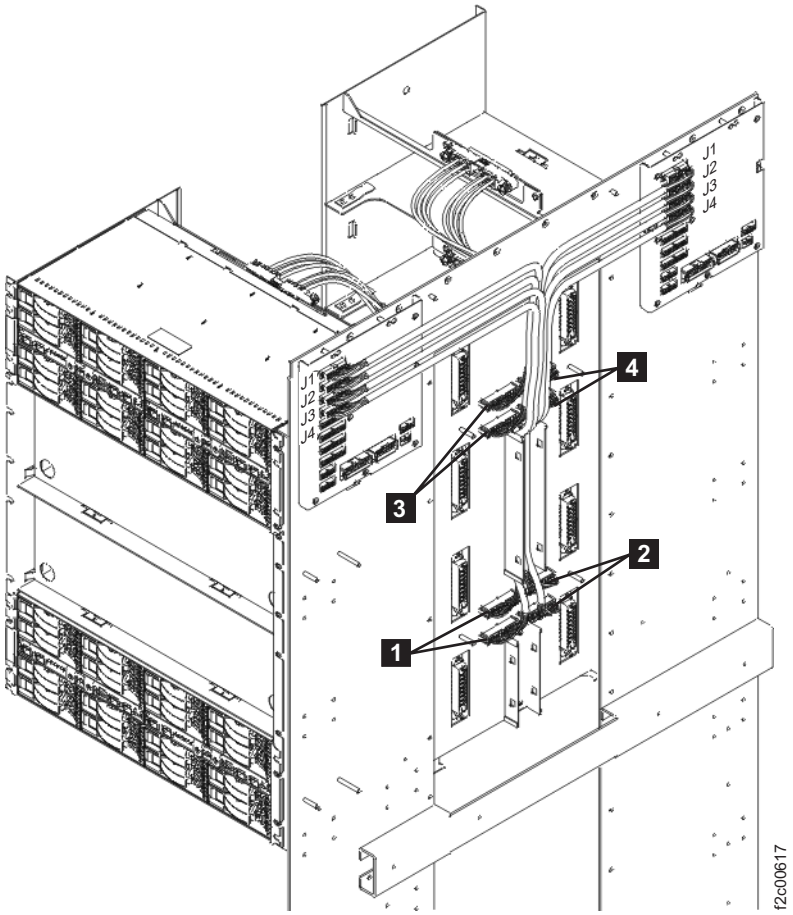


Figure 551. Sense cable connectors

d. Disconnect the sense cable from the four connectors (J1, J2, J3, J4) on the fan sense card. Remove the cable from the rack.

Install storage enclosure to upper fan sense cable

1. Install the sense cable and tie bars.
   a. Connect the fan sense cable to the fan sense card connectors (J1, J2, J3, J4). Route the cable and install the white connectors into the sheet metal cutouts above and below the tie bars that were removed.
   b. Install the primary to secondary tie bars.

      Important: The bolts must be torqued to 8 to 11 newton meters (6 to 8 foot pounds) to make proper contact.
   c. Install the tie bar plastic cover.
      - There are tabs on the inside of the cover that must slide down behind the tie bars.
      - The keyhole slots in the cover must slide over the two screws near the PPS.
      - Tighten the two screws.
2. Install the two storage enclosures.
   a. Install each storage enclosure in the original position with the four screws.
   b. Install each CEC disk drive and fibre channel interface card in the original position in the storage enclosure.

c. Connect each FC-AL cable in the original position.

3. Place PPS 1 in the normal position.
   a. At the front of the rack, push PPS 1 fully in on the sheet metal tray and install the two screws.
   b. Slide the PPS back to the normal position. If you pull the PPS from the rear of the rack, it is easier to ensure the cables do not get caught.

      Note: To allow the PPS to be pushed back in, you must pull the PPS out to service position 2 (fully extended), release both slide detents and then push the PPS chassis in fully.
   c. Install the eight black hex head screws **1** that fasten each PPS chassis to the rack.
   d. Close the rack operator panel **2** and install the two screws **1** . Install the door latch bracket with two screws. See Figure 552.

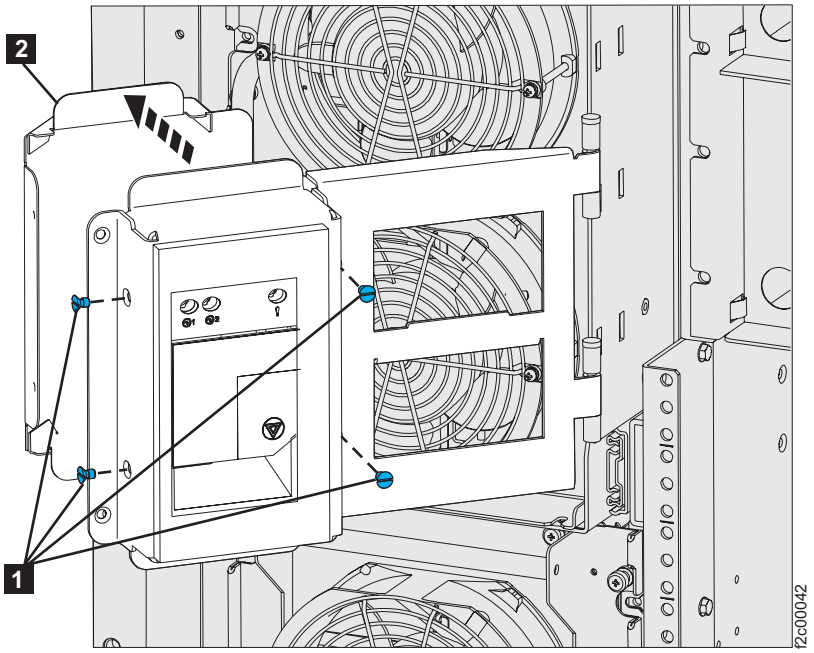


Figure 552. Rack and power operator panel UEPO close

4. At PPS 1, connect the rear cables.
   a. At the rear of both PPS 1, connect all the cables.
   b. Install the "hook and loop" fastener cable straps.
   c. Install the green/yellow ground wire. Ensure the serrated washer is between the wire and the PPS or frame.
5. Connect the power.
   a. Connect the mainline power cable to the PPS and ensure both latches are secure.
   b. Set the PPS AC input power module CB00 switch to On (up).
   c. Instruct the customer to switch on the mainline circuit breaker that supplies mainline ac voltage to the power receptacle for PPS 1.
   d. At the front of the rack, observe the PPS AC INPUT GOOD LED. Is the LED off on both PPSs?
      - Yes, go to the next step.

- No, return to step 4.

6. 208VDC bus bar gate to normal position.
   a. Pivot the 208VDC bus bar gate **1** closed being careful that both mainline power cables lay in the space between the two 208VDC bus bars. Fasten the gate shut with the two screws **2**.

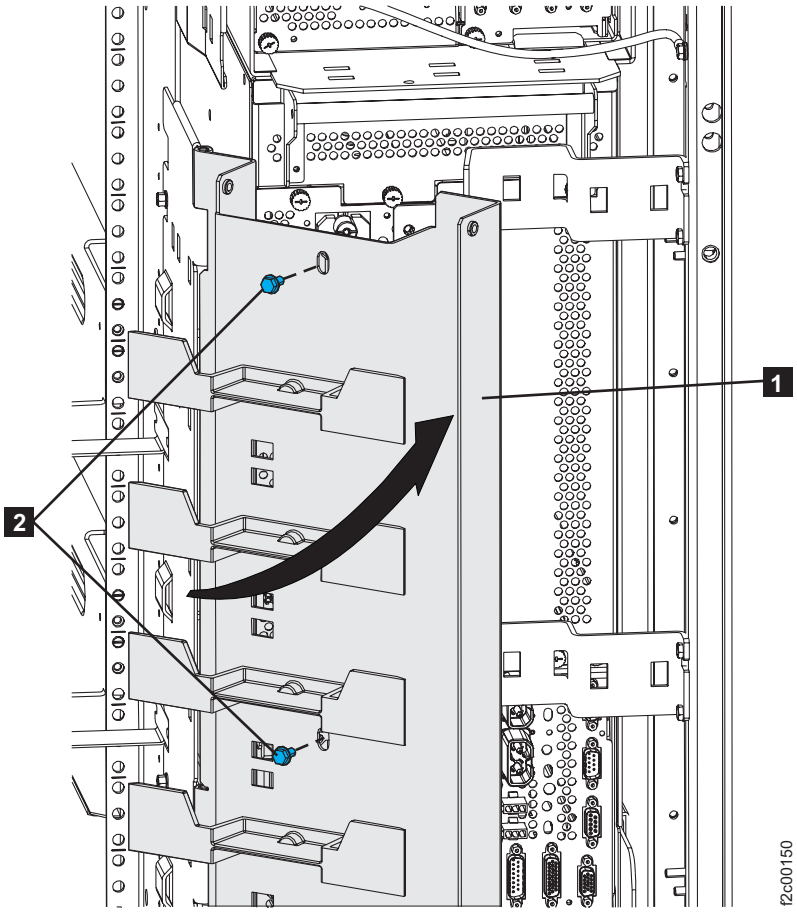


Figure 553. Bus bar gate closing

7. Power on the rack.
   a. Set the local/remote switch card white switch to **Remote** (up).
   b. Use the management console to power on the storage facility subsystem.
   c. Return to the procedure that sent you here.

Chapter 36. CEC enclosure

Exchange the CEC disk drive


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the CEC disk drive

Note: The CEC disk drive FRU must be replaced with a different FRU. The FRU verification checks the disk drive serial number and will fail if the original FRU is reinstalled.

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. Squeeze the bottom of the CEC disk drive handle **(A)** to unlock it. See Figure 554 on page 1080.
3. Pull the CEC disk drive handle **(B)** out and then up. See Figure 554 on page 1080.
4. Grasp the CEC disk drive **(C)**, supporting the bottom, and slide it out of the disk enclosure. See Figure 554 on page 1080.

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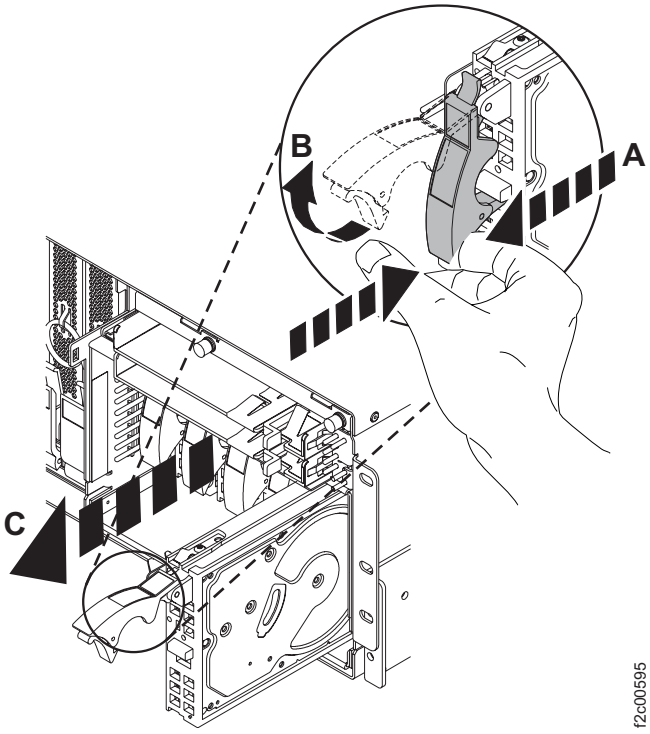


Figure 554. Removing the CEC disk drive

Install the CEC disk drive

1. With the CEC disk drive handle in the up position, carefully slide the CEC disk drive **(A)** into the enclosure until it stops.

   Note: The CEC disk drive FRU must be replaced with a different FRU. The FRU verification checks the disk drive serial number and will fail if the original FRU is reinstalled.

2. Move the CEC disk drive handle **(B)** down into the locked position to seat the CEC disk drive fully in. Verify that the front of the new CEC disk drive is aligned with the other CEC disk drives. See Figure 555 on page 1081.

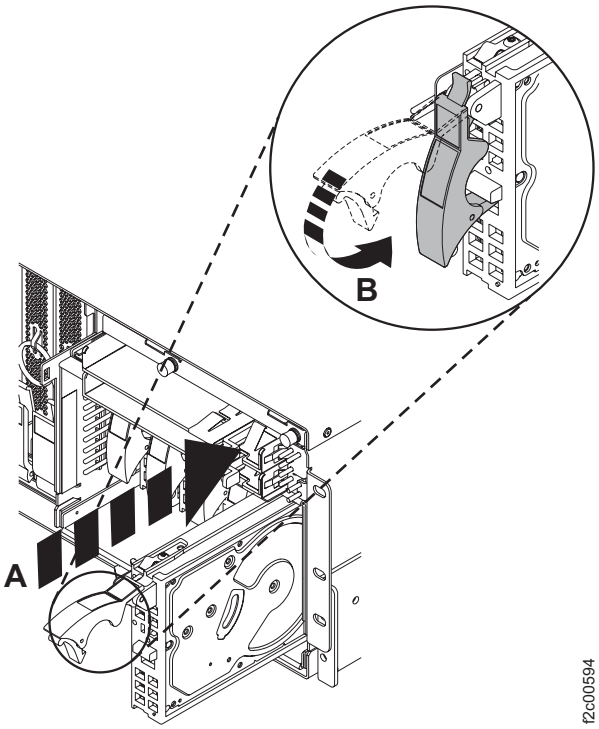


Figure 555. Installing the CEC disk drive

Exchange the CEC disk drive backplane assembly

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the CEC disk drive backplane assembly

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. Ensure the CEC enclosure is in standby power mode before continuing. At the CEC enclosure control panel, observe the green Power Present Icon **(1)** beneath the white Power button **(2)**.

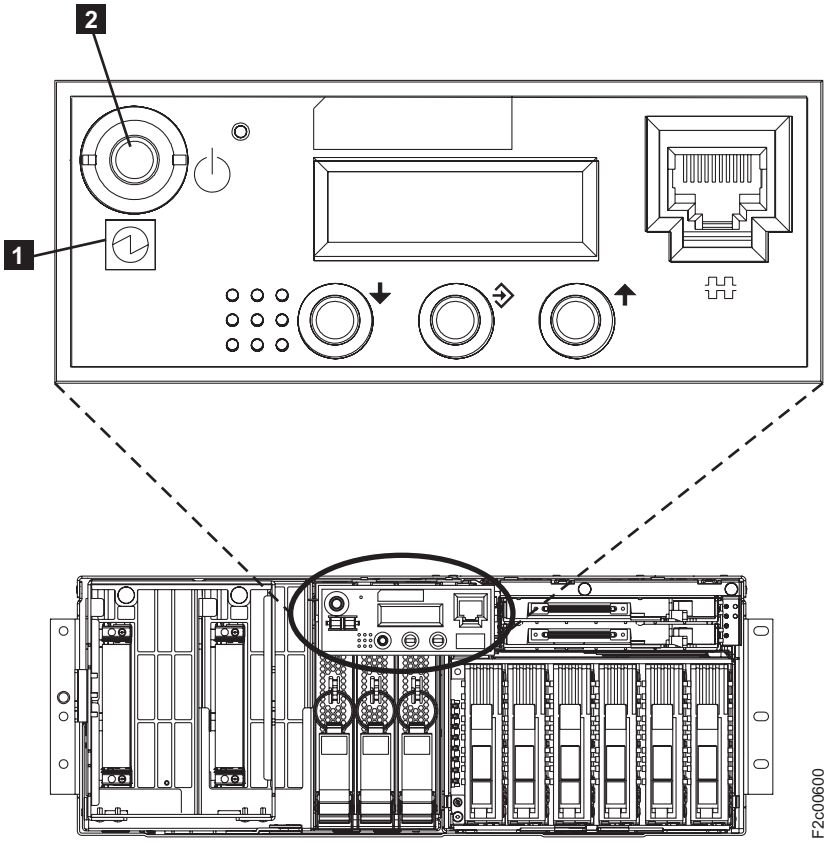


Figure 556. CEC enclosure control panel

- If it is slow blinking, go to the next step.
- If it is on solid, the CEC enclosure is fully powered on. DO NOT CONTINUE. Ensure you have used proper procedures to replace the FRU.

3. Remove all power from the CEC enclosure. At the rear of the CEC enclosure, disconnect the black power input cables **(A)** to both CEC enclosure power supplies. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button. See Figure 556.

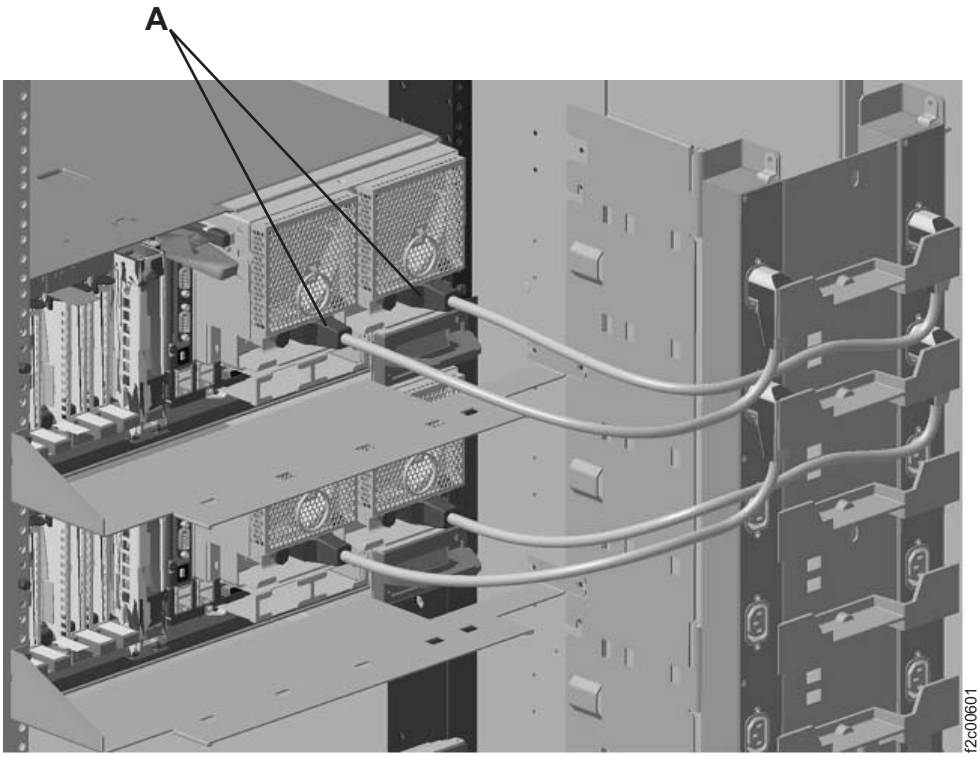


Figure 557. CEC enclosure (rear)

- If it is slow blinking, the CEC enclosure is still in standby power. DO NOT CONTINUE. Ensure that you have unplugged the power cables.
- If it is off, go to the next step.

4. At the front of the CEC enclosure, remove the control panel by pressing the locking tabs **(A)** located on either side of the panel, grasping the edges of the panel, and pulling it out of its bay **(B)**. See Figure 558 on page 1084.

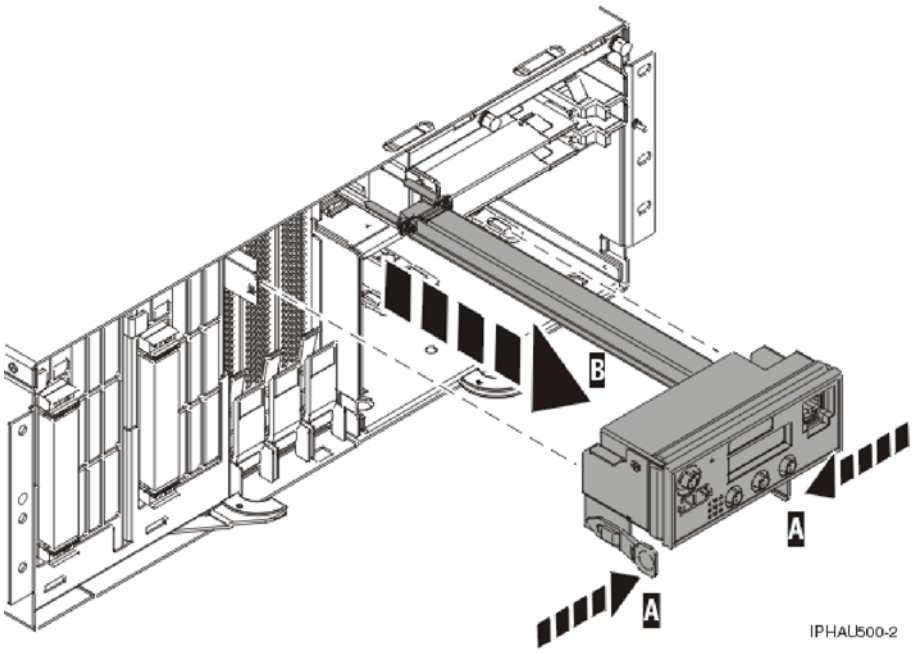


Figure 558. Removing the CEC enclosure control panel

5. Remove the media device enclosure. See Figure 559.
   a. Pull the two orange locking knobs **(A)** out until they unlock.
   b. Grasp the media device enclosure **(B)** and slowly pull it out of the disk drive backplane assembly.

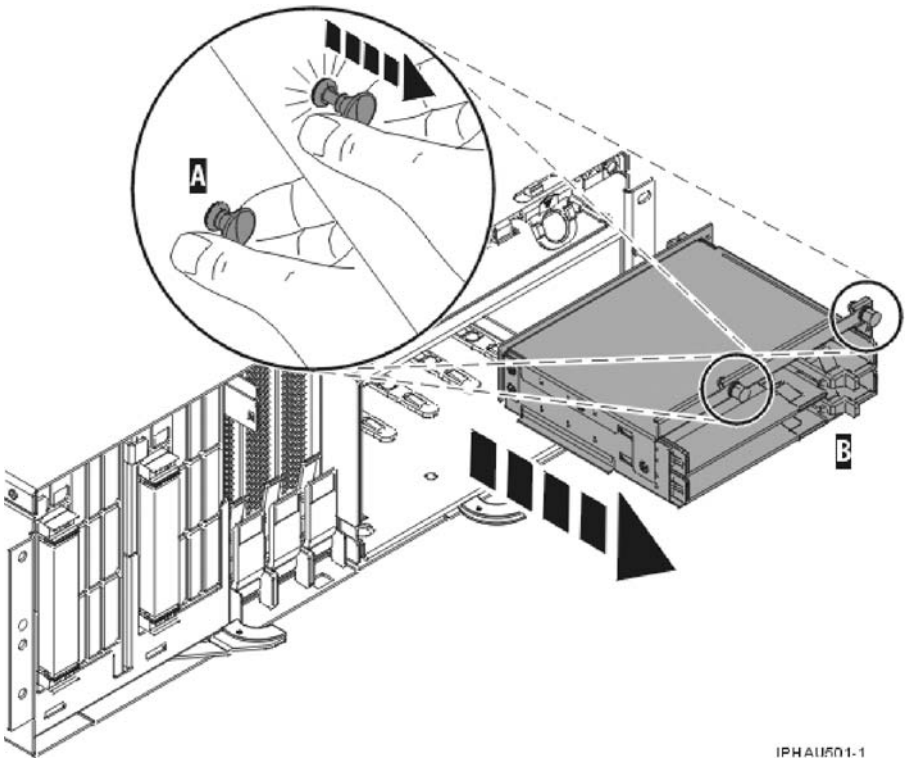


Figure 559. Removing the media device enclosure

6. Remove both fans. Pull the ring **(A)** downward to disengage it from the system chassis and then pull the fan out of the CEC enclosure. See Figure 560.

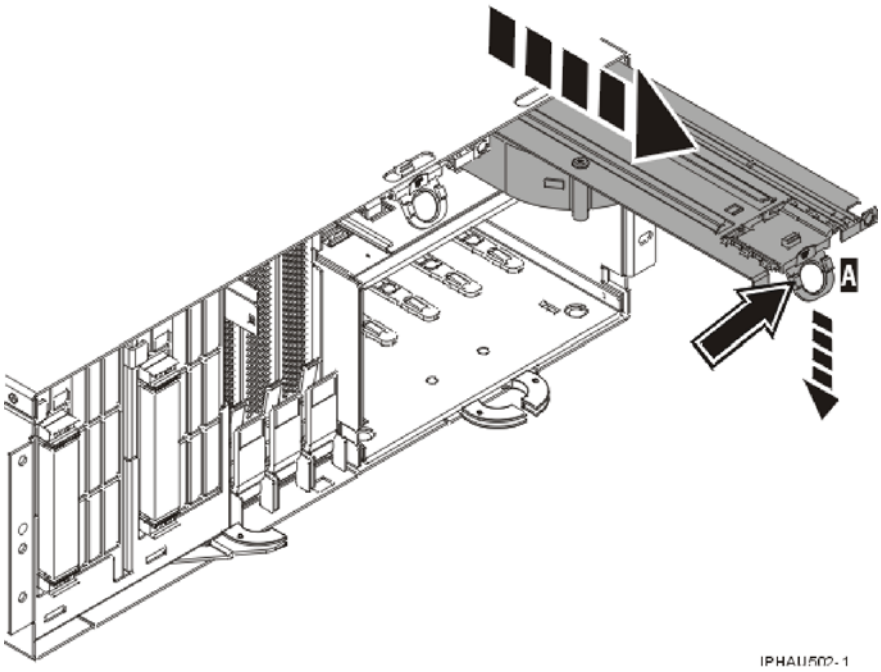


Figure 560. Removing the CEC enclosure fan

7. Remove the CEC disk drive. See Figure 561 on page 1086.
   a. Squeeze the bottom of the CEC disk drive handle **(A)** to unlock it.
   b. Pull the CEC disk drive handle **(B)** out and then up.
   c. Grasp the CEC disk drive **(C)**, supporting the bottom, and slide it out of the disk enclosure.

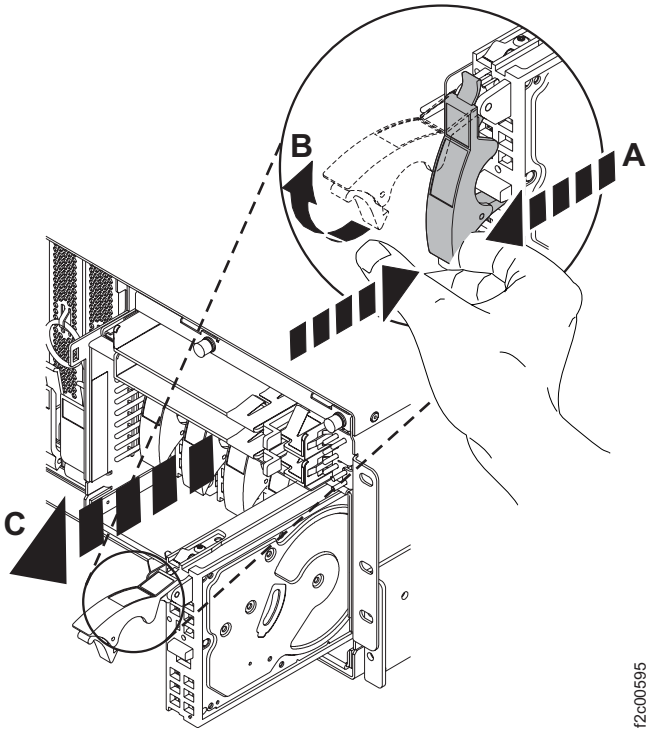


Figure 561. Removing the CEC disk drive

8. Remove the disk drive backplane assembly. See Figure 562.
   a. Press down and pull out to open the handles **(A)** on the lower edge of the disk drive backplane assembly.
   b. Pull the disk drive backplane assembly **(B)** toward you to remove it from the system unit.

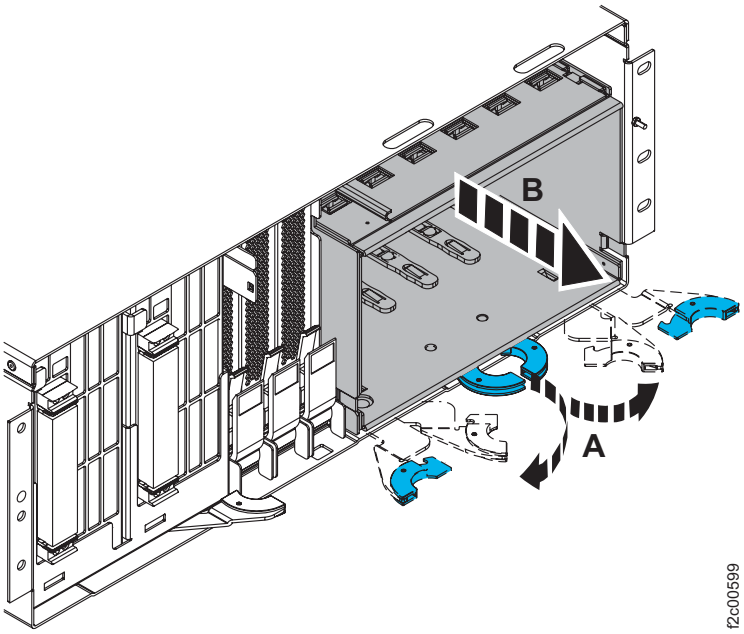


Figure 562. Removing the disk drive backplane assembly

Install the CEC disk drive backplane assembly

1. At the front of the CEC enclosure, install the disk drive backplane assembly.
   a. Carefully slide the disk drive backplane assembly into the CEC enclosure until you feel it lock into place.
   b. Close the handles to secure it into the proper position.
2. Replace the CEC disk drive. See Figure 563
   a. With the CEC disk drive handle in the up position **(A)**, carefully slide the CEC disk drive into the enclosure until it stops.
   b. Move the CEC disk drive handle down into the locked position **(B)** to seat the CEC disk drive fully in. Verify that the front of the new CEC disk drive is aligned with the other CEC disk drives.

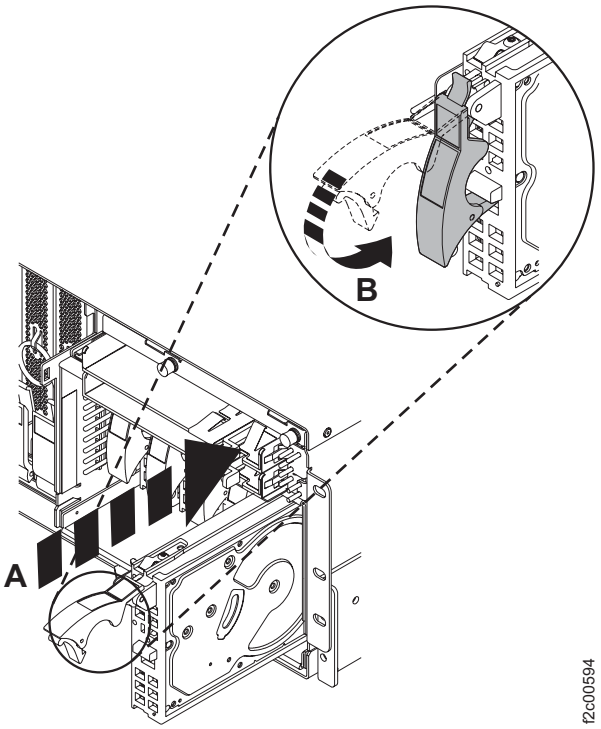


Figure 563. Replacing the CEC disk drive

3. Push both CEC enclosure fans all the way into the fan slots then lift the attached rings up to lock the fans into place.
4. Pivot the CEC enclosure fan orange pull rings up out of the way and gently slide the media tray into place. Then push the two orange locking knobs into the locked position.
5. Gently slide the control panel into place, and ensure the locking tabs on both sides of the control panel lock into place.
6. Replace the DASD fan tray.
   a. Slide the DASD fan tray assembly into its slot until the clasp snaps into place.
   b. Connect the three cables.
7. At the rear of the CEC enclosure, connect the black power input cables to both CEC enclosure power supplies.

8. Ensure the CEC enclosure is in power standby mode before continuing. At the CEC enclosure control panel, wait for the green Power Present Icon beneath the white Power button to slow blink, and then continue the repair.

Exchange the CEC enclosure control panel

 Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the CEC enclosure control panel

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. Ensure the CEC enclosure is in standby power mode before continuing. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, go to the next step.
   - If it is on solid, the CEC enclosure is fully powered on. DO NOT CONTINUE. Ensure you have used proper procedures to replace the FRU.
3. Remove all power from the CEC enclosure. At the rear of the CEC enclosure, disconnect the black power input cables to both CEC enclosure power supplies. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, the CEC enclosure is still in standby power. DO NOT CONTINUE. Ensure you have unplugged the power cables.
   - If it is off, go to the next step.
4. At the front of the CEC enclosure, remove the control panel by pressing the locking tabs **(A)** located on either side of the panel, grasping the edges of the panel, and pulling it out of its bay **(B)**.

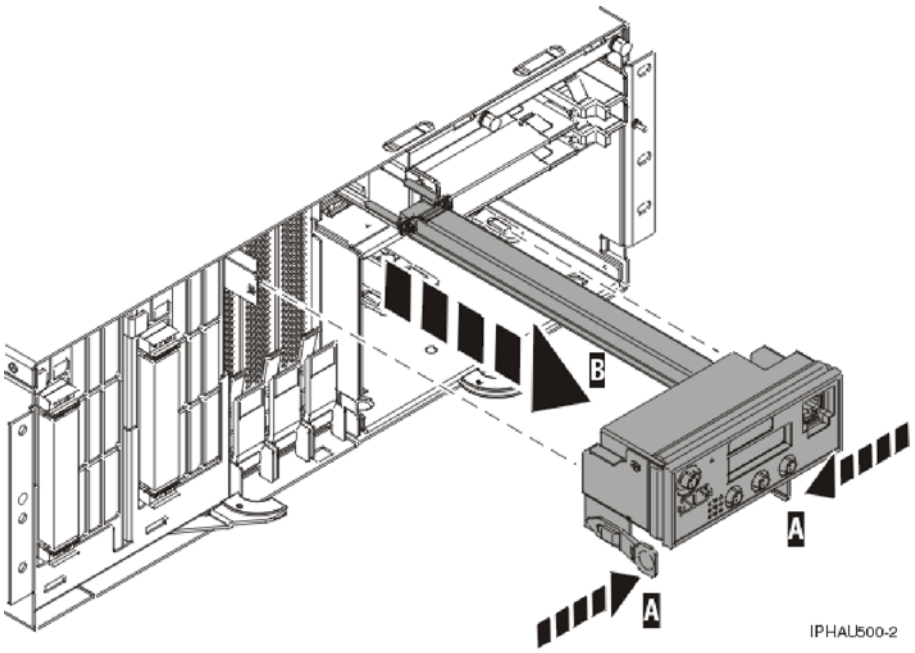


Figure 564. Removing the CEC enclosure control panel

Install the CEC enclosure control panel

1. Transfer the machine type model serial number (MTMS) label from the old control panel to the new control panel.

   Note: Pry the center of the MTMS label away from the control panel bezel so the tabs on each end are released.
2. At the rear of the CEC enclosure, carefully slide the control panel into the control panel bay until you feel the locking tabs lock in place.
3. At the rear of the CEC enclosure, connect the black power input cables to both CEC enclosure power supplies.
4. Ensure the CEC enclosure is in power standby mode before continuing. At the CEC enclosure control panel, wait for the green Power Present icon beneath the white Power button to slow blink, and then continue the repair.

Exchange the CEC enclosure fan

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the CEC enclosure fan

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. Ensure the CEC enclosure is in standby power mode before continuing. At the CEC enclosure control panel, observe the green Power Present Icon **(1)** beneath the white Power button **(2)**.

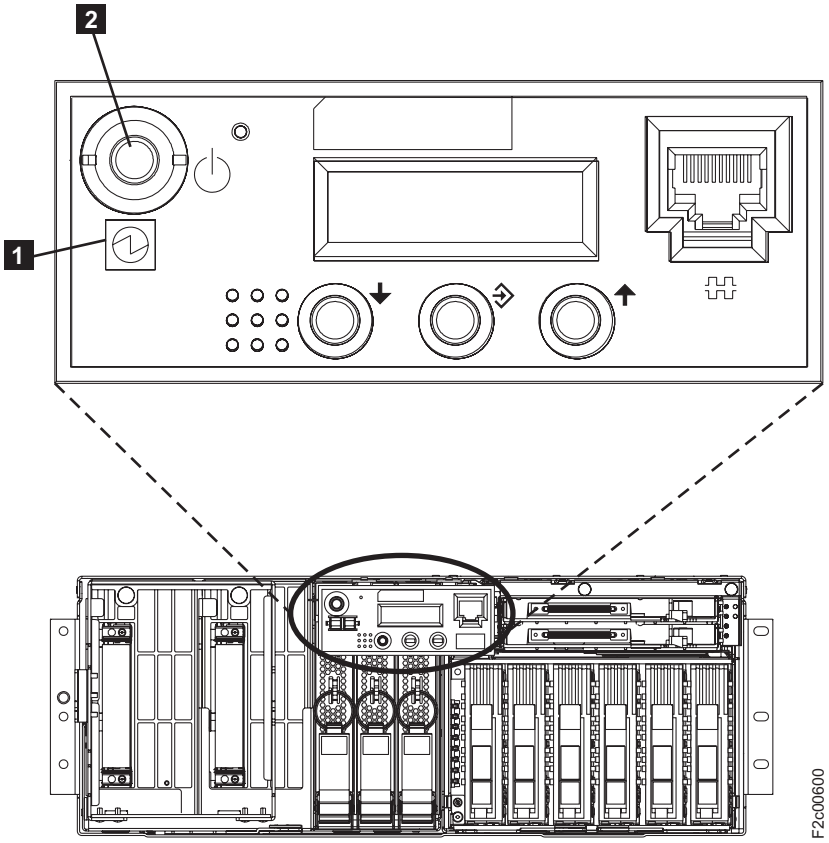


Figure 565. CEC enclosure control panel

   - If it is slow blinking, go to the next step.
   - If it is on solid, the CEC enclosure is fully powered on. DO NOT CONTINUE. Ensure you have used proper procedures to replace the FRU.
3. Remove all power from the CEC enclosure. At the rear of the CEC enclosure, disconnect the black power input cables **(A)** to both CEC enclosure power supplies. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button. See Figure 565.

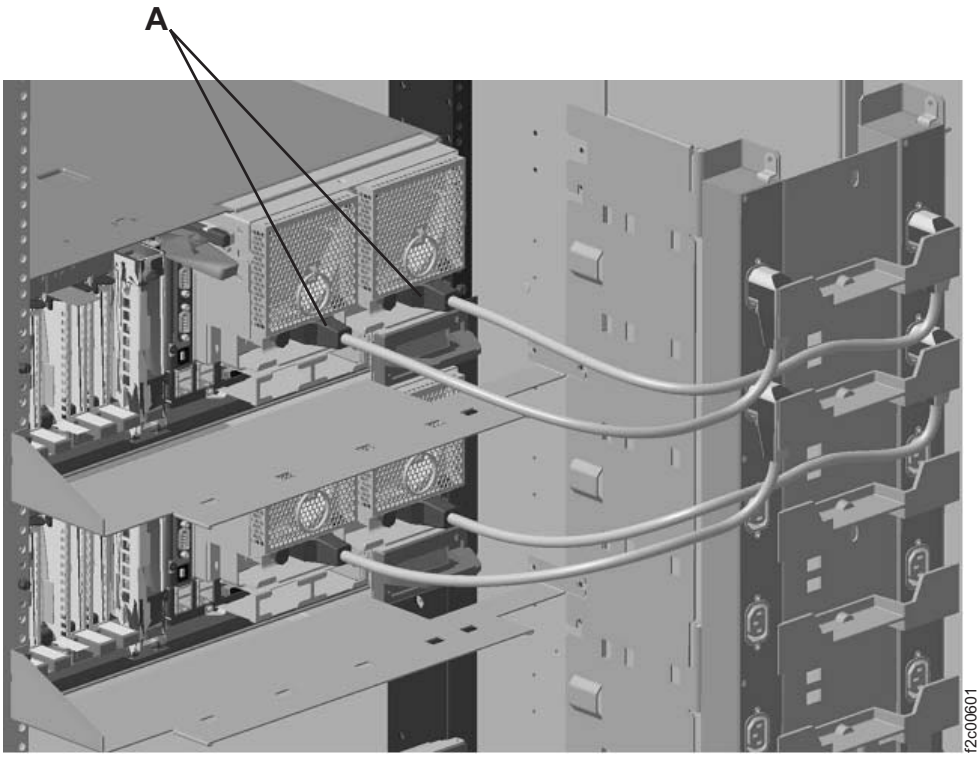


Figure 566. CEC enclosure (rear)

- If it is slow blinking, the CEC enclosure is still in standby power. DO NOT CONTINUE. Ensure that you have unplugged the power cables.
- If it is off, go to the next step.

4. At the front of the CEC enclosure, remove the control panel by pressing the locking tabs located on either side of the panel **(A)**, grasping the edges of the panel, and pulling it out of its bays **(B)**. See Figure 567 on page 1092.

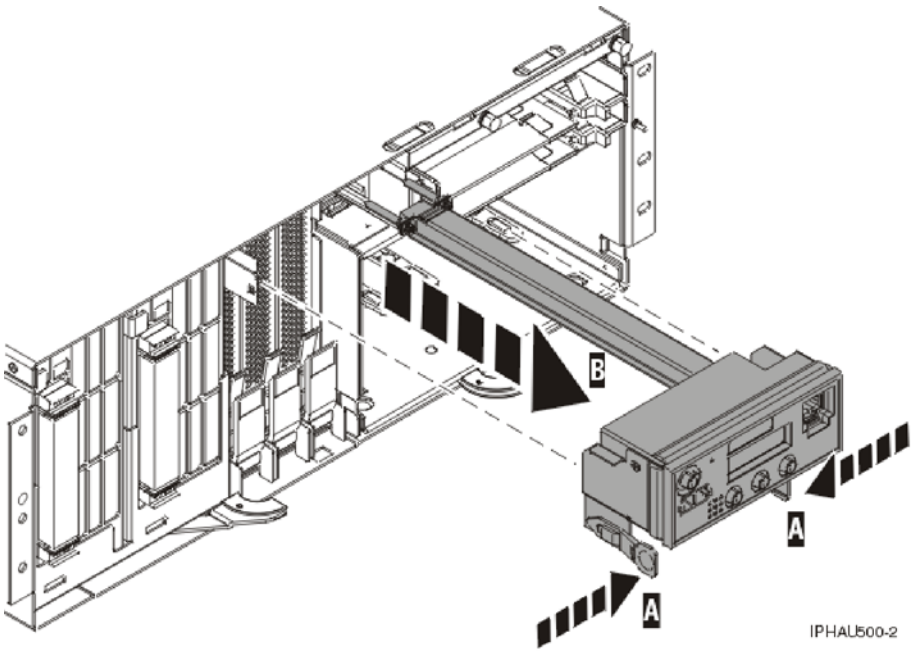


Figure 567. Removing the CEC enclosure control panel

5. Remove the media backplane assembly. See Figure 568.
   a. Pull the two orange locking knobs **(A)** out until they unlock.
   b. Grasp the media backplane assembly **(B)** and slowly pull it out of the disk drive backplane assembly.

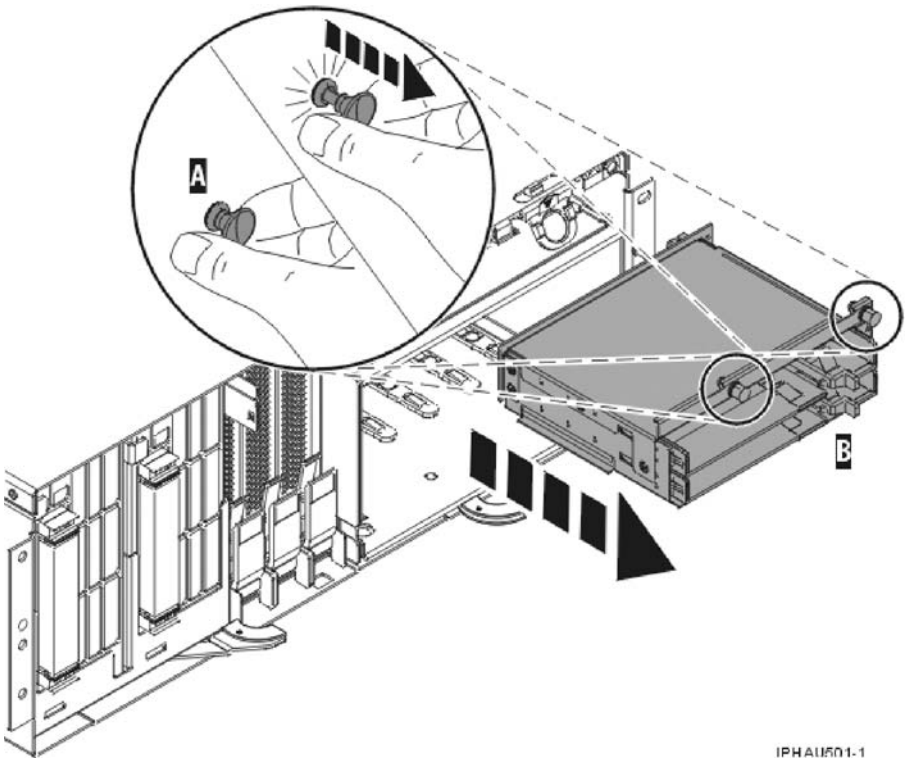


Figure 568. Removing the media backplane assembly

6. Remove the CEC Enclosure Fan Assembly. Pull the ring **(A)** downward to disengage it from the system chassis and then pull the fan **(B)** out of the CEC enclosure. See Figure 569.

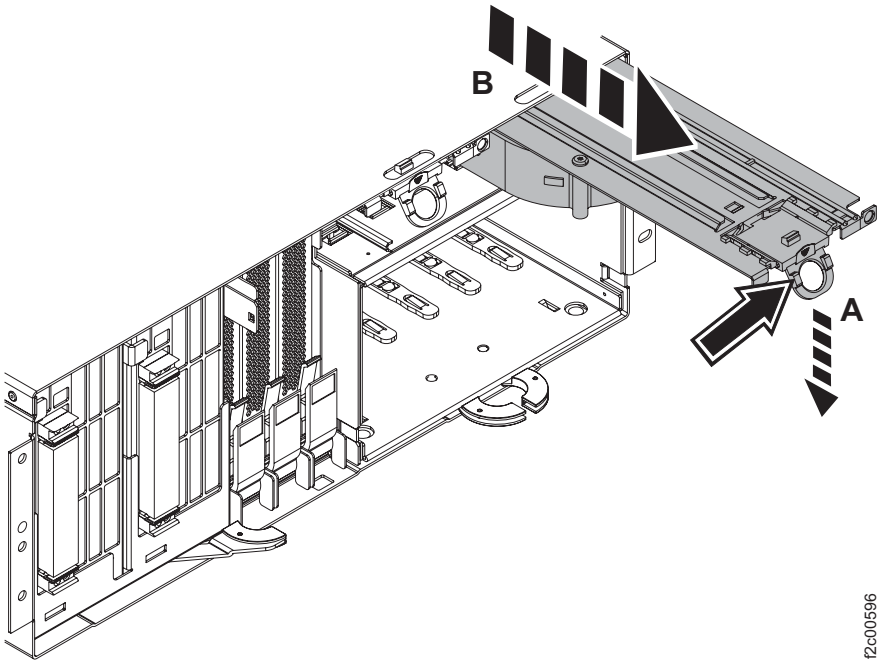


Figure 569. Removing the CEC enclosure fan

Install the CEC enclosure fan

1. At the front of the CEC enclosure, push the fan all the way into the fan slot then lift the attached ring up to lock the fan into place.
2. Install the media backplane assembly.
   a. Pivot the CEC enclosure fan orange pull ring up out of the way.
   b. Align the media backplane assembly with the disk drive backplane assembly opening.
   c. Gently slide the media backplane assembly into place, and then push the two orange locking knobs into the locked position.
3. Gently slide the control panel into place, and ensure the locking tabs on both sides of the control panel lock into place.
4. At the rear of the CEC enclosure, connect the black power input cables to both CEC enclosure power supplies.
5. Ensure the CEC enclosure is in power standby mode before continuing. At the CEC enclosure control panel, wait for the green Power Present Icon beneath the white Power button to slow blink, and then continue the repair.

Exchange the CEC enclosure I/O backplane assembly

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are

not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the CEC enclosure I/O backplane assembly

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. Ensure the CEC enclosure is in standby power mode before continuing. At the CEC enclosure control panel, observe the green Power Present Icon **(1)** beneath the white Power button **(2)**.

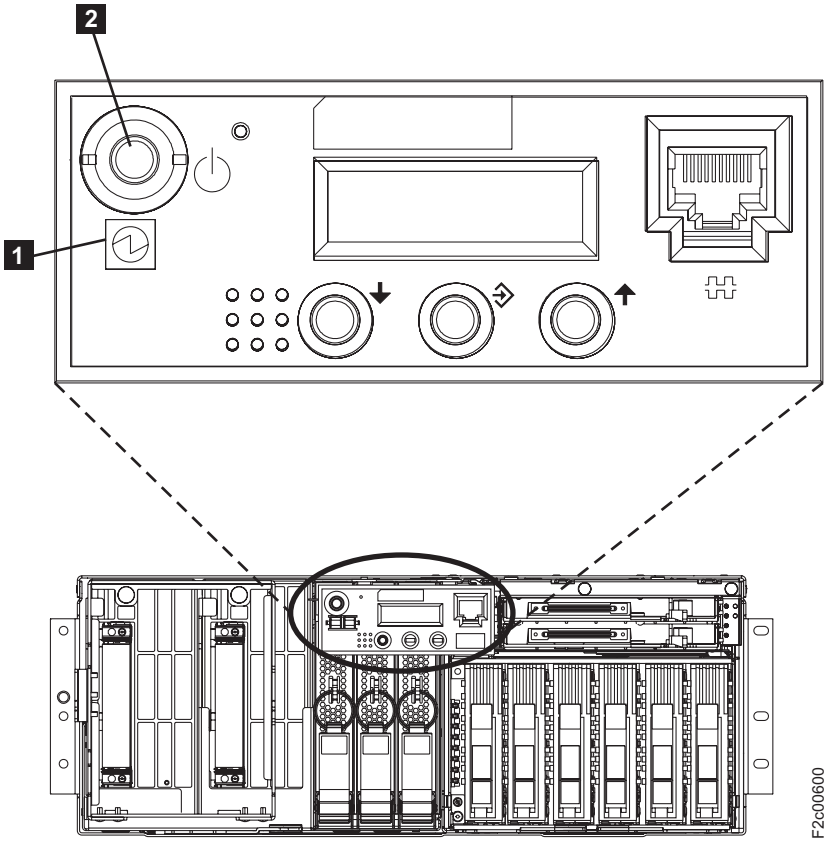


Figure 570. CEC enclosure control panel

   - If it is slow blinking, go to the next step.
   - If it is on solid, the CEC enclosure is fully powered on. DO NOT CONTINUE. Ensure you have used proper procedures to replace the FRU.
3. Remove all power from the CEC enclosure. At the rear of the CEC enclosure, disconnect the black power input cables **(A)** to both CEC enclosure power supplies. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button. See Figure 570.

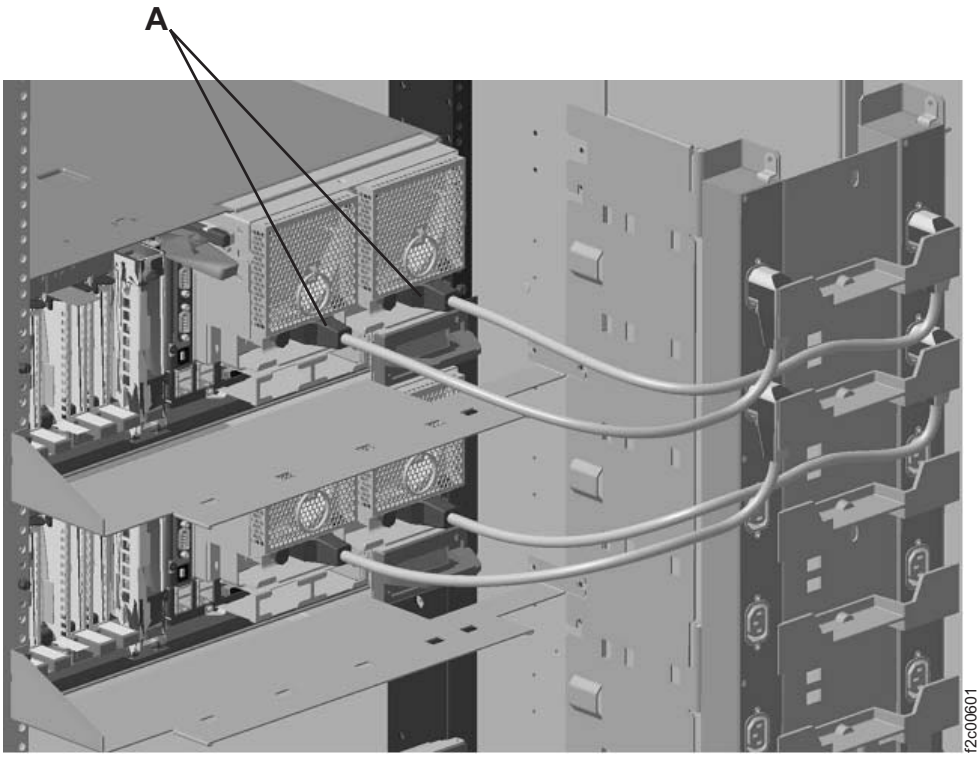


Figure 571. CEC enclosure (rear)

- If it is slow blinking, the CEC enclosure is still in standby power. DO NOT CONTINUE. Ensure you have unplugged the power cables.
- If it is off, go to the next step.

4. Remove both power supplies.
   a. Pull the orange locking knob **(A)** into the open position. See Figure 572 on page 1096.

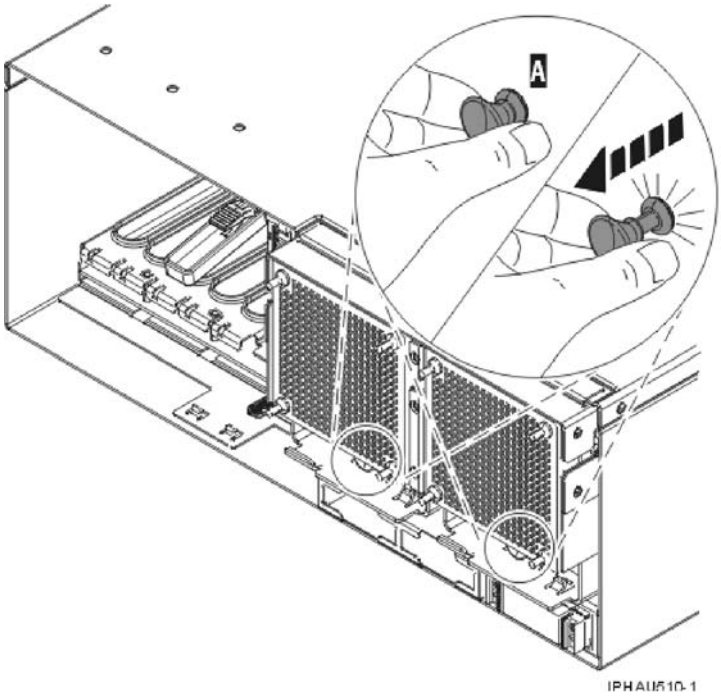


Figure 572. Pulling the orange locking knob

b. Lift the locking handle **(A)** into the open position, then use the locking handle to pull the power supply out of the enclosure **(B)**. See Figure 573 on page 1097.

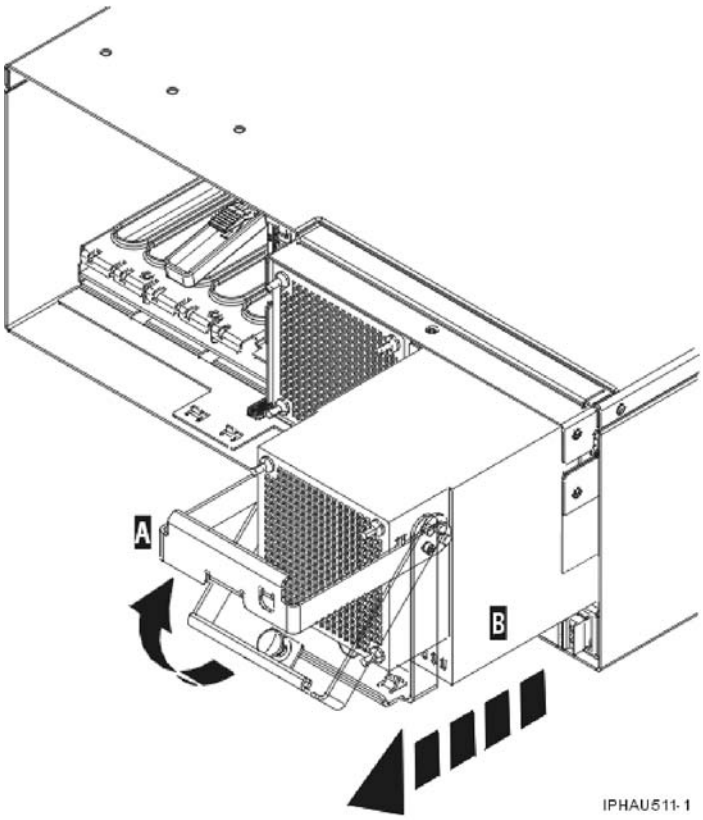


Figure 573. Lifting the locking handle

5. Unplug the remaining cables from the rear of the CEC enclosure.
6. Remove the PCI adapter cards and empty cassettes from slots 1 through 6.
   a. At the rear of the CEC enclosure, slide the lift tab vertically to release it, and then lift and hold the PCI adapter EMC shield **(A)** in the open position. See Figure 574 on page 1098

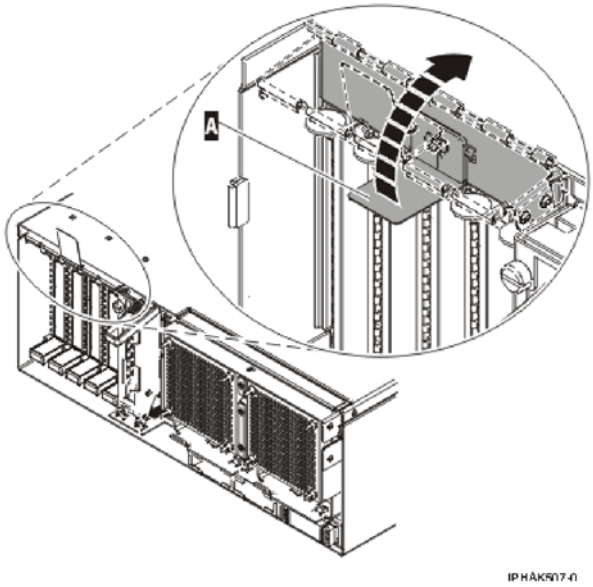


Figure 574. Removing the PCI adapter cards

b. Lift up the lower cassette handle **(A)** as shown in the following figure. Pull the PCI cassette **(B)** out of the system. See Figure 575.

   Attention: A cassette containing either a PCI adapter or dummy card must be placed in the PCI adapter slot of the system enclosure for proper air flow and cooling.

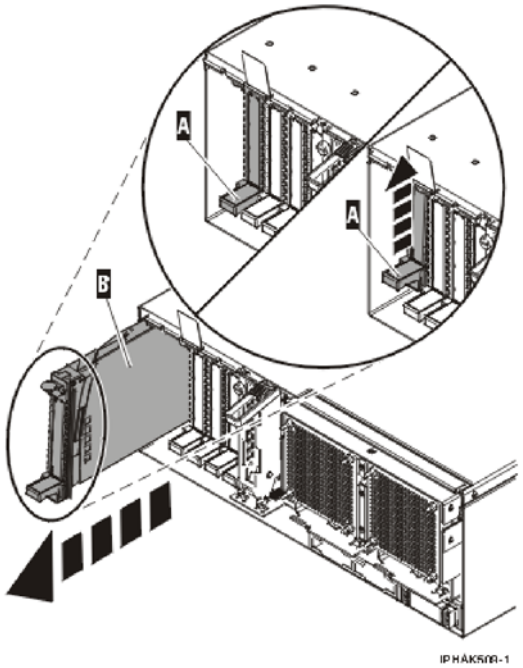


Figure 575. Removing the PCI adapter

7. Remove the CEC enclosure RIO card. (Only present for Model 9Ax.) See Figure 576 on page 1099.
   a. Unscrew the latch screw **(A)**.

b. Pull the latch toward you and down to release the CEC enclosure RIO card **(B)**.
c. Pull the CEC enclosure RIO card from the enclosure.

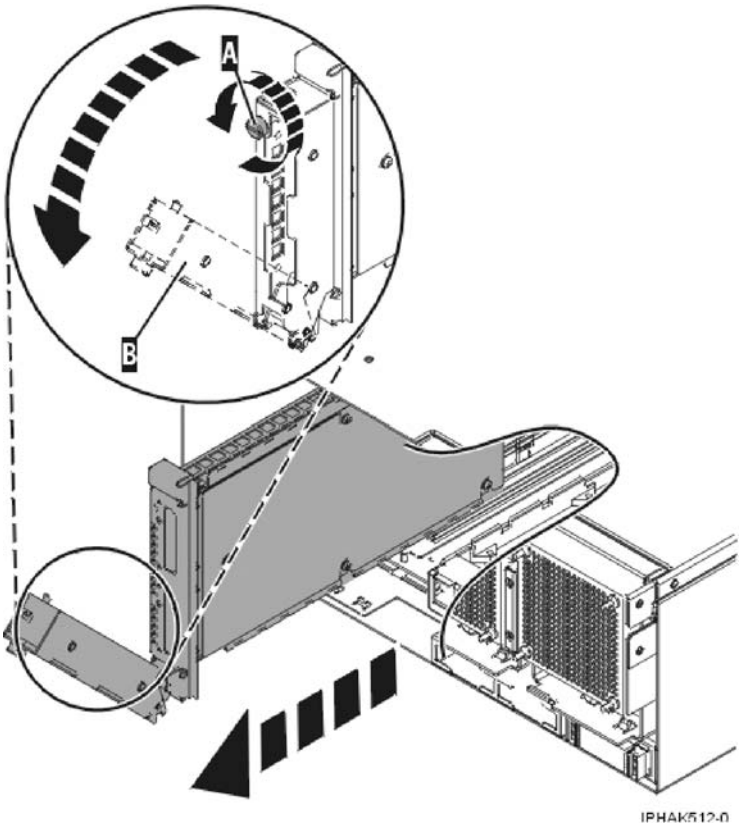


Figure 576. Pulling the CEC enclosure RIO card

8. Remove the service processor card. See Figure 577 on page 1100.
   a. Press the thumb release **(A)** on the service processor card handle **(B)** and rotate the handle down to disengage the service processor card from the card slot.
   b. After the service processor assembly is disengaged from the card slot, use the handle to pull the service processor card from the enclosure.

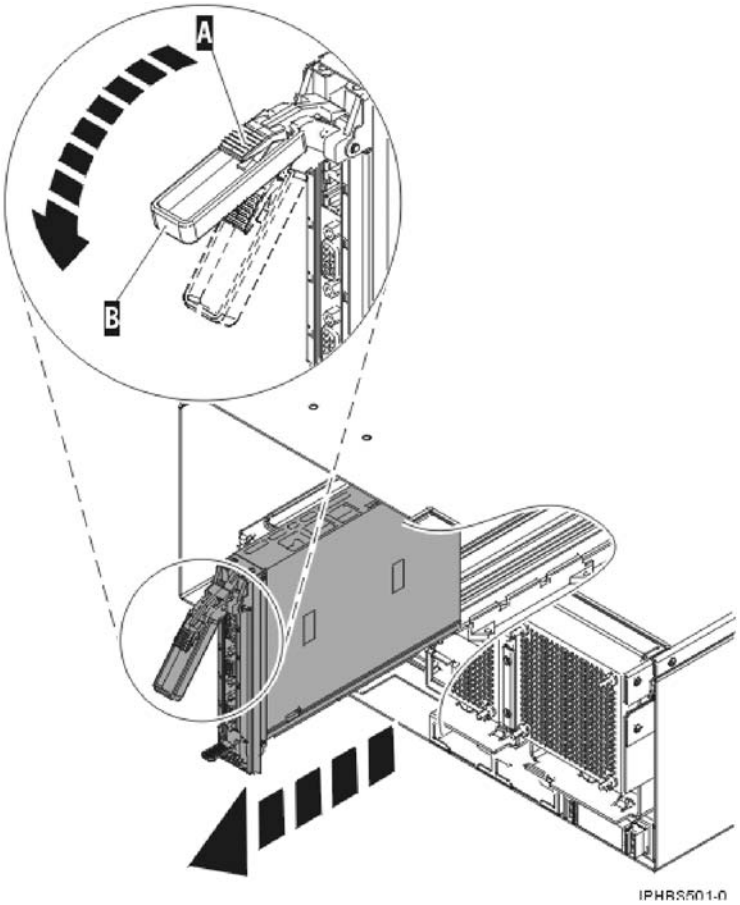


Figure 577. Removing the service processor card

9. Pull out the VPD card by the blue handle. See Figure 578.

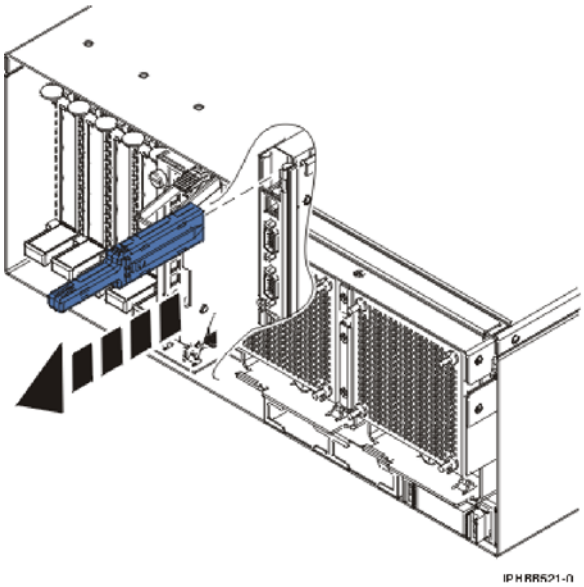


Figure 578. Removing the VPD card

10. At the front of the CEC enclosure, remove the control panel by pressing the locking tabs located on either side of the panel (**A**), grasping the edges of the panel, and pulling it out of its bays **(B)**. See Figure 579.

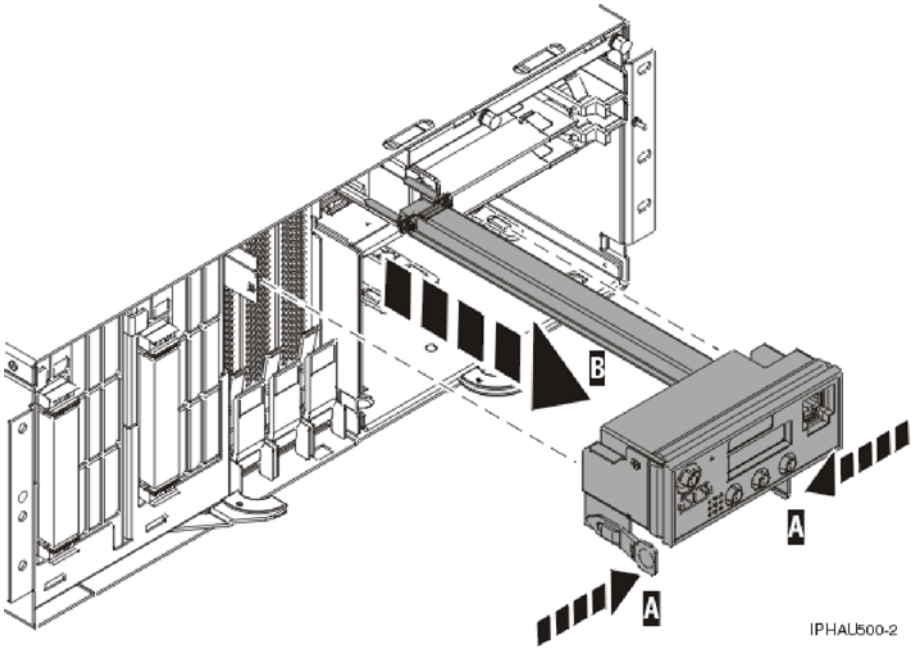


Figure 579. Removing the CEC enclosure control panel

11. Remove all the system processor voltage cards, and do the following. See Figure 580 on page 1102.
    a. Squeeze the top of the latch to release it **(A)**.
    b. Rotate the latch out and then down **(B)**.
    c. Grasp the pull ring and slowly pull the system processor voltage card out of the enclosure **(C)**.

    Attention: Pulling the system processor voltage card out of the card enclosure requires a large amount of force. The system processor voltage card is of substantial weight, so grasp it firmly when it is free of the card enclosure.

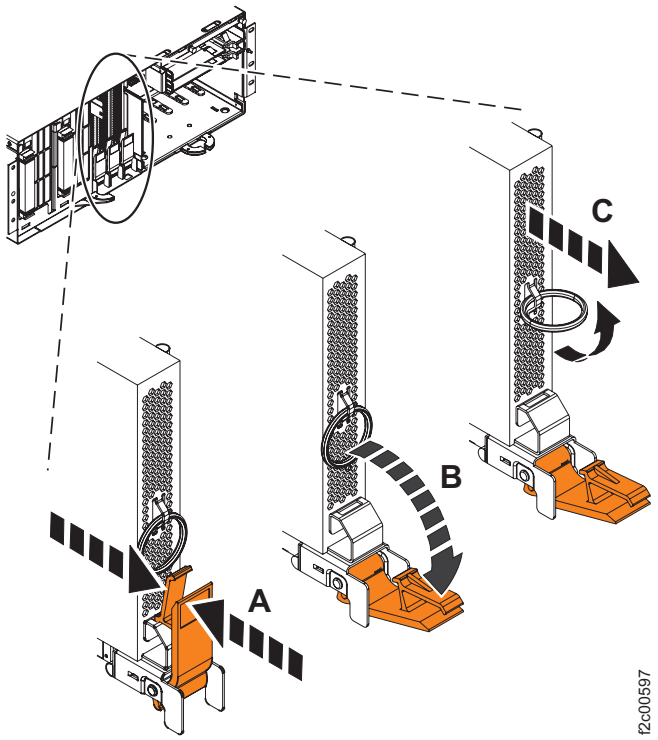


Figure 580. Removing the system processor voltage cards

12. Unlock the system processor backplane assembly **(A)**, and then pull it out of the CEC enclosure **(B)**. See Figure 581.

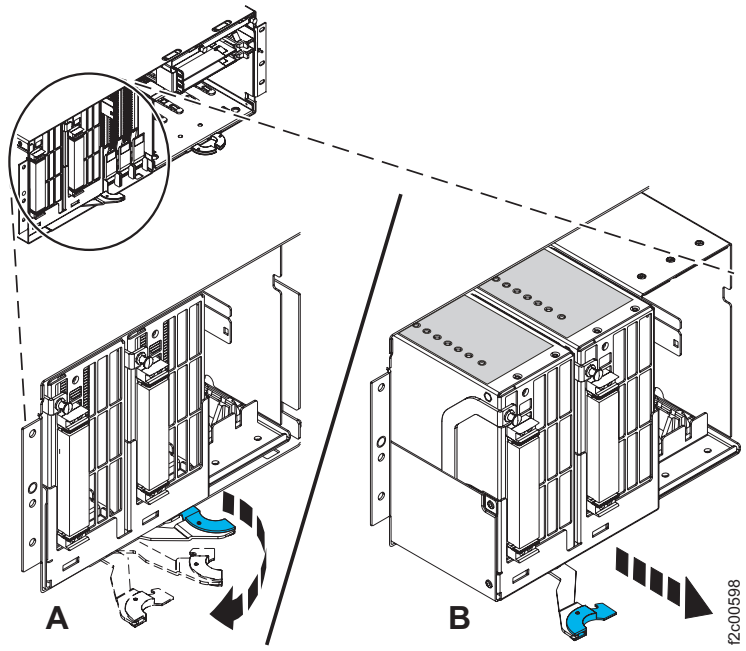


Figure 581. Unlocking and removing the system processor backplane assembly

13. Remove the media device enclosure. See Figure 582 on page 1103.
    a. Pull the two orange locking knobs **(A)** out until they unlock.

b. Grasp the media device enclosure **(B)** and slowly pull it out of the disk drive enclosure.

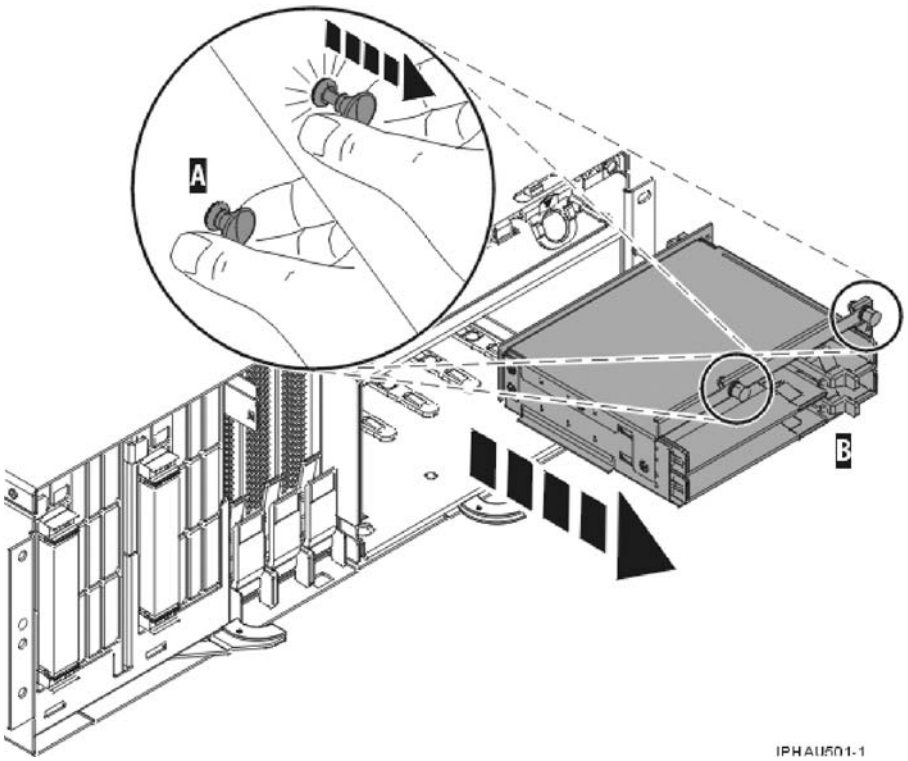


Figure 582. Removing the media device enclosure

14. Remove both fans. Pull the ring **(A)** downward to disengage it from the system chassis and then pull the fan **(B)** out of the CEC enclosure. See Figure 583 on page 1104.

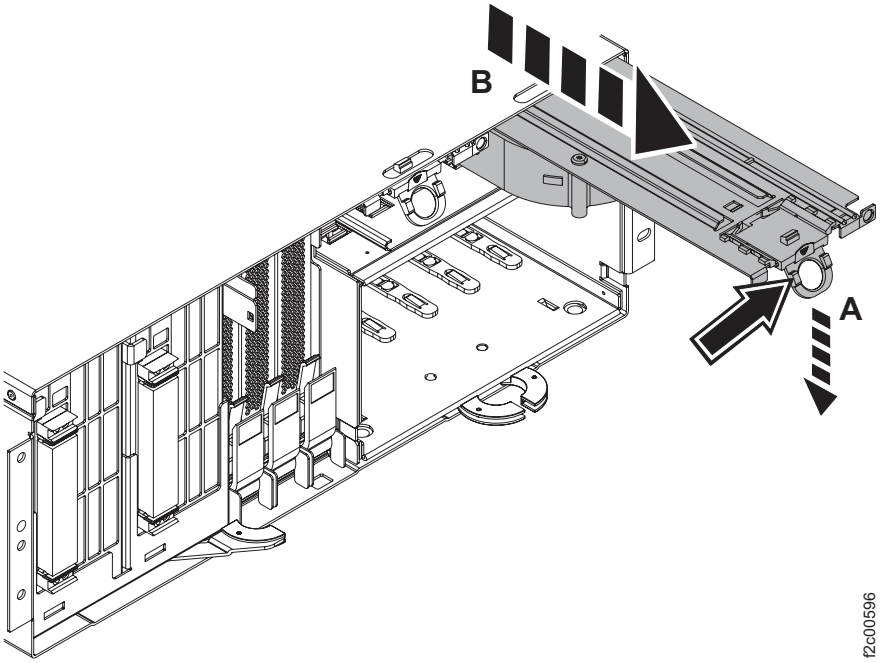


Figure 583. Removing the CEC enclosure fan

15. Remove the disk drive enclosure. See Figure 584.
    a. Press down and pull out to open the handles **(A)** on the lower edge of the disk drive enclosure.
    b. Pull the disk drive enclosure **(B)** toward you to remove it from the system unit.

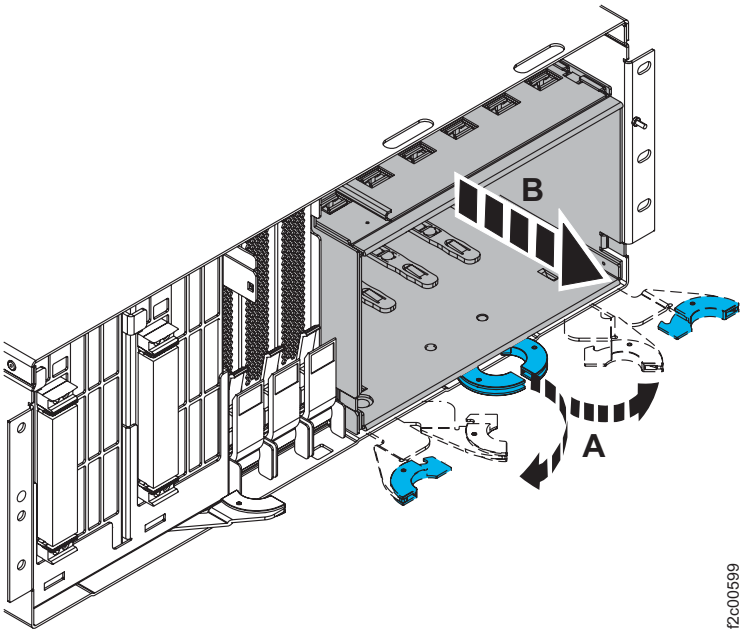


Figure 584. Removing the disk drive enclosure

16. At the front of the CEC enclosure, loosen the thumbscrews **(A)** at the front of the I/O enclosure backplane. See Figure 585.

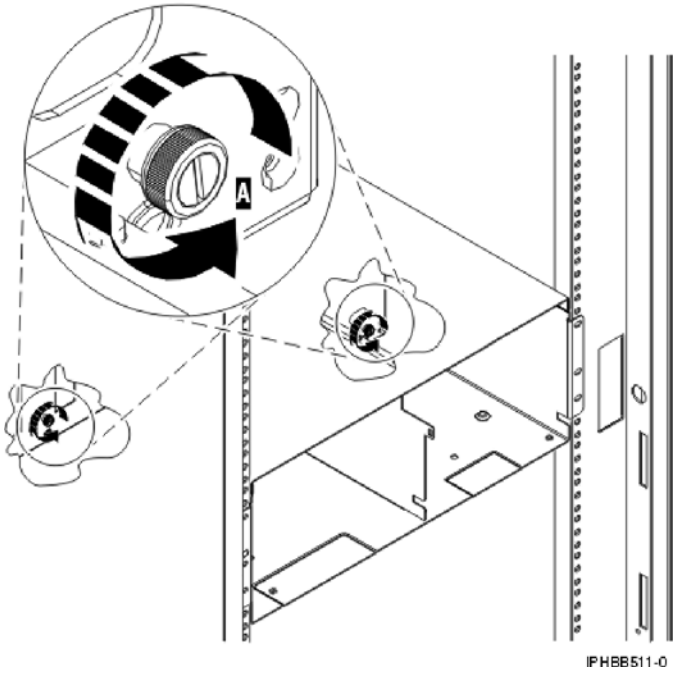


Figure 585. Unscrew thumbscrews on I/O backplane

17. At the rear of the CEC enclosure, slide the backplane from the enclosure. See Figure 586.

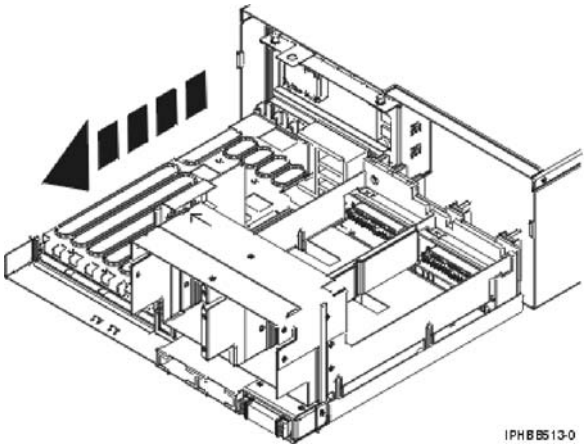


Figure 586. Removing the enclosure

Install the CEC enclosure I/O backplane assembly

1. At the rear of the CEC enclosure, slide the I/O enclosure backplane assembly into the CEC enclosure.
2. At the front of the CEC enclosure, install the two thumbscrews to fasten the I/O enclosure backplane assembly into the CEC enclosure.
3. Carefully slide the processor backplane assembly into the CEC enclosure. Press it into place, and then lock it with the locking arm.
4. Install the system processor voltage cards.

a. Ensure that the system processor voltage card latch is rotated out to the unlocked position.
b. Carefully grasp the system processor voltage card and slide it into the enclosure.
c. When the system processor voltage card is almost all the way into the card enclosure, rotate the latch up into the locked position.

5. Install the disk drive enclosure.
   a. Carefully slide the CEC disk drive enclosure into the CEC enclosure until you feel it lock into place.
   b. Close the handles to secure it into the proper position.
6. Push both CEC enclosure fans all the way into the fan slots, and then lift the attached rings up to lock the fans into place.
7. Pivot the CEC enclosure fan orange pull rings up out of the way and gently slide the media tray into place. Then push the two orange locking knobs into the locked position.
8. Gently slide the control panel into place, and ensure the locking tabs on both sides of the control panel lock into place.
9. At the rear of the CEC enclosure, install both power supplies.
   a. Push the power supply in place.
   b. Close the locking handle, and then press the orange locking knob into the closed position.
10. Install the VPD card with the key oriented to the right and push until fully seated.
11. Install the service processor card.
    a. Ensure the service processor card handle is rotated to the down position.
    b. Slide the service processor assembly all the way into the card slot in the system enclosure.
    c. Press the thumb release on the service processor card handle and rotate the handle up to lock the service processor card into position.
12. Install the CEC enclosure RIO card. (Only present for Model 9Ax.)
    a. With the latch in the down position, slide the card in to the enclosure.
    b. When it stops, raise the latch to the vertical position.
    c. Install the latch screw.
13. Install the PCI cassettes in slots 1-6. Ensure PCI cassettes with adapter cards are in their original slots.
    a. Ensure the lower cassette handle of the FRU is pressed up toward the retainer clip. This places the adapter in the correct position to be docked in the system.
    b. Lift and hold the PCI adapter EMC shield in the open position.
    c. Slide the cassette into the cassette slot as shown in the following figure.
    d. When the cassette is fully inserted into the system, firmly press downward on the lower cassette handle to lock the adapter in its connector.
    e. Lower the PCI adapter EMC shield into the closed position and then slide the lift tab down to secure it.
14. Connect all the cables except the power supply input cables.
15. Connect the black power input cables to both CEC enclosure power supplies.
16. Ensure the CEC enclosure is in power standby mode before continuing. At the CEC enclosure control panel, wait for the green Power Present Icon beneath the white Power button to slow blink.

17. Reference "MAP4075 Restoring VPD after replacing the CEC enclosure I/O backplane assembly" on page 667 to check and set the CEC enclosure location code in the Vital Product Data (VPD) on the FRU. Then return here and continue at the next step.

    Note: If the CEC enclosure location code is not correct, the FRU verification may fail with SRC B155B071.

18. Return to the screen or procedure that sent you here.

Exchange the CEC enclosure power supply


Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the CEC enclosure power supply

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. Ensure the CEC enclosure is in standby power mode before continuing. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, go to the next step.
   - If it is on solid, the CEC enclosure is fully powered on. DO NOT CONTINUE. Ensure you have used proper procedures to replace the FRU.
3. Remove all power from the CEC enclosure. At the rear of the CEC enclosure, disconnect the black power input cables to both CEC enclosure power supplies. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, the CEC enclosure is still in standby power. DO NOT CONTINUE. Ensure you have unplugged the power cables.
   - If it is off, go to the next step.
4. Remove the power supply.
   a. Pull the orange locking knob into the open position **(A)**.

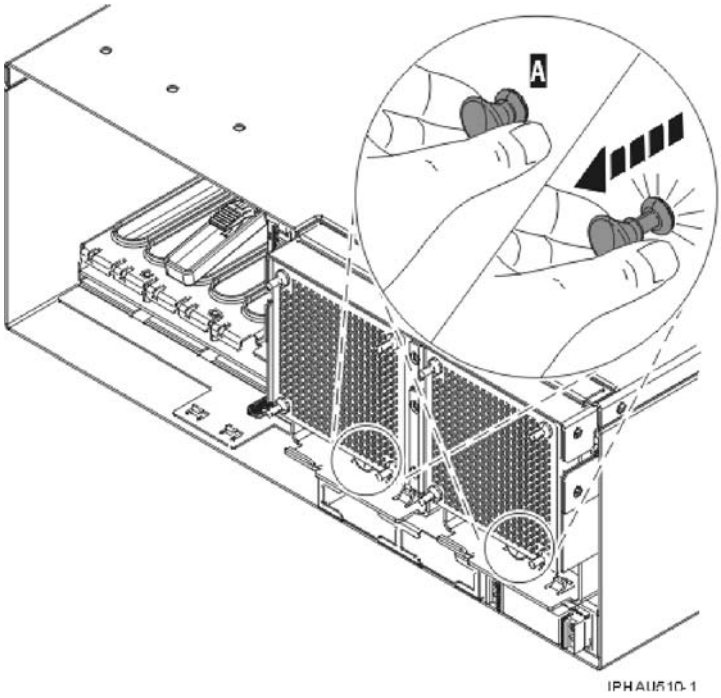


Figure 587. Pulling the orange locking knob

b. Lift the locking handle into the open position **(A)**, then use the locking handle to pull the power supply out of the enclosure **(B)**.

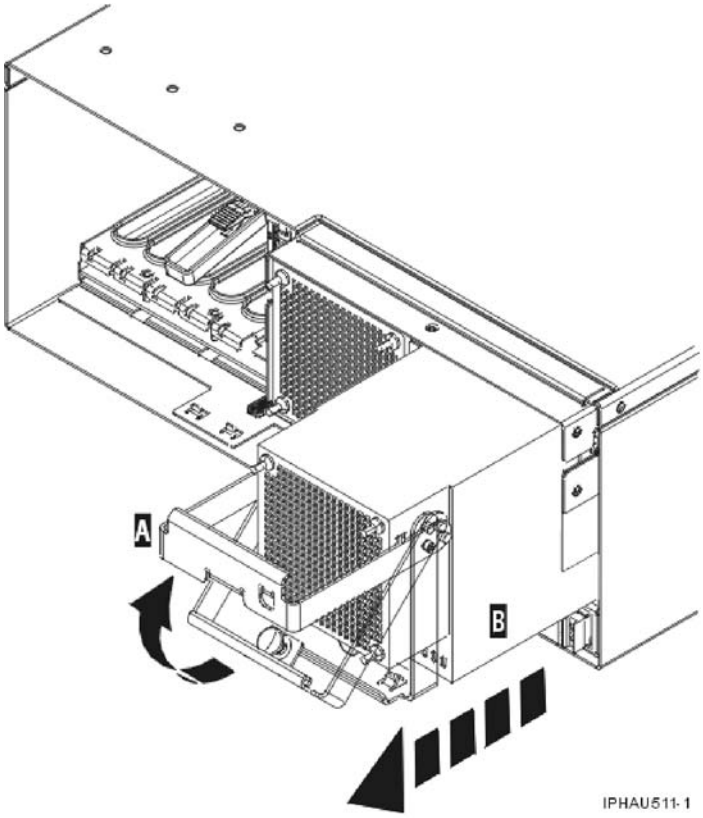


Figure 588. Lifting the locking handle

Install the CEC enclosure power supply

1. Replace the power supply.
   a. With the orange locking knob and the locking handle in the open position, place the power supply in the power supply bay.
   b. Replace the power supply.
   c. Close the locking handle, and then press the orange locking knob into the closed position.
2. Connect the black power input cables to both CEC enclosure power supplies.
3. Ensure the CEC enclosure is in power standby mode before continuing. At the CEC enclosure control panel, wait for the green Power Present Icon beneath the white Power button to slow blink, and then continue the repair.

Exchange the CEC enclosure RIO card


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the CEC enclosure RIO card

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. Ensure the CEC enclosure is in standby power mode before continuing. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, go to the next step.
   - If it is on solid, the CEC enclosure is fully powered on. DO NOT CONTINUE. Ensure you have used proper procedures to replace the FRU.
3. Remove all power from the CEC enclosure. At the rear of the CEC enclosure, disconnect the black power input cables to both CEC enclosure power supplies. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, the CEC enclosure is still in standby power. DO NOT CONTINUE. Ensure you have unplugged the power cables.
   - If it is off, go to the next step.
4. Verify the RIO-G cables are properly labeled, then disconnect them from the CEC enclosure RIO cards.
5. Remove the CEC enclosure RIO card. (Only present for Model 9Ax.)
   a. Unscrew the latch screw **(A)**.

b. Pull the latch toward you and down to release the CEC enclosure RIO card **(B)**.
c. Pull the CEC enclosure RIO card from the enclosure.

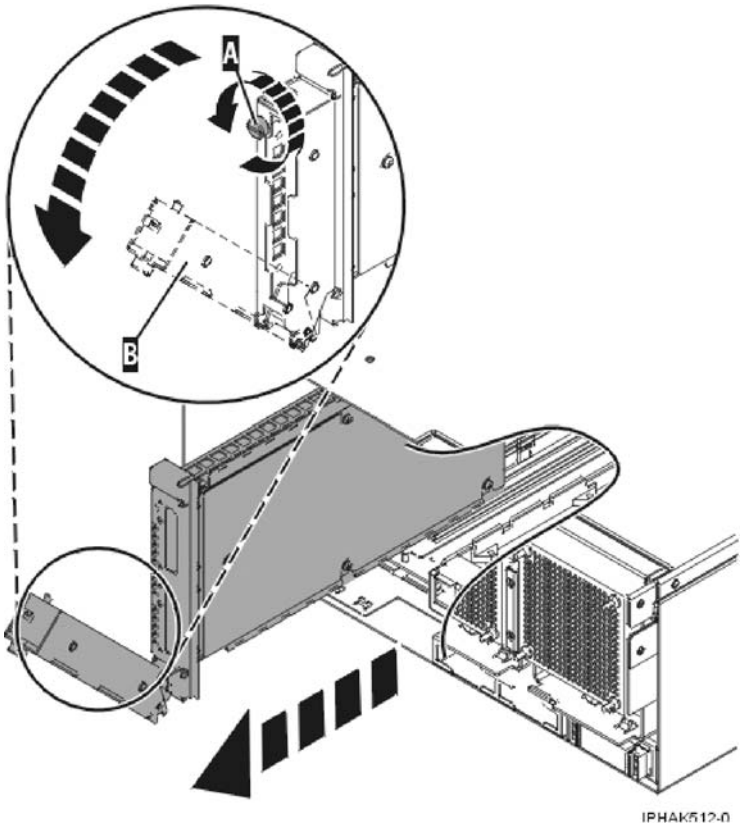


Figure 589. Removing the CEC enclosure RIO card

Install the CEC enclosure RIO card

1. At the rear of the CEC enclosure, replace the CEC enclosure RIO card.
   a. With the latch in the down position, slide the card in to the enclosure.
   b. When it stops, raise the latch to the vertical position.
   c. Install the latch screw.
2. Connect the RIO-G cables.
3. At the rear of the CEC enclosure, connect the black power input cable to both CEC enclosure power supplies.
4. Ensure the CEC enclosure is in power standby mode before continuing. At the CEC enclosure control panel, wait for the green Power Present Icon beneath the white Power button to slow blink, and then continue the repair.

Exchange the DVD-RAM drive

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are

not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the DVD-RAM drive

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. Ensure the CEC enclosure is in standby power mode before continuing. At the CEC enclosure control panel, observe the green Power Present Icon **(1)** beneath the white Power button **(2)**.

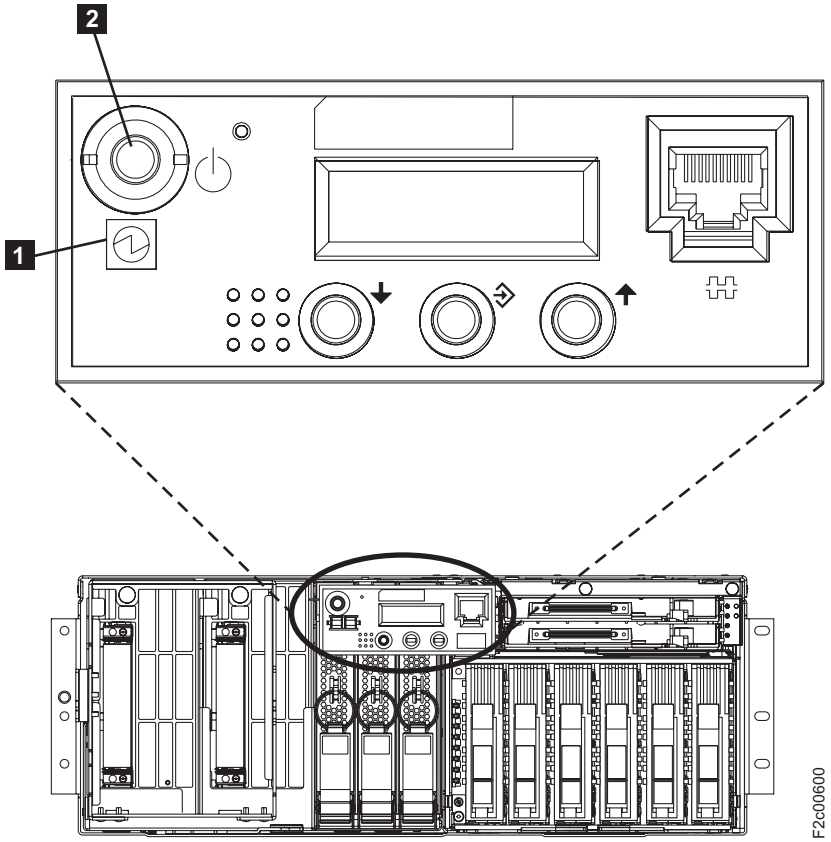


Figure 590. CEC enclosure control panel

   - If it is slow blinking, go to the next step.
   - If it is on solid, the CEC enclosure is fully powered on. DO NOT CONTINUE. Ensure you have used proper procedures to replace the FRU.
3. At the front of the CEC enclosure, remove the DVD-RAM drive. See Figure 591 on page 1112.
   a. Push the blue plastic retaining tab **(A)** away from the DVD-RAM drive.

b. While holding the blue plastic retaining tab **(A)**, grasp the device **(B)** and pull it out of the system.

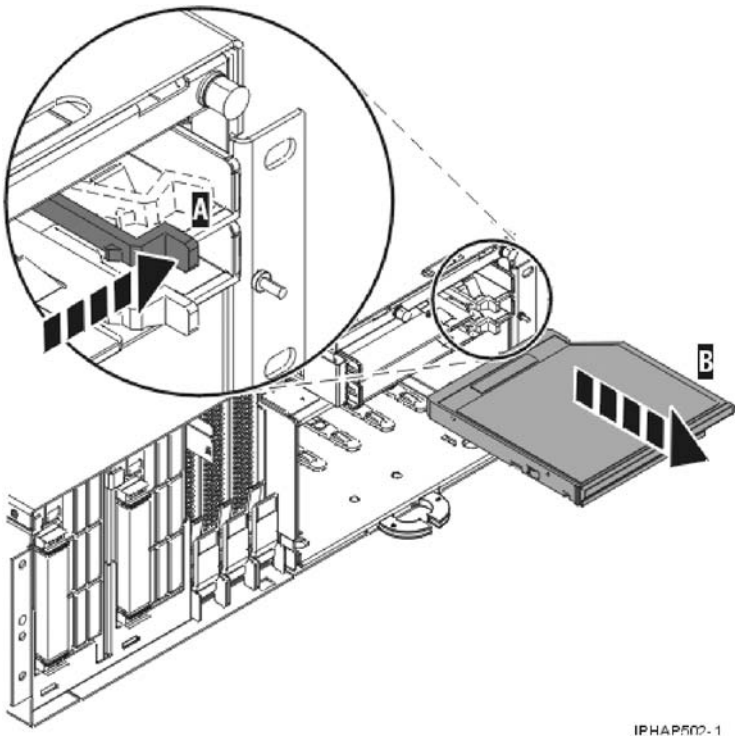


Figure 591. Removing the DVD-RAM drive

Install the DVD-RAM drive

At the front of the CEC enclosure, align the DVD-RAM drive **(A)** with the media bay, and then push it fully into the system. See Figure 592 on page 1113.

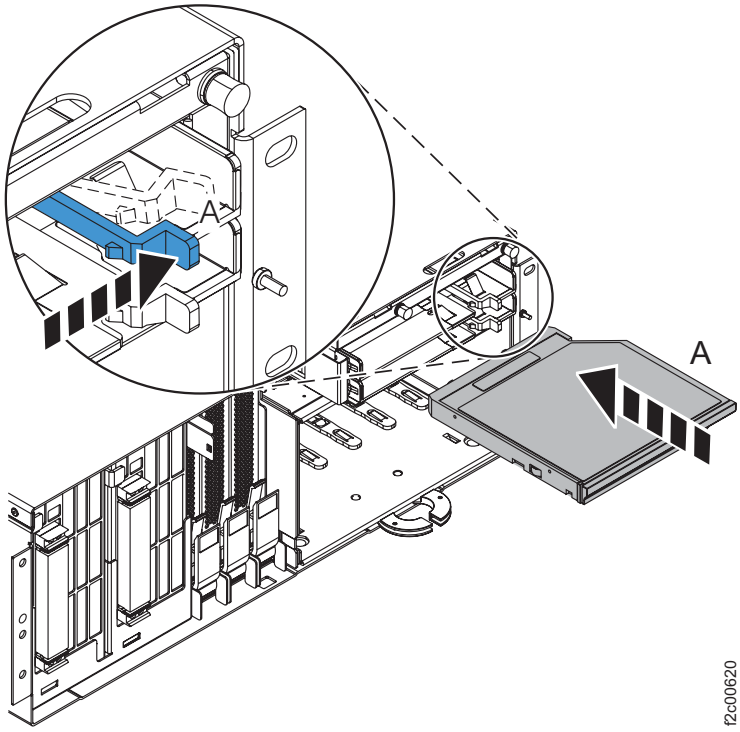


Figure 592. Installing the DVD-RAM drive

Exchange the Ethernet card

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the Ethernet card

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. The Ethernet card is pre-installed in a PCI cassette.
3. Remove the PCI cassette:

a. At the rear of the CEC enclosure, slide the lift tab **(A)** vertically to release it, and then lift and hold the Ethernet card EMC shield **(A)** in the open position.

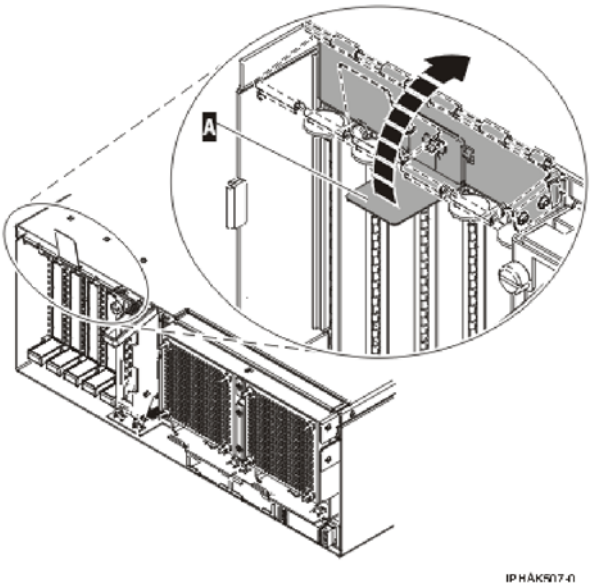


Figure 593. Lifting the EMC card

b. Lift up the lower cassette handle **(A)** as shown in the following figure. Pull the PCI cassette **(B)** out of the system.

Attention: A cassette containing either an Ethernet card or dummy card must be placed in the PCI cassette slot of the CEC enclosure for proper air flow and cooling.

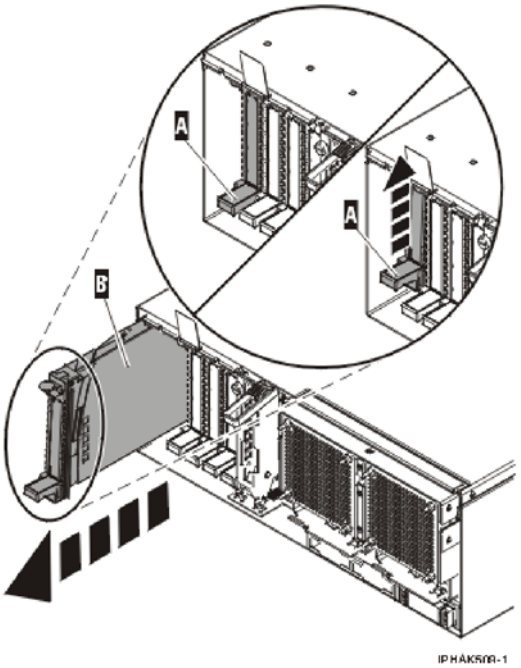


Figure 594. Removing the PCI adapter

Install the Ethernet card

1. At the rear of the CEC enclosure, install the PCI cassette.
   a. Ensure the lower cassette handle of the FRU is pressed up toward the retainer clip. This places the adapter in the correct position to be docked in the system.
   b. Lift and hold the PCI adapter EMC shield in the open position.
   c. Slide the cassette into the cassette slot as shown in Figure 594 on page 1114.
   d. When the cassette is fully inserted into the system, firmly press downward on the lower cassette handle to lock the adapter in its connector.
   e. Lower the PCI adapter EMC shield into the closed position and then slide the lift tab down to secure it.
2. Reconnect the cables.
3. Continue the repair:
   - If this service Information Center procedure was automatically launched by the HMC repair process, you can close it now.
   - Return to the HMC repair screen to continue the repair.

Exchange the media backplane assembly


Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the media backplane assembly

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. Ensure the CEC enclosure is in standby power mode before continuing. At the CEC enclosure control panel, observe the green Power Present Icon **(1)** beneath the white Power button **(2)**.

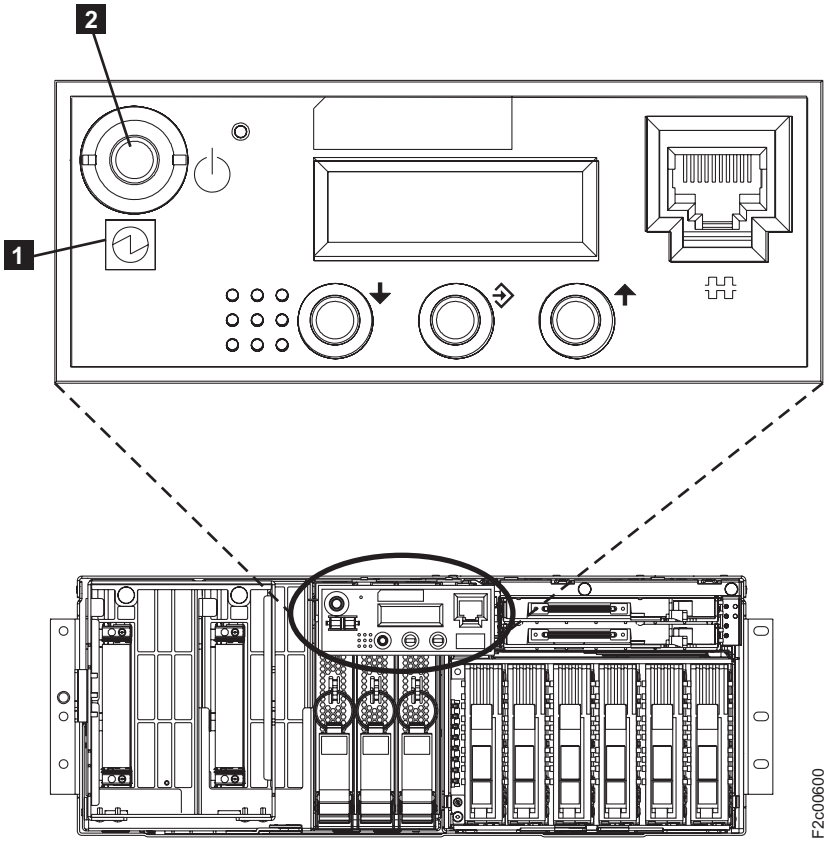


Figure 595. CEC enclosure control panel

- If it is slow blinking, go to the next step.
- If it is on solid, the CEC enclosure is fully powered on. DO NOT CONTINUE. Ensure you have used proper procedures to replace the FRU.

3. Remove all power from the CEC enclosure. At the rear of the CEC enclosure, disconnect the black power input cables **(A)** to both CEC enclosure power supplies. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button. See Figure 596 on page 1117.

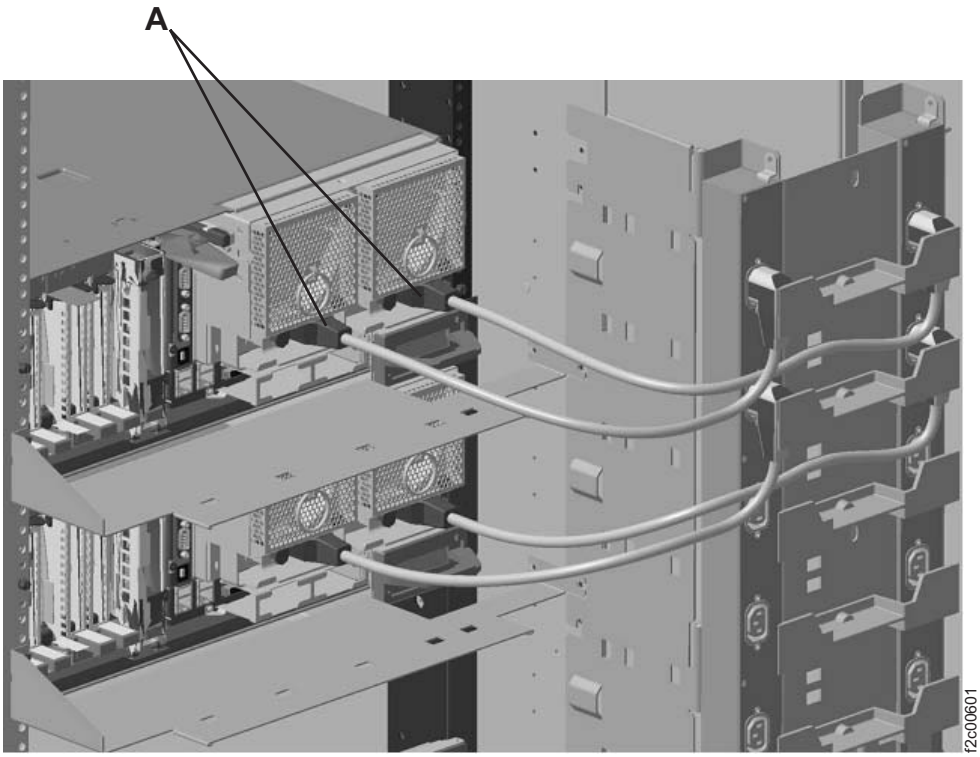


Figure 596. CEC enclosure (rear)

- If it is slow blinking, the CEC enclosure is still in standby power. DO NOT CONTINUE. Ensure that you have unplugged the power cables.
- If it is off, go to the next step.

4. At the front of the rack, while pushing the blue plastic retaining tab **(A)** to the right, pull the DVD-RAM drive **(B)** and filler panel out. See Figure 597 on page 1118.

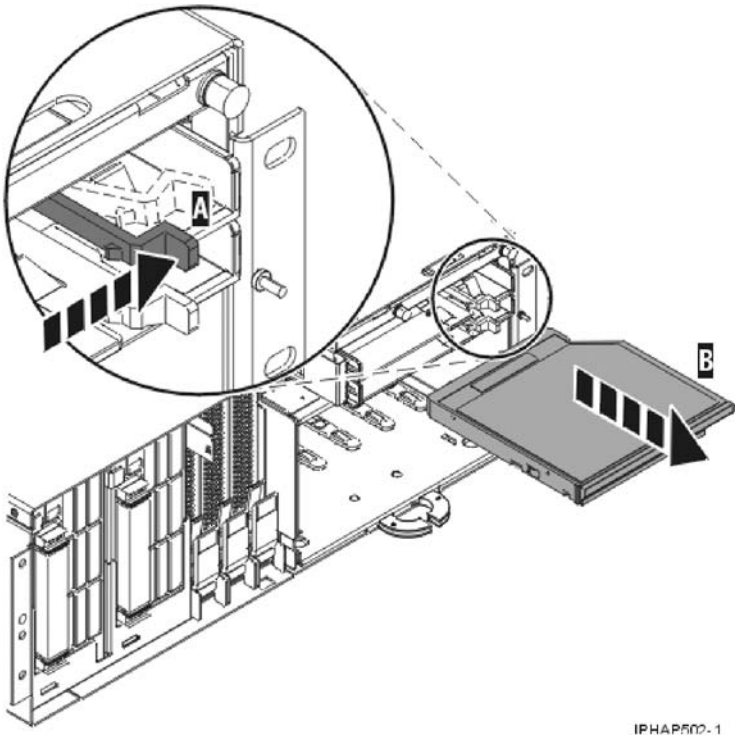


Figure 597. Removing the DVD-RAM drive and filler panel

5. Remove the media backplane assembly. See Figure 598 on page 1119.
   a. Pull the two orange locking knobs **(A)** out until they unlock.
   b. Grasp the media backplane assembly **(B)** and slowly pull it out of the disk drive backplane assembly.

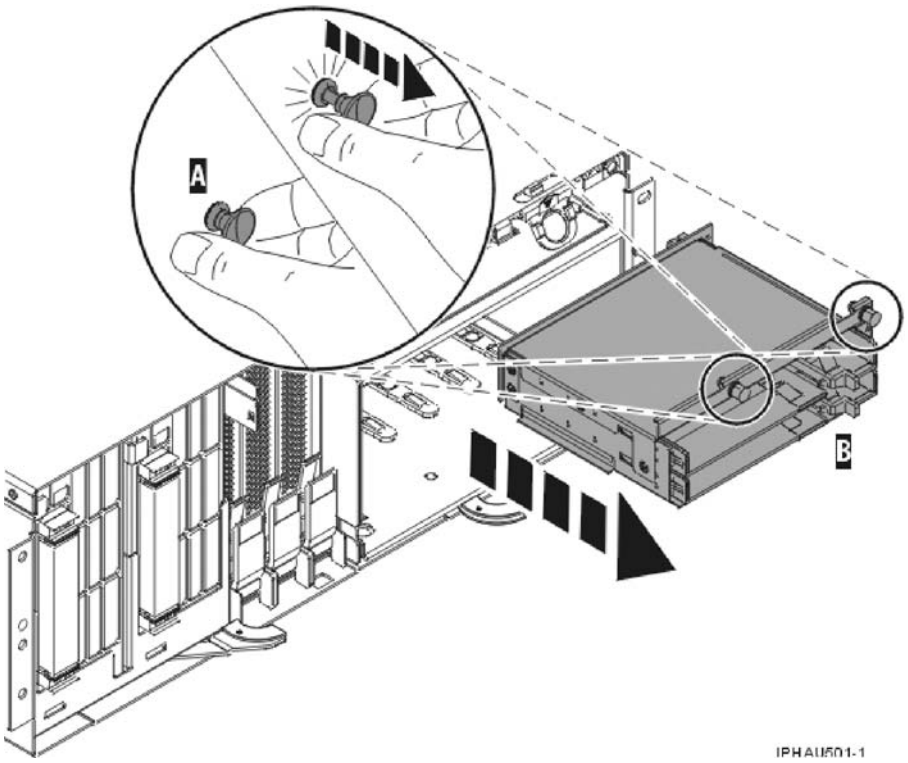


Figure 598. Removing the media backplane assembly

Install the media backplane assembly

1. Pivot the CEC enclosure fan orange pull rings up out of the way.
2. Align the media backplane assembly with the disk drive backplane assembly opening.
3. Gently slide the media tray into place, and then push the two orange locking knobs into the locked position.
4. While pushing the blue plastic retaining tab to the right, push the DVD-RAM drive and filler panel in fully.
5. At the rear of the CEC enclosure, connect the black power input cables to both CEC enclosure power supplies.
6. Ensure the CEC enclosure is in power standby mode before continuing. At the CEC enclosure control panel, wait for the green Power Present Icon beneath the white Power button to slow blink, and then continue the repair.

Exchange the memory DIMM

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the memory DIMM

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. Ensure the CEC enclosure is in standby power mode before continuing. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, go to the next step.
   - If it is on solid, the CEC enclosure is fully powered on. DO NOT CONTINUE. Ensure you have used proper procedures to replace the FRU.
3. Remove all power from the CEC enclosure. At the rear of the CEC enclosure, disconnect the black power input cables to both CEC enclosure power supplies. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, the CEC enclosure is still in standby power. DO NOT CONTINUE. Ensure you have unplugged the power cables.
   - If it is off, go to the next step.
4. At the front of the CEC enclosure, remove the control panel by pressing the locking tabs located on either side of the panel **(A)**, grasping the edges of the panel, and pulling it out of its bays **(B)**.

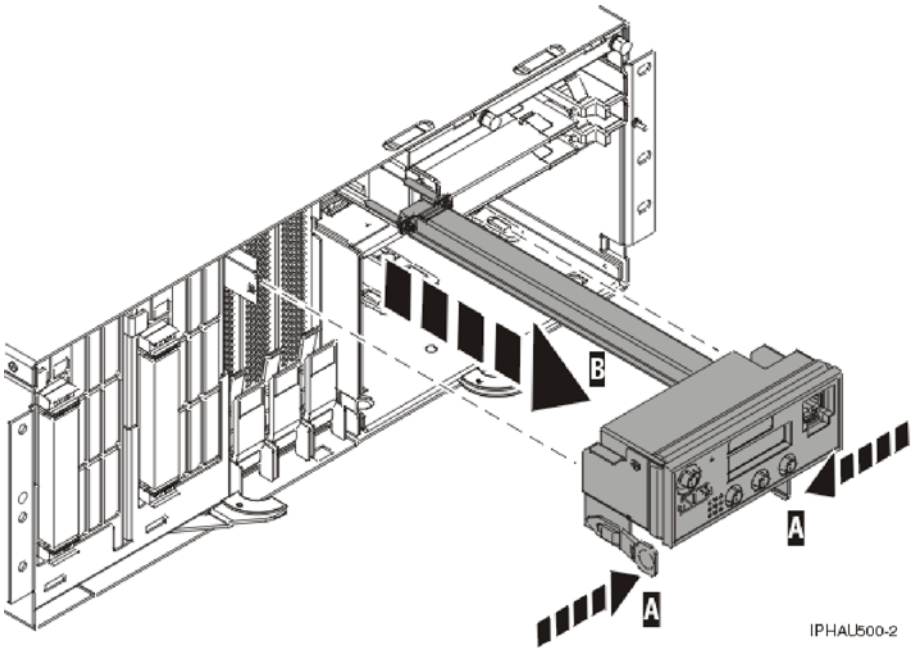


Figure 599. Removing the CEC enclosure control panel

5. Remove all the system processor voltage cards, do the following:
   a. Squeeze the top of the latch to release it.

b. Rotate the latch out and then down.
c. Grasp the pull ring and slowly pull the system processor voltage card out of the enclosure.

Attention: Pulling the system processor voltage card out of the card enclosure requires a large amount of force. The system processor voltage card is of substantial weight, so grasp it firmly when it is free of the card enclosure.

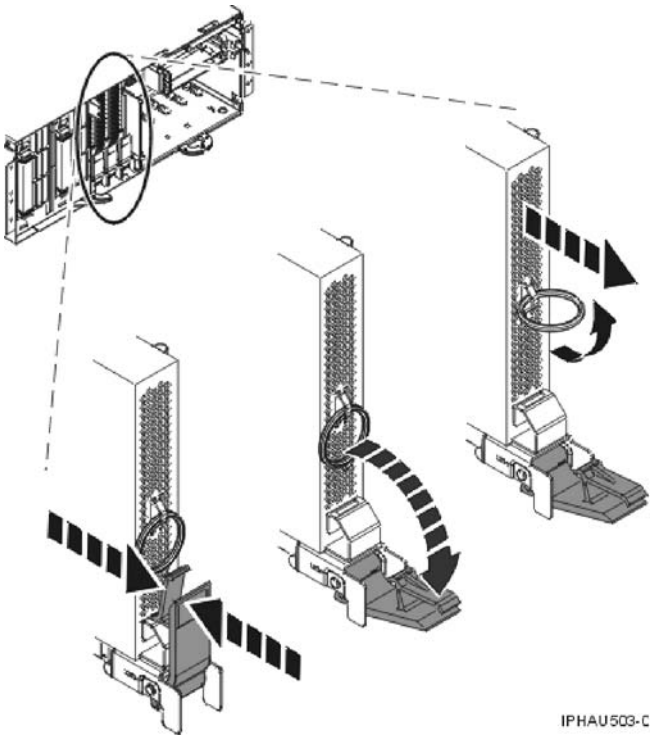


Figure 600. Removing the system processor voltage cards

6. Unlock the system processor backplane assembly **(A)** then pull it out of the CEC enclosure **(B)**.

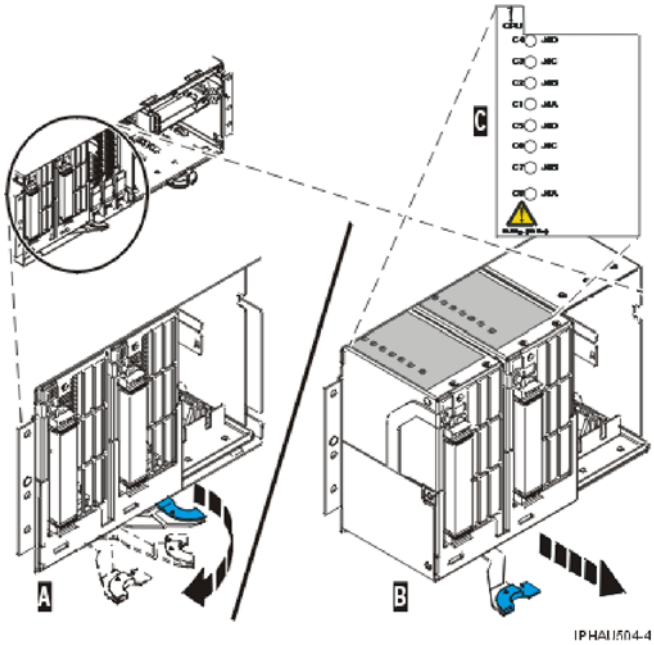


Figure 601. Removing the system processor backplane assembly

7. Place the system backplane assembly on an acceptable electrostatic discharge (ESD) surface.
8. If you are removing the processor backplane because of a system failure, look at the LEDs **(C)** located on the top of the processor card assembly to identify the failing processor location. If you used the service action log, Advanced System Management Interface (ASMI), or HMC to activate the identify function prior to removing the processor backplane, the LEDs located on the top can be illuminated to identify the failing processor card. To illuminate the location LED for the failing processor, press the LED actuator button **(A)** located on the right side of the assembly as shown in the following figure.

   Attention: The actuator button must be used soon after the system backplane assembly is removed from the system. The assembly retains the energy to light the LEDs only for a short period of time after the assembly is disconnected from the system power source.

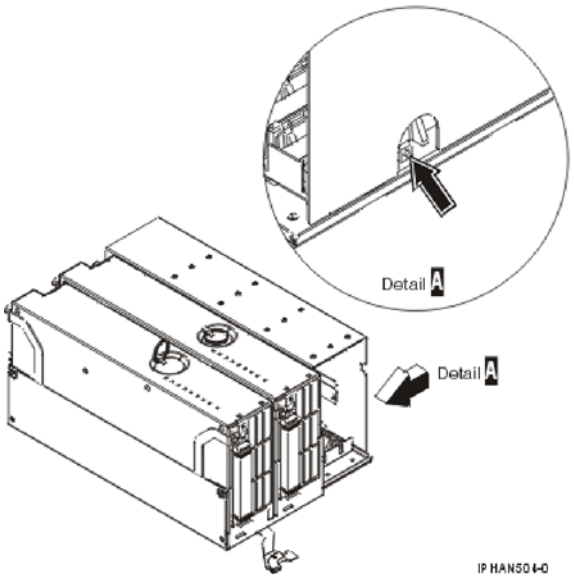


Figure 602. LED actuator button

9. Pull the locking knobs out to the unlocked position **(A)**. Unlock the **(B)**, and then lift it out of the processor backplane assembly **(C)**.

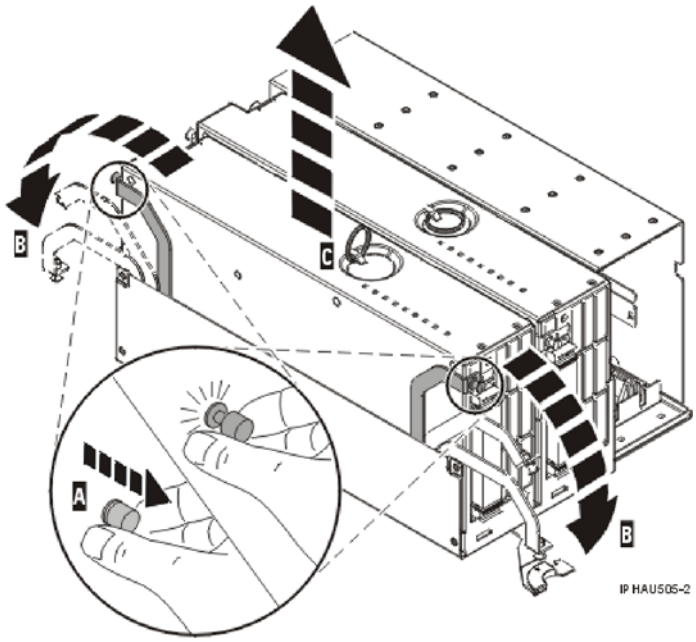


Figure 603. Removing the processor backplane assembly

10. Loosen the two retaining knobs on the processor card assembly, then lift the cover off of the assembly.

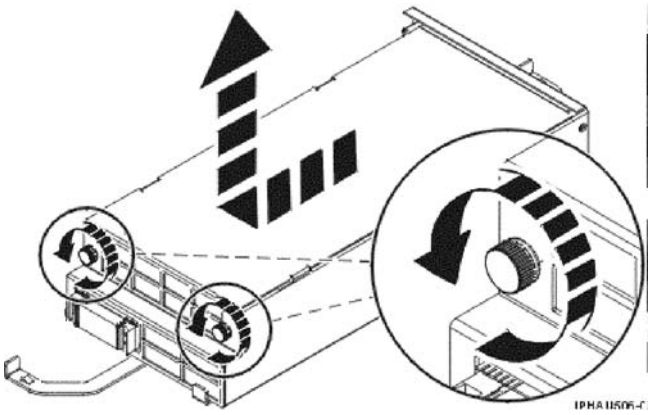


Figure 604. Removing the cover of the assembly

11. Remove the memory DIMMs.

    Note: There may be a thin mylar sheet to protect the top of memory DIMMs from the sheet metal cover removed in the prior step. If present, remove it.

    a. Unlock the memory DIMM by pushing the connector tabs out and then down **(A)**. The tabs' lever action forces the memory DIMM out of the connector.

       Attention: To prevent damage to the memory DIMM and the memory DIMM connectors, open or close both of the memory DIMM connector locking tabs at the same time.

    b. Lift the memory DIMM out of the connector **(B)**.

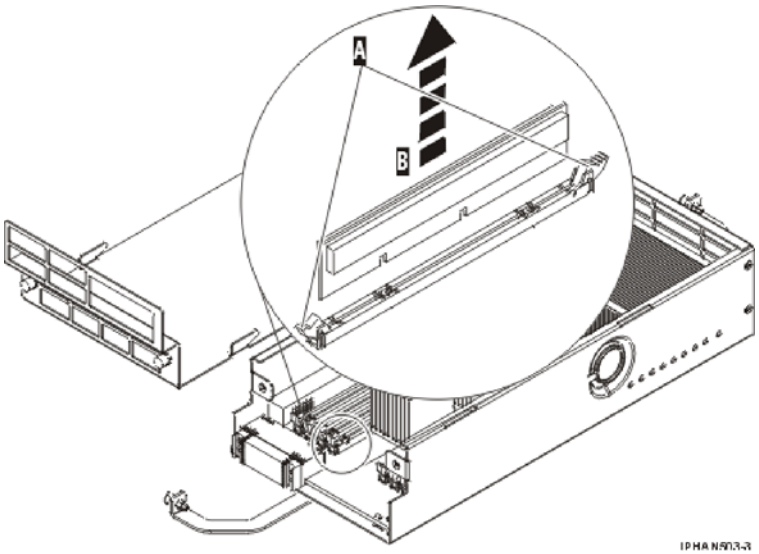


Figure 605. Removing the memory DIMM

Install the memory DIMM

1. Install the memory DIMMs.
   a. Ensure that the memory DIMM connector locking tabs are pushed out into the unlocked position.

b. Carefully grasp the memory DIMM along two edges and align it with the connector.
c. Insert the memory DIMMs firmly into the connectors.
d. Secure the memory DIMMs with the locking tabs located at each end of the DIMM connectors.
e. If the thin mylar sheet above the DIMMs was removed, install it now.

2. Place the cover on the processor card assembly, and then tighten the two retention knobs.
3. Place the processor card assembly into the processor tray, and then lock it into place with the locking arms.
4. Carefully slide the processor backplane assembly into the processor enclosure. Press it into place, and then lock it with the locking arm.
5. Replace the system processor voltage card by doing the following.
   a. Ensure that the system processor voltage card latch is rotated out to the unlocked position.
   b. Carefully grasp the system processor voltage card and slide it into the enclosure.
   c. When the system processor voltage card is almost all the way into the card enclosure, rotate the latch up into the locked position.
6. Carefully slide the control panel into the control panel bay until you feel the locking tabs lock in place.
7. At the rear of the CEC enclosure, connect the black power input cable to both CEC enclosure power supplies.
8. Ensure the CEC enclosure is in power standby mode before continuing. At the CEC enclosure control panel, wait for the green Power Present Icon beneath the white Power button to slow blink, and then continue the repair.

Exchange the NVC card


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the NVC card

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. At the rear of the CEC enclosure, the NVC card FRU is pre-installed in a PCI cassette.
3. Remove the PCI cassette:

a. At the rear of the CEC enclosure, slide the lift tab **(A)** vertically to release it, and then lift and hold the PCI adapter EMC shield **(A)** in the open position.

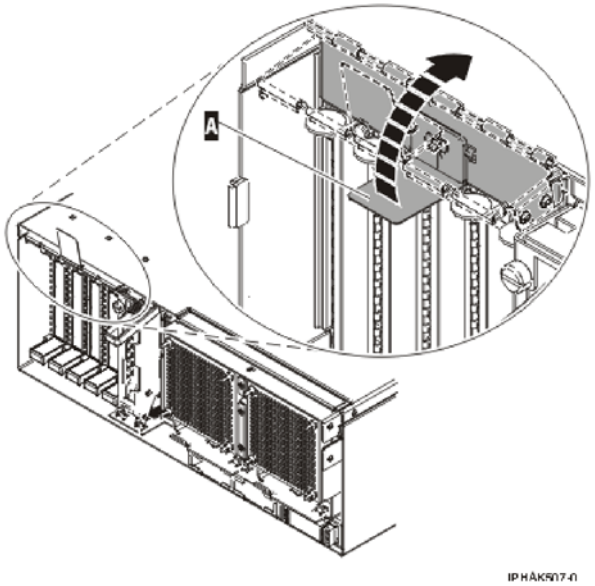
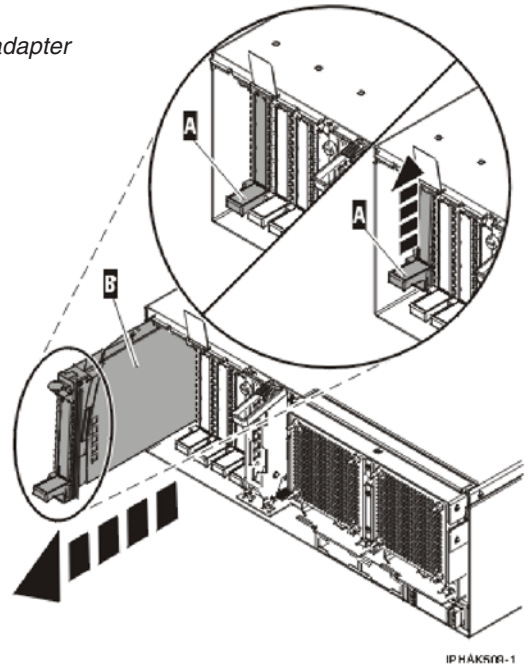


Figure 606. Lift the EMC shield

b. Lift up the lower cassette handle **(A)** as shown in the following figure. Pull the PCI cassette **(B)** out of the system.

Figure 607. Removing the PCI adapter



Install the NVC card

At the rear of the CEC enclosure, install the PCI cassette.

1. Ensure the lower cassette handle of the FRU is pressed up toward the retainer clip. This places the adapter in the correct position to be docked in the system.
2. Lift and hold the PCI adapter EMC shield in the open position.
3. Slide the cassette into the cassette slot as shown in the following figure.

4. When the cassette is fully inserted into the system, firmly press downward on the lower cassette handle to lock the adapter in its connector.
5. Lower the PCI adapter EMC shield into the closed position and then slide the lift tab down to secure it.

Exchange the RIO cable


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure that you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Exit this procedure and go to “MAP4E10 RIO cable parts exchange without a serviceable event” on page 741.

Exchange the service processor card or time of day battery


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the service processor card or battery

1. Was this screen displayed after selecting a serviceable event repair option or an Exchange Parts menu option?
   - Yes, go to the next step.
   - STOP! Customer disruption, hardware damage, incorrect firmware and VPD settings may occur if microcode and power boundaries are not in the proper conditions for this service action. Use one of the above options to replace this part.
2. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
3. Ensure the CEC enclosure is in standby power mode before continuing. At the rear of the storage facility, view both CEC enclosure power supplies.

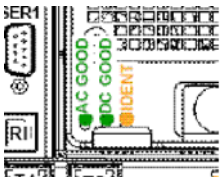


Figure 608. CEC enclosure DC good LEDs

Are both DC GOOD LEDs blinking?

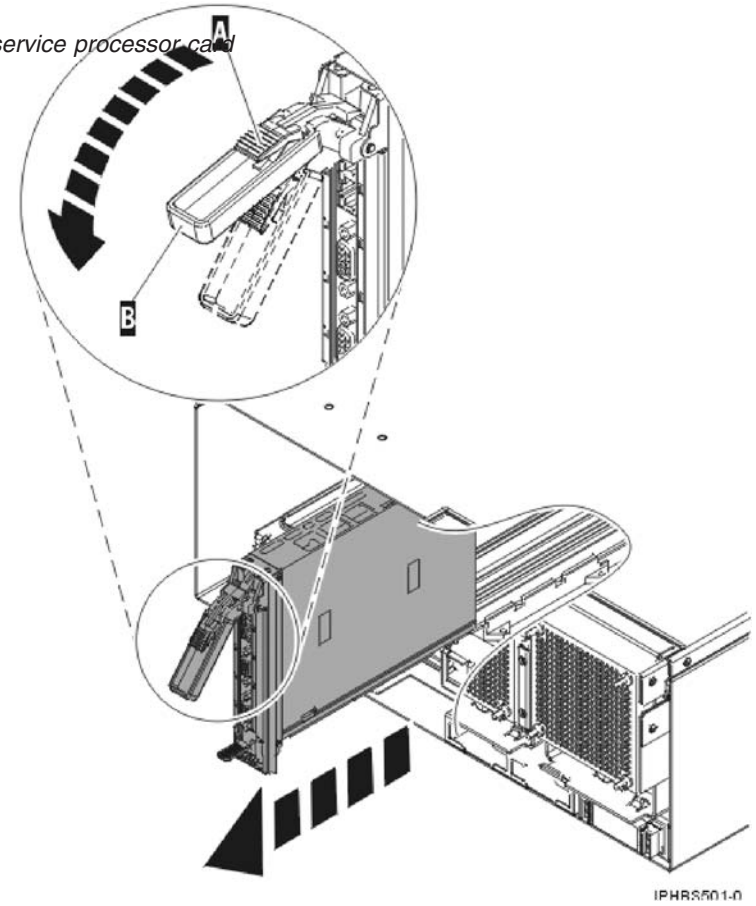
- Yes, continue with the next step.
- No, do not continue with this FRU replacement. Go to "MAP4840 SF system fails to power off during service processor card repair" on page 709 to fix the problem with the CEC enclosure not being in standby power mode.

4. Remove all power from the CEC enclosure. At the rear of the CEC enclosure, disconnect the black power input cables to both CEC enclosure power supplies. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, the CEC enclosure is still in standby power. DO NOT CONTINUE. Ensure you have unplugged the power cables.
   - If it is off, go to the next step.
5. Disconnect the cables from the service processor card.
6. Remove the service processor card.
   a. Press the thumb release **A** on the service processor card handle **B** and rotate the handle down to disengage the service processor card from the card slot.

      Note: Early hardware requires considerable downward force to unseat the card.

   b. Locate the T4 SPCN 1 connector on the service processor card. Directly to the right of it is the R1 (T3) cable. Unplug that cable so it will not block the removal of the service processor card.
   c. After the service processor assembly is disengaged from the card slot, use the handle to pull the service processor card from the enclosure.

Figure 609. Removing the service processor card



7. If replacing the battery, do the following:
   a. Locate the battery on the service processor assembly.
   b. Remove the time-of-day battery **A** from the service processor assembly as shown in Figure 610 on page 1130.

      CAUTION:
      The battery contains lithium. To avoid possible explosion, do not burn or charge the battery.

      Do not:

      - **Throw or immerse into water**
      - **Heat to more than 100 degrees C (212 degrees F)**
      - **Repair or disassemble**

      Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C003)

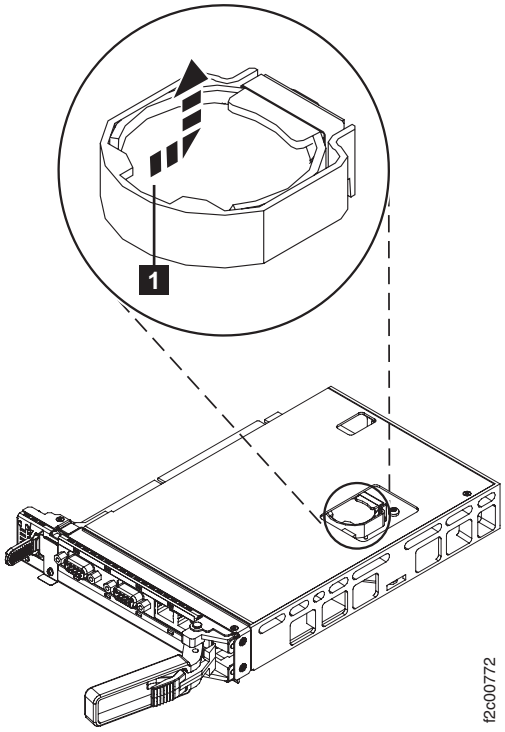


Figure 610. Removing the time-of-day battery

c. Before replacing the battery, ensure that the positive (+) side of the battery is facing up.
d. Insert the battery into its mount.
e. Go to step 2 below.

Install the service processor card or battery

1. Does the service processor FRU shipping container have an unbroken seal?
   - Yes, go to step 3 on page 1131.
   - No, the service processor must be reset to factory default before continuing. Go to step 2.
2. The broken seal on the FRU shipping container means this FRU might have already been installed in a CEC enclosure. If that occurred, the Ethernet connection port to the HMC might have already had a private network TCP/IP address assigned by the prior HMC. To ensure that the FRU can successfully connect to the HMC in this storage facility, the FRU must first be reset to factory defaults.

   Reset the service processor card. Do not remove the time of day battery. Move both service processor switches **A** from their current position to the opposite position. Leave the switches in the new position and go to step 3 on page 1131.

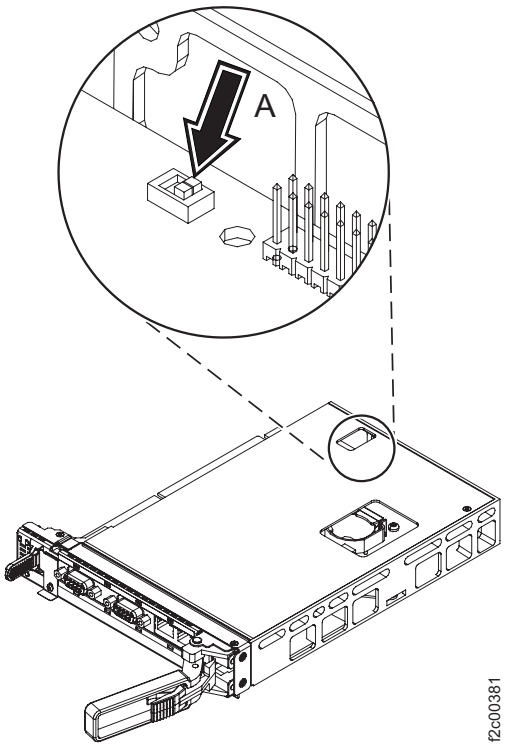


Figure 611. Installing the service processor card

3. Replace the service processor card.
   a. Ensure the service processor card handle is rotated to the down position.
   b. Slide the service processor assembly all the way into the card slot in the system enclosure.
   c. Press the thumb release on the service processor card handle and rotate the handle up to lock the service processor card into position.
4. Reconnect the cables to the service processor card.
5. Reconnect the R1 (T3) cable to the right of the service processor card.
6. At the rear of the CEC enclosure, connect the black power input cables to both CEC enclosure power supplies.
7. Ensure the CEC enclosure is in power standby mode before continuing. At the CEC enclosure control panel, wait for the green Power Present Icon beneath the white Power button to slow blink.
8. Go to "MAP4065 Restoring VPD after replacing the service processor card" on page 662 to update the service processor card settings using the ASM Interface.

   Note: If an exception screen pops up immediately after clicking the "Next" button, the cause might be:
   - the cables were not reconnected.
   - the FRU is failing.
   - the service processor card reset was not performed as required above.

Exchange the system processor backplane assembly


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the system processor backplane assembly

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. Ensure the CEC enclosure is in standby power mode before continuing. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, go to the next step.
   - If it is on solid, the CEC enclosure is fully powered on. DO NOT CONTINUE. Ensure you have used proper procedures to replace the FRU.
3. Remove all power from the CEC enclosure. At the rear of the CEC enclosure, disconnect the black power input cables to both CEC enclosure power supplies. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, the CEC enclosure is still in standby power. DO NOT CONTINUE. Ensure you have unplugged the power cables.
   - If it is off, go to the next step.
4. At the front of the CEC enclosure, remove the control panel by pressing the locking tabs located on either side of the panel **(A)**, grasping the edges of the panel, and pulling it out of its bays **(B)**.

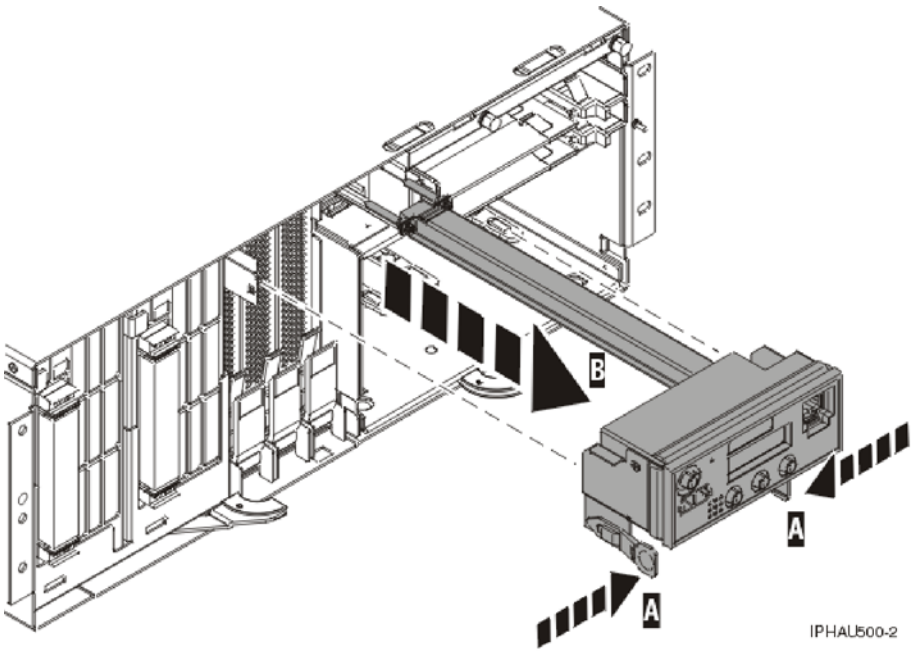


Figure 612. Removing the CEC enclosure control panel

5. Remove all the system processor voltage cards, do the following:
   a. Squeeze the top of the latch to release it.
   b. Rotate the latch out and then down.
   c. Grasp the pull ring and slowly pull the system processor voltage card out of the enclosure.

   Attention: Pulling the system processor voltage card out of the card enclosure requires a large amount of force. The system processor voltage card is of substantial weight, so grasp it firmly when it is free of the card enclosure.

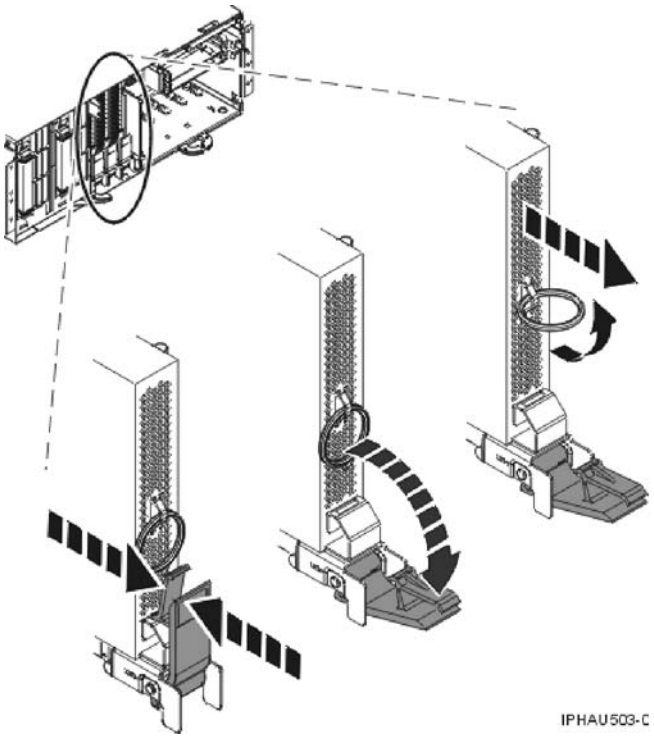


Figure 613. Removing the system processor voltage card

6. Unlock the system processor backplane assembly **(A)**, and then pull it out of the CEC enclosure **(B)**.

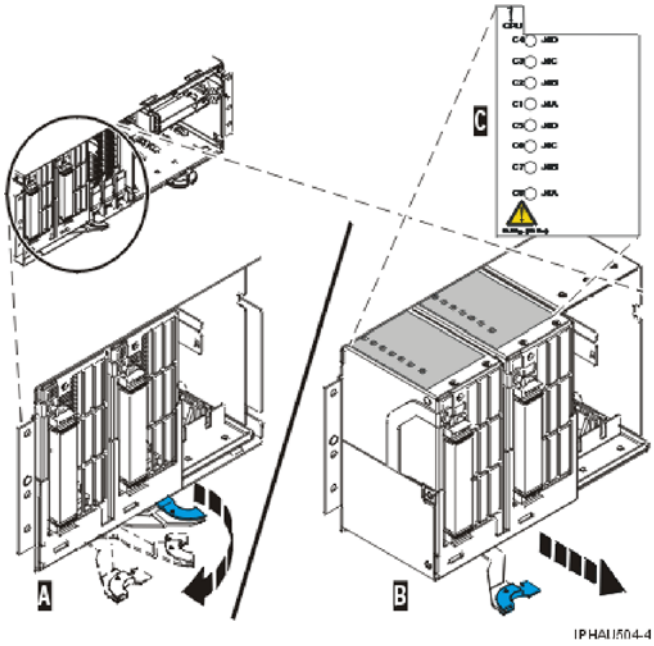


Figure 614. Removing the system processor backplane assembly

7. Pull the locking knobs out to the unlocked position **(A)**. Unlock the processor card assembly **(B)**, and then lift it out of the processor backplane assembly **(C)**.

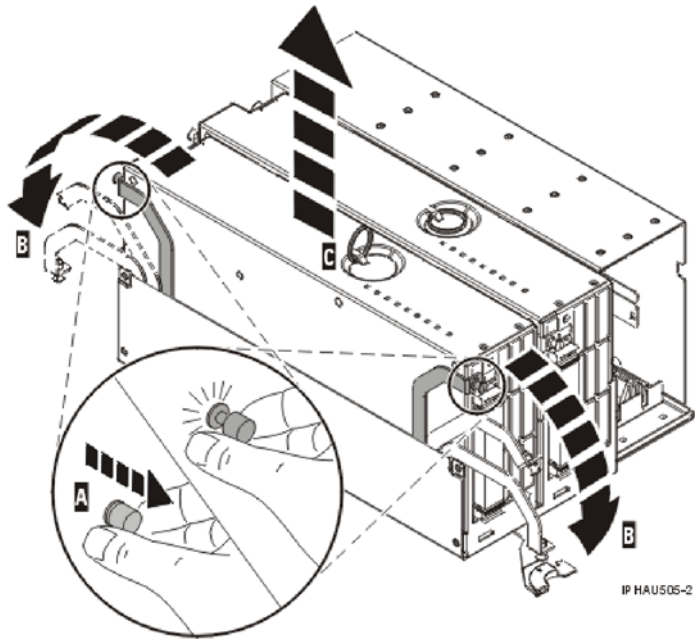


Figure 615. Unlocking the processor card assembly

Install the system processor backplane assembly

1. Place the processor card assembly into the processor tray, and then lock it into place with the locking arms.
2. Carefully slide the processor backplane assembly into the processor enclosure. Press it into place, and then lock it with the locking arm.
3. Replace the system processor voltage cards by doing the following:
   a. Ensure that the system processor voltage cards latch is rotated out to the unlocked position.
   b. Carefully grasp the system processor voltage cards and slide it into the enclosure.
   c. When the system processor voltage cards is almost all the way into the card enclosure, rotate the latch up into the locked position
4. Carefully slide the control panel into the control panel bay until you feel the locking tabs lock in place.
5. At the rear of the CEC enclosure, connect the black power input cables to both CEC enclosure power supplies.
6. Ensure the CEC enclosure is in power standby mode before continuing. At the CEC enclosure control panel, wait for the green Power Present Icon beneath the white Power button to slow blink, and then continue the repair.

Exchange the system processor card

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are

not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the system processor card

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. Ensure the CEC enclosure is in standby power mode before continuing. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, go to the next step.
   - If it is on solid, the CEC enclosure is fully powered on. DO NOT CONTINUE. Ensure you have used proper procedures to replace the FRU.
3. Remove all power from the CEC enclosure. At the rear of the CEC enclosure, disconnect the black power input cables to both CEC enclosure power supplies. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, the CEC enclosure is still in standby power. DO NOT CONTINUE. Ensure you have unplugged the power cables.
   - If it is off, go to the next step.
4. At the front of the CEC enclosure, remove the control panel by pressing the locking tabs located on either side of the panel **(A)**, grasping the edges of the panel, and pulling it out of its bays **(B)**.

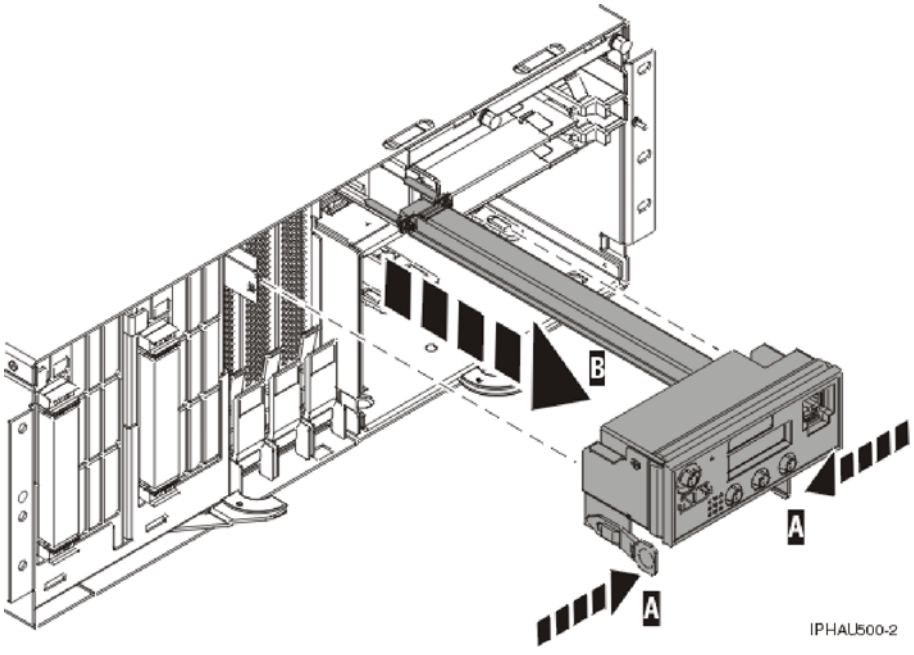


Figure 616. Removing the CEC enclosure control panel

5. Remove all the system processor voltage cards, do the following:
   a. Squeeze the top of the latch to release it.
   b. Rotate the latch out and then down.
   c. Grasp the pull ring and slowly pull the system processor voltage card out of the enclosure.

   Attention: Pulling the system processor voltage card out of the card enclosure requires a large amount of force. The system processor voltage card is of substantial weight, so grasp it firmly when it is free of the card enclosure.

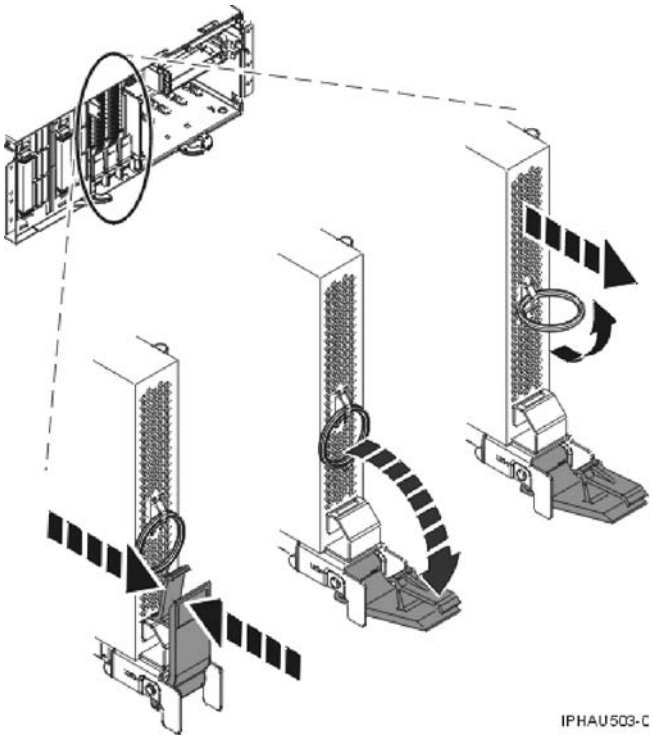


Figure 617. Removing the system processor voltage card

6. Unlock the system processor backplane assembly **(A)**, and then pull it out of the CEC enclosure **(B)**.

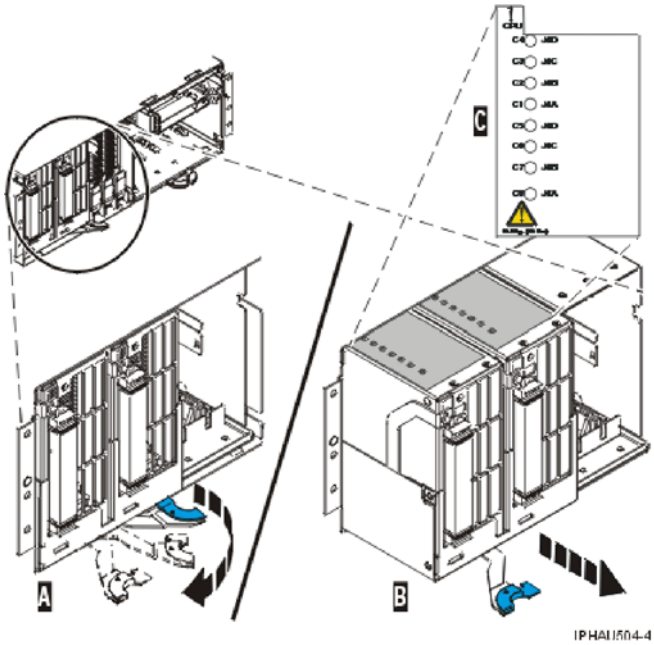


Figure 618. Unlocking the system processor backplane assembly

7. Place the system backplane assembly on an acceptable electrostatic discharge (ESD) surface.
8. If you are removing the processor backplane because of a system failure, look at the LEDs **(C)** located on the top of the processor card assembly to identify the failing processor location. If you used the service action log, Advanced System Management Interface (ASMI), or HMC to activate the identify function prior to removing the processor backplane, the LEDs located on the top can be illuminated to identify the failing processor card. To illuminate the location LED for the failing processor, press the LED actuator button **(A)** located on the right side of the assembly as shown in the following figure.

   Attention: The actuator button must be used soon after the system backplane assembly is removed from the system. The assembly retains the energy to light the LEDs only for a short period of time after the assembly is disconnected from the system power source.

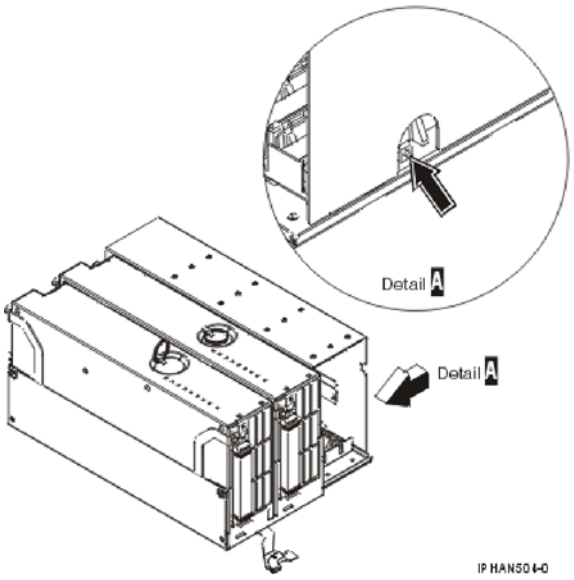


Figure 619. LED actuator button

9. Pull the locking knobs **(A)** out to the unlocked position. Unlock the connector **(B)**, and then lift it out of the processor backplane assembly **(C)**.

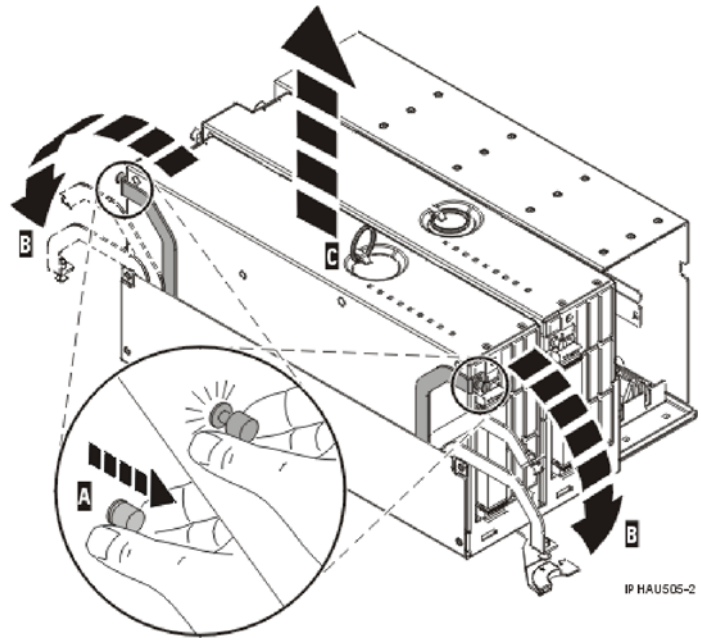


Figure 620. Removing the processor backplane assembly

10. Loosen the two retaining knobs on the processor card assembly, then lift the cover off of the assembly.

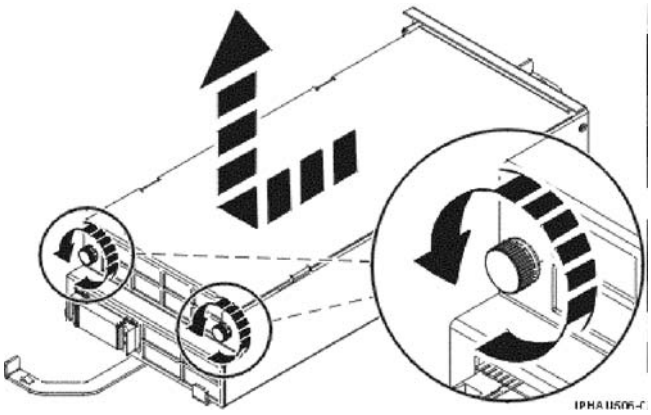


Figure 621. Retaining knobs on the processor card assembly

11. Remove the memory DIMMs to be installed on the new processor card.

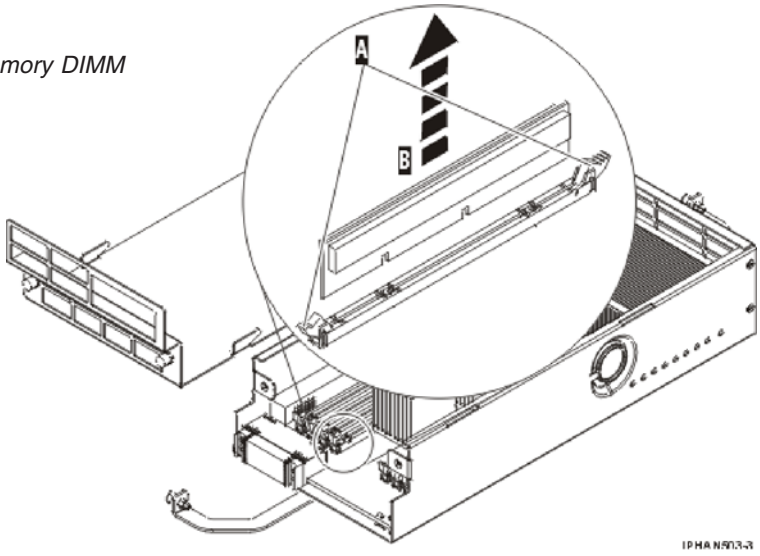
    Note: There might be a thin mylar sheet to protect the top of memory DIMMs from the sheet metal cover removed in the prior step. If present, remove it.

    a. Unlock the memory DIMM by pushing the connector tabs out and then down **(A)**. The tabs' lever action forces the memory DIMM out of the connector.

       Attention: To prevent damage to the memory DIMM and the memory DIMM connectors, open or close both of the memory DIMM connector locking tabs at the same time.

    b. Lift the memory DIMM out of the connector **(B)**.

Figure 622. Removing the memory DIMM



Install the system processor card

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

1. Install the memory DIMMs.
   a. Ensure that the memory DIMM connector locking tabs are pushed out into the unlocked position.

b. Carefully grasp the memory DIMM along two edges and align it with the connector.
c. Insert the memory DIMMs firmly into the connectors.
d. Secure the memory DIMMs with the locking tabs located at each end of the DIMM connectors.
e. If the thin mylar sheet about the DIMMs was removed, install it now.

2. Place the cover on the processor card assembly, and then tighten the two retention knobs.
3. Place the processor card assembly into the processor tray, and then lock it into place with the locking arms.
4. Carefully slide the processor backplane assembly into the CEC enclosure. Press it into place, and then lock it with the locking arm.
5. Replace the system processor voltage cards by doing the following.
   a. Ensure that the system processor voltage card latch is rotated out to the unlocked position.
   b. Carefully grasp the system processor voltage card and slide it into the enclosure.
   c. When the system processor voltage card is almost all the way into the card enclosure, rotate the latch up into the locked position.
6. Carefully slide the control panel into the control panel bay until you feel the locking tabs lock in place.
7. At the rear of the CEC enclosure, connect the black power input cable to both CEC enclosure power supplies.
8. Ensure the CEC enclosure is in power standby mode before continuing. At the CEC enclosure control panel, wait for the green Power Present Icon beneath the white Power button to slow blink, then continue the repair.

Exchange the system processor voltage card

 Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the system processor voltage card

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. Ensure the CEC enclosure is in standby power mode before continuing. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.

- If it is slow blinking, go to the next step.
- If it is on solid, the CEC enclosure is fully powered on. DO NOT CONTINUE. Ensure you have used proper procedures to replace the FRU.

3. Remove all power from the CEC enclosure. At the rear of the CEC enclosure, disconnect the black power input cables to both CEC enclosure power supplies. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, the CEC enclosure is still in standby power. DO NOT CONTINUE. Ensure you have unplugged the power cables.
   - If it is off, go to the next step.
4. At the front of the CEC enclosure, remove the control panel by pressing the locking tabs located on either side of the panel **(A)**, grasping the edges of the panel, and pulling it out of its bays **(B)**.

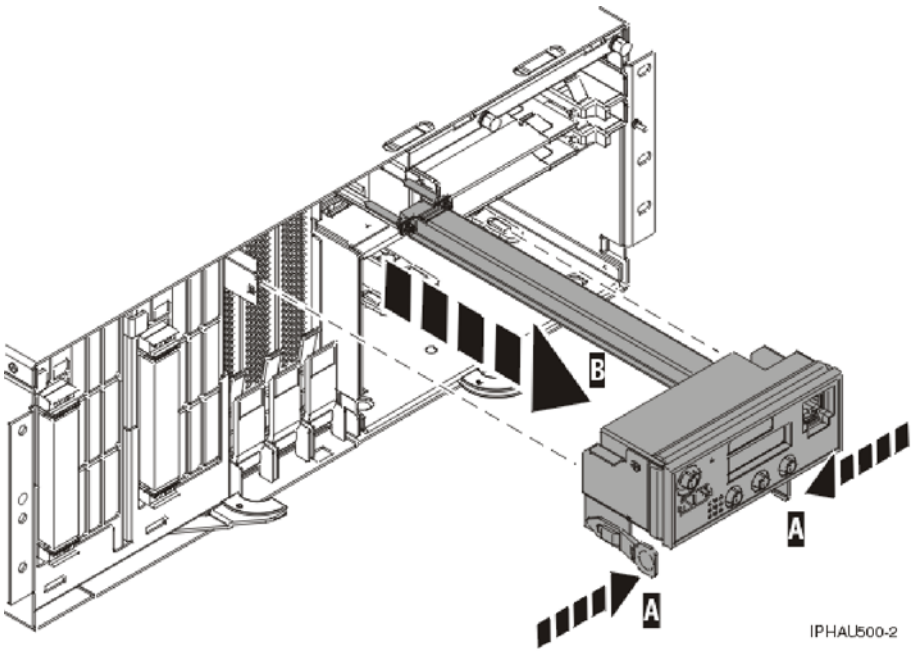


Figure 623. Remove the CEC enclosure control panel

5. Remove all the system processor voltage cards, do the following:
   a. Squeeze the top of the latch to release it.
   b. Rotate the latch out and then down.
   c. Grasp the pull ring and slowly pull the system processor voltage card out of the enclosure.

   Attention: Pulling the system processor voltage card out of the card enclosure requires a large amount of force. The system processor voltage card is of substantial weight, so grasp it firmly when it is free of the card enclosure.

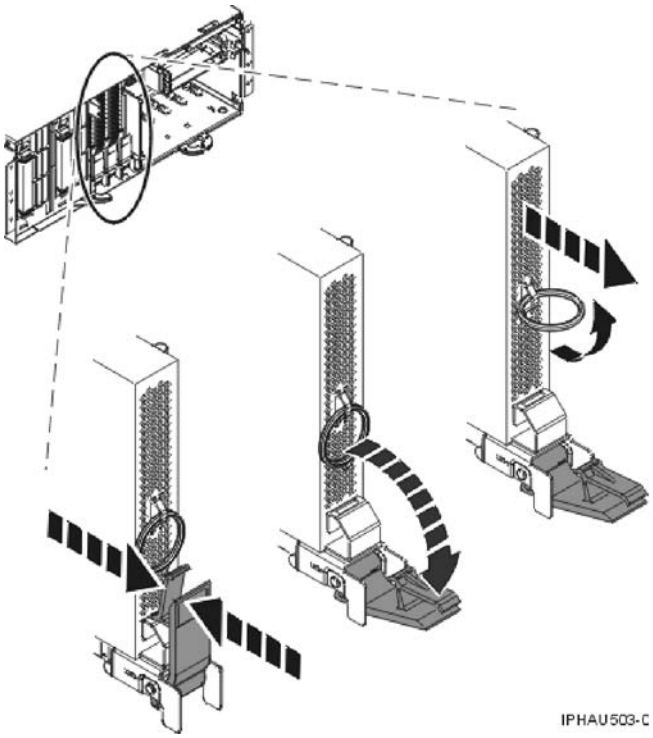


Figure 624. Removing the system processor voltage card

Install the system processor voltage card

1. Replace the system processor voltage card by doing the following.
   a. Ensure that the system processor voltage card latch is rotated out to the unlocked position.
   b. Carefully grasp the system processor voltage card and slide it into the enclosure.
   c. When the system processor voltage card is almost all the way into the card enclosure, rotate the latch up into the locked position.
2. Carefully slide the control panel into the control panel bay until you feel the locking tabs lock in place.
3. At the rear of the CEC enclosure, connect the black power input cable to both CEC enclosure power supplies.
4. Ensure the CEC enclosure is in power standby mode before continuing. At the CEC enclosure control panel, wait for the green Power Present Icon beneath the white Power button to slow blink, and then continue the repair.

Exchange the time of day battery

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are

not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the time of day battery

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. Ensure the CEC enclosure is in standby power mode before continuing. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, go to the next step.
   - If it is on solid, the CEC enclosure is fully powered on. DO NOT CONTINUE. Ensure you have used proper procedures to replace the FRU.
3. Remove all power from the CEC enclosure. At the rear of the CEC enclosure, disconnect the black power input cables to both CEC enclosure power supplies. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, the CEC enclosure is still in standby power. DO NOT CONTINUE. Ensure you have unplugged the power cables.
   - If it is off, go to the next step.
4. Disconnect the cables from the service processor card.
5. Remove the service processor card.
   a. Press the thumb release **A** on the service processor card handle **B** and rotate the handle down to disengage the service processor card from the card slot.
   b. Locate the T4 SPCN 1 connector on the service processor card. Directly to the right of it is the R1 (T3) cable. Unplug that cable so it will not block the removal of the service processor card.
   c. After the service processor assembly is disengaged from the card slot, use the handle to pull the service processor card from the enclosure.

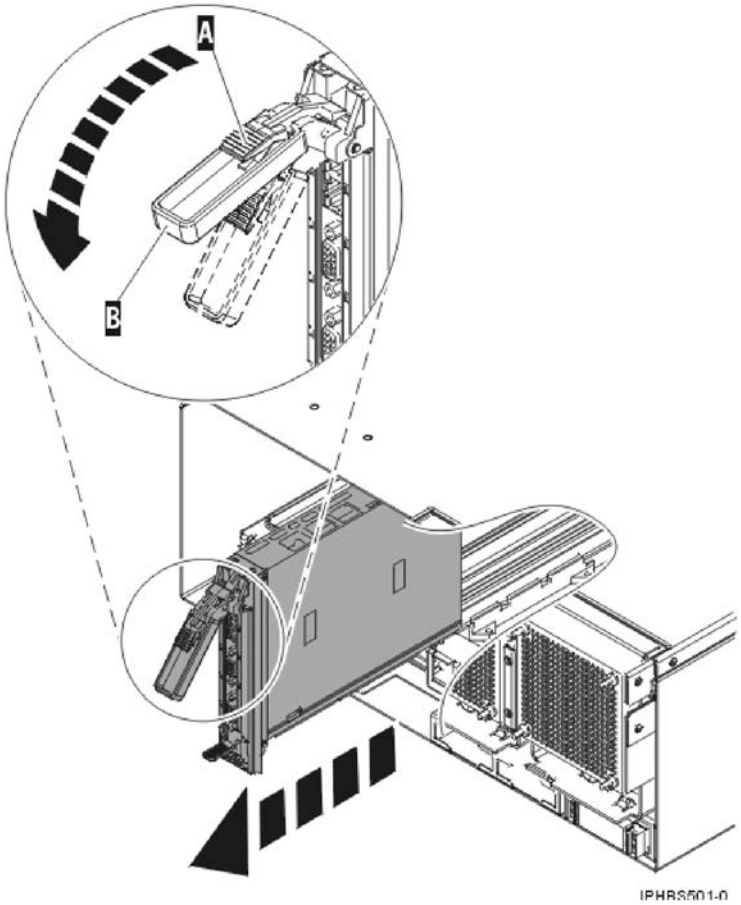


Figure 625. Removing the service processor card

6. Remove the time-of-day battery **A** from the service processor assembly as shown in the following figure.

   CAUTION:
   The battery contains lithium. To avoid possible explosion, do not burn or charge the battery.

   Do Not:

   - **Throw or immerse into water.**
   - **Throw or immerse into water.**
   - **Heat to more than 100°C (212°F).**
   - **Repair or disassemble.**

   Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations.

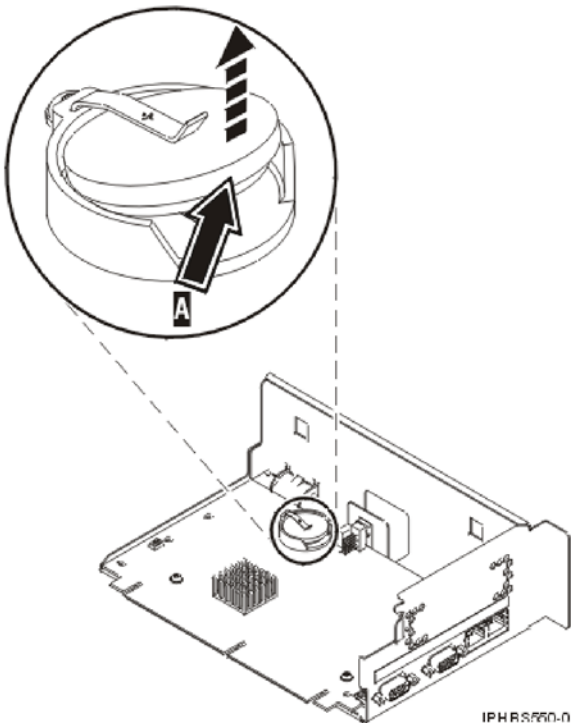


Figure 626. Removing the time of day battery

Install the time of day battery

1. Before replacing the battery, ensure that positive (+) side of the battery is facing up. Insert the battery into its mount.
2. Replace the service processor card.
   a. Ensure the service processor card handle is rotated to the down position.
   b. Slide the service processor assembly all the way into the card slot in the system enclosure.
   c. Press the thumb release on the service processor card handle and rotate the handle up to lock the service processor card into position.
3. Reconnect the cables to the service processor card.
4. Reconnect the R1 (T3) cable to the right of the service processor card.
5. At the rear of the CEC enclosure, connect the black power input cables to both CEC enclosure power supplies.
6. Ensure the CEC enclosure is in power standby mode before continuing. At the CEC enclosure control panel, wait for the green Power Present Icon beneath the white Power button to slow blink.
7. Go to "MAP4065 Restoring VPD after replacing the service processor card" on page 662 to update the service processor card settings using the ASM Interface and then return here and go to the next step.

   Note: If an exception screen pops up immediately after clicking the "Next" button, the cause might be:
   - the cables were not reconnected.
   - the FRU is failing.
   - the service processor card reset was not performed as required above.

8. Close this FRU exchange window and return to the HMC repair window to continue the repair.

Exchange the VPD card


Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the VPD card

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, see "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. Ensure the CEC enclosure is in standby power mode before continuing. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, go to the next step.
   - If it is on solid, the CEC enclosure is fully powered on. DO NOT CONTINUE. Ensure you have used proper procedures to replace the FRU.
3. Remove all power from the CEC enclosure. At the rear of the CEC enclosure, disconnect the black power input cables to both CEC enclosure power supplies. At the CEC enclosure control panel, observe the green Power Present Icon beneath the white Power button.
   - If it is slow blinking, the CEC enclosure is still in standby power. DO NOT CONTINUE. Ensure you have unplugged the power cables.
   - If it is off, go to step 4.
4. Pull out the VPD card by the blue handle.

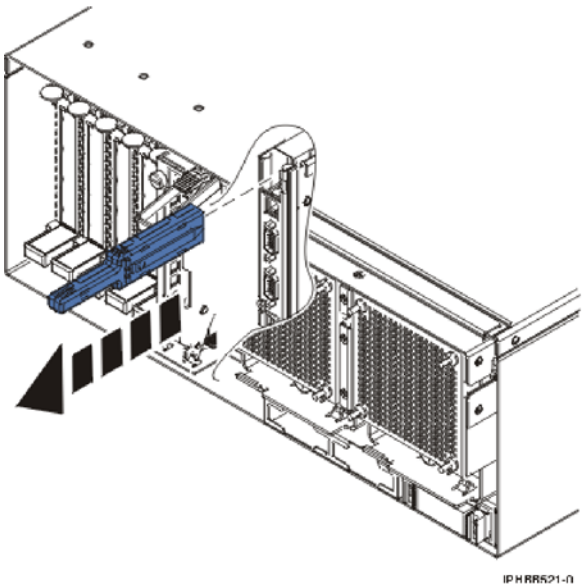


Figure 627. Removing the VPD card

Install the VPD card

1. At the rear of the CEC enclosure, insert the VPD card with the key oriented to the right and push until fully seated.
2. Connect the black power input cable to both CEC enclosure power supplies.
3. Ensure the CEC enclosure is in power standby mode before continuing. At the CEC enclosure control panel, wait for the green Power Present Icon beneath the white Power button to slow blink, and then continue the repair.
4. Go to "MAP4060 Restoring VPD after replacing the VPD card" on page 660 to update the VPD card settings using the ASM Interface.

   Note: After the VPD settings have been updated, and the CEC is powering on, you may be presented with screens prompting for Capacity on Demand (CoD) codes. The DS8000 does not use CoD. You can click **Done** to bypass this.

Chapter 37. I/O enclosure

Exchange the device adapter card


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the device adapter card

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. At the rear of the rack, label and disconnect any FC-AL cables connected to the card being removed.
3. Remove the card retention bracket above the card being removed. Push down on the blue tab, and then rotate the bracket down to remove it **(1)**. See Figure 628 on page 1150.
4. At the bottom of the card is an orange lifting tab. Lift the tab up until the card is felt to be unplugged. (ESCON card removal shown.) See Figure 628 on page 1150.
5. Slide the card assembly out **(2)**. See Figure 628 on page 1150.

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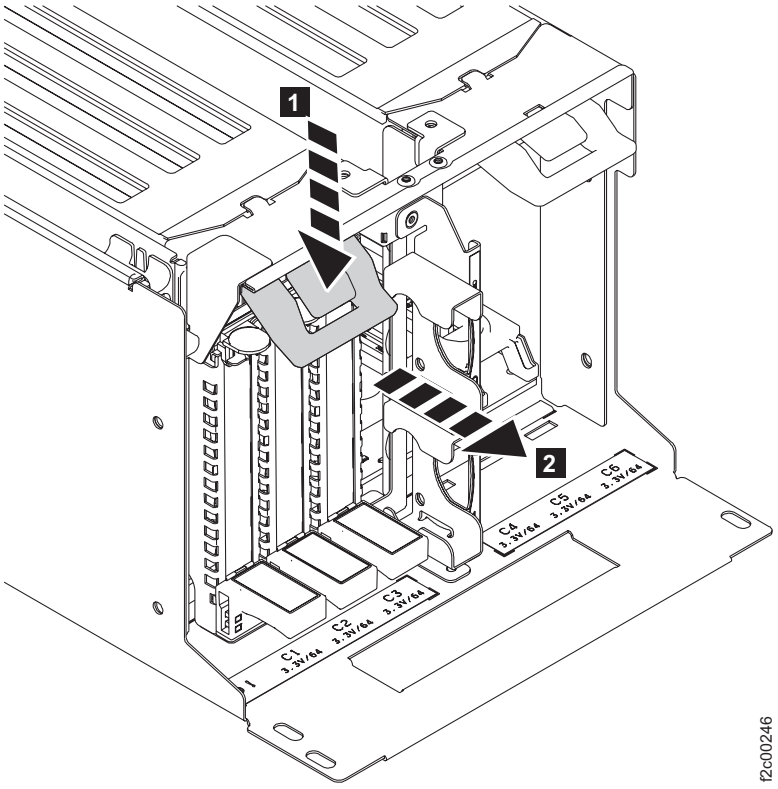


Figure 628. I/O enclosure adapter card retention bracket

Install the device adapter card

Note: This is for GA-level hardware only.

1. Place the rear of the card assembly in the I/O enclosure slot.
2. With the orange lifting tab at the bottom of the card held in the up position, slide the card assembly fully in.
3. Push the orange lifting tab down to seat the card in the PCI connector.
4. Install the card retention bracket above the card. The slot in the retention bracket must fit over the top front edge of the card holder. Then pivot the retention bracket up into the fully detented position.
   - If you are doing a normal repair, connect the FC-AL cables.
   - If you are installing the device adapter card as part of an MES, do not connect the FC-AL cables.
5. Return to the procedure that sent you here.

Exchange the ESCON host card

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are

not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the ESCON host card

Note: This is for GA level hardware only.

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. At the rear of the rack, label and disconnect any host cables connected to the card being removed.
3. Remove the card retention bracket above the card being removed. Push down on the blue tab **(1)**, and then rotate the bracket down **(2)** to remove it. See Figure 629.

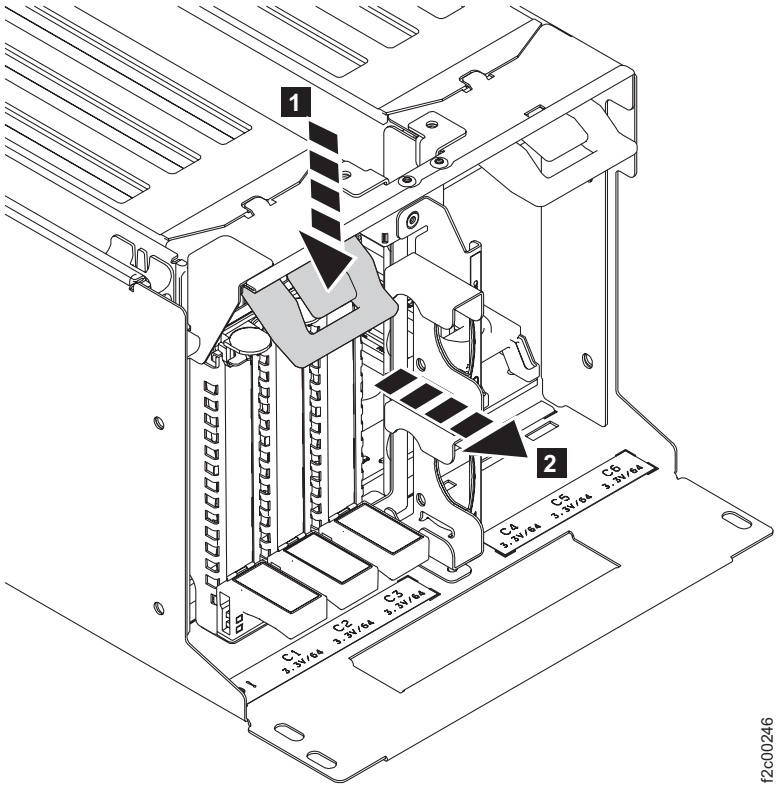


Figure 629. I/O enclosure adapter card retention bracket

4. At the bottom of the card is a black lifting tab. Lift the tab up **(1)** until the card is felt to be unplugged. See Figure 630 on page 1152.
5. Slide the card assembly out **(2)**. See Figure 630 on page 1152.

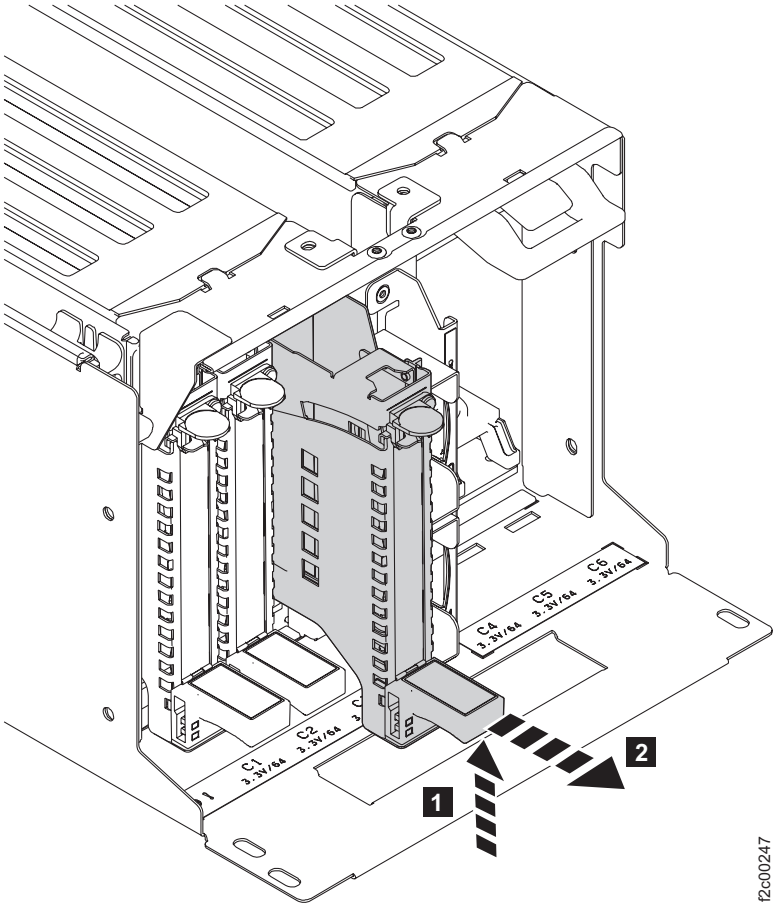


Figure 630. I/O enclosure host or device adapter card

Install the ESCON host card

Note: This is for GA level hardware only.

1. Place the rear of the card assembly in the I/O enclosure slot.
2. With the black lifting tab at the bottom of the card held in the up position, slide the card assembly fully in.
3. Push the black lifting tab down to seat the card in the PCI connector.
4. Install the card retention bracket above the card.
5. Do you plan to run the host port wrap tests?
   - Yes, do not connect the host cables. Return to the HMC screen that sent you here.
   - No, connect the customer host cables, and then return to the HMC screen that sent you here.

Exchange the fibre channel host card

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the fibre channel host card

Note: This is for GA level hardware only.

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. At the rear of the rack, label and disconnect any host cables connected to the card being removed.
3. Remove the card retention bracket above the card being removed. Push down on the blue tab **(1)**, and then rotate the bracket **(2)** down to remove it. See Figure 631.

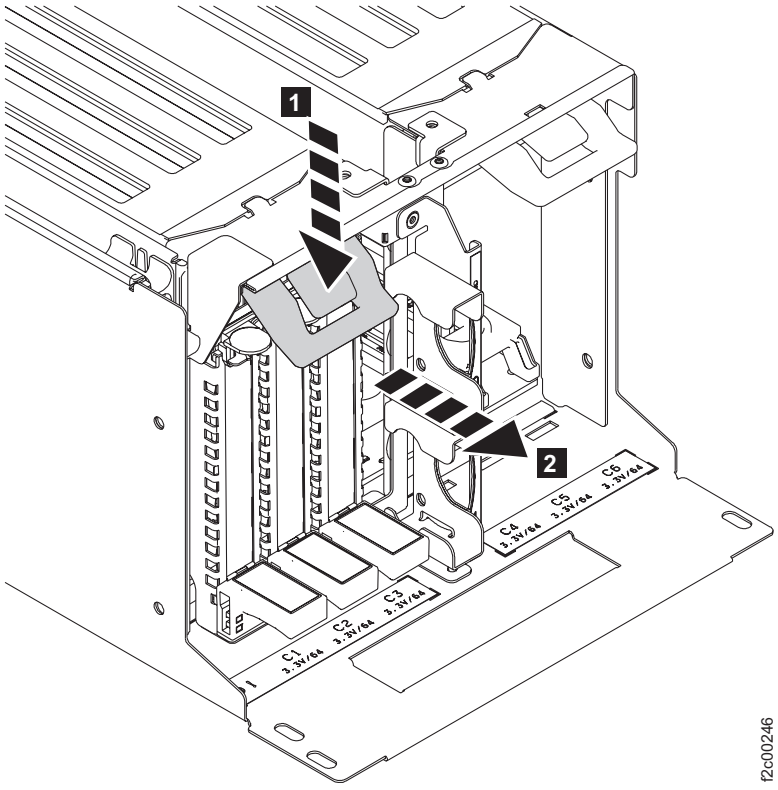


Figure 631. I/O enclosure adapter card retention bracket

4. At the bottom of the card is a black lifting tab. Lift the tab up until the card is felt to be unplugged. See Figure 632 on page 1154.
5. Slide the card assembly out. See Figure 632 on page 1154.

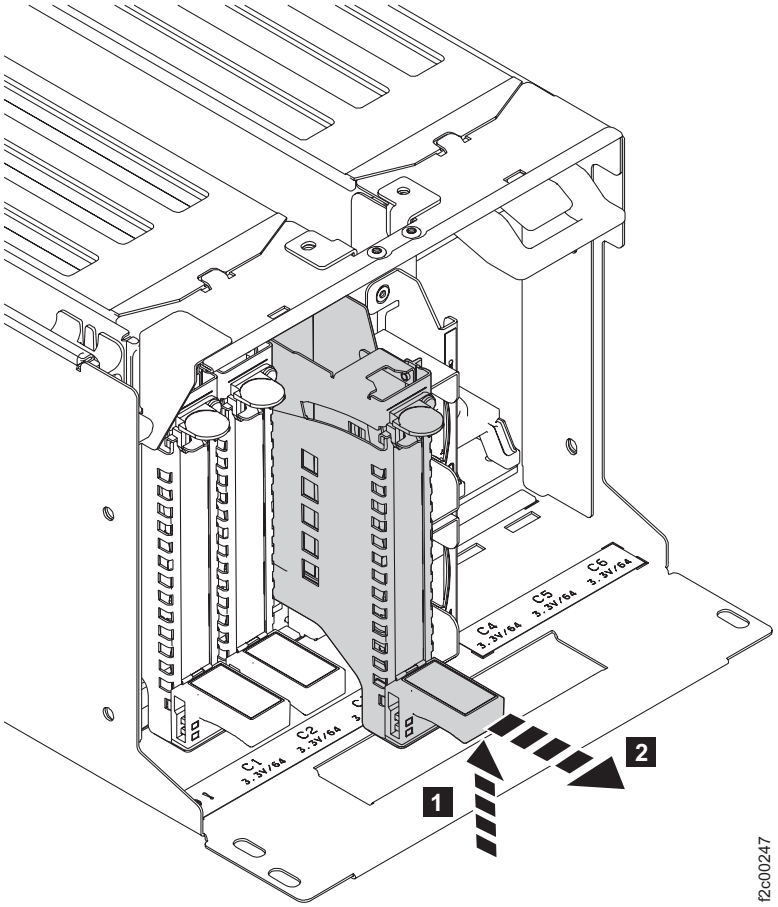


Figure 632. I/O enclosure host or device adapter card

Install the fibre channel host card

Note: This is for GA level hardware only.

1. Place the rear of the card assembly in the I/O enclosure slot.
2. With the black lifting tab at the bottom of the card held in the up position, slide the card assembly fully in.
3. Push the black lifting tab down to seat the card in the PCI connector.
4. Install the card retention bracket above the card.
5. Do you plan to run the host port wrap tests?
   - Yes, do not connect the host cables. Return to the HMC screen that sent you here.
   - No, connect the customer host cables, and then return to the HMC screen that sent you here.

Exchange the I/O enclosure backplane

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Note: The I/O enclosure must be fully removed from the rack for this procedure.

Remove the I/O enclosure backplane

Note: You need 4mm and 5mm sockets to remove hex head screws for this FRU.

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, which is listed in "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, which is listed in "MAP1245 Finding FRUs using location codes" on page 514.
2. At the front of the rack, unplug the black power cable **2** to each power supply in the I/O enclosure **1**. See Figure 633 on page 1156.
3. Remove both power supplies **1** and the fan assembly **4**. See Figure 633 on page 1156.
   a. Unlatch the power supply handle **3** and rotate the handle downward to unseat the power supply. Then pull the power supply straight out.
   b. Unscrew the orange thumbscrew above the power supplies, and then use it to pull the fan assembly straight out.

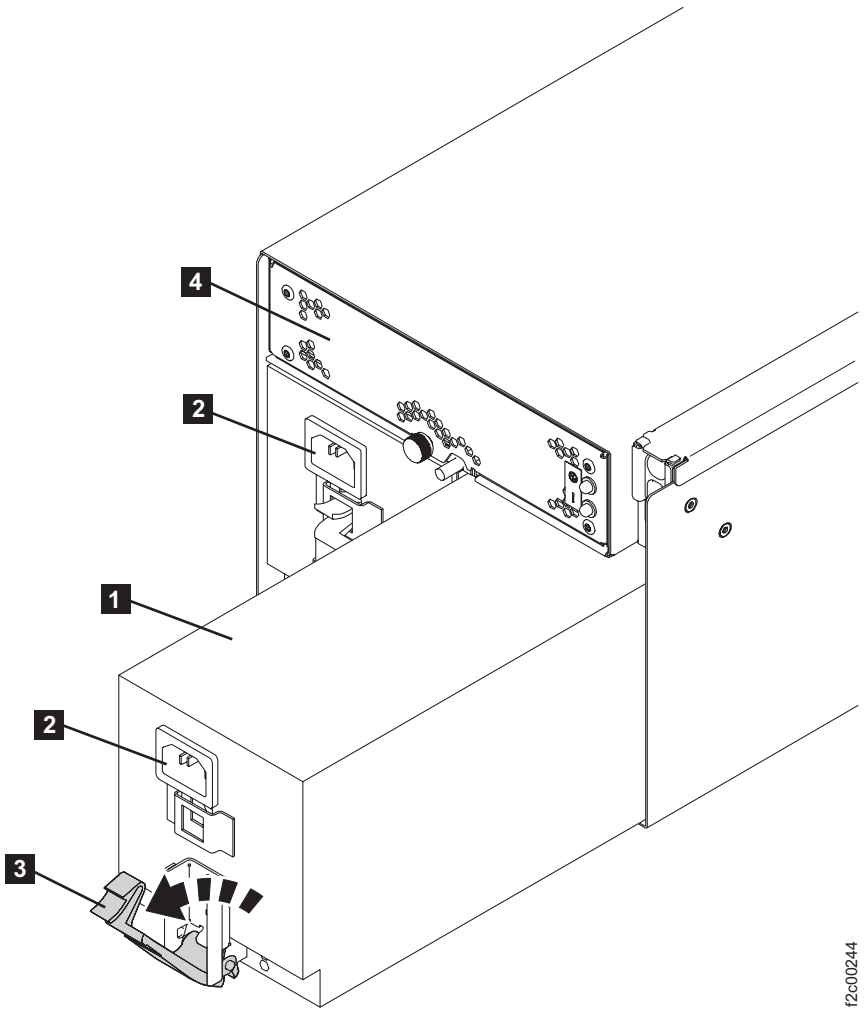


Figure 633. I/O enclosure power connections

4. At the rear of the rack, unplug all the cables (ID, SPCN, RIO, FC-AL, and customer host). Ensure that each cable is labeled so that it can be plugged back in correctly. See Figure 634 on page 1157.

   Note: To unplug the RIO cable, gently push in on the RIO cable, then gently pull the blue release handle towards you, and then pull the cable connector free of the sheet metal guide bracket.

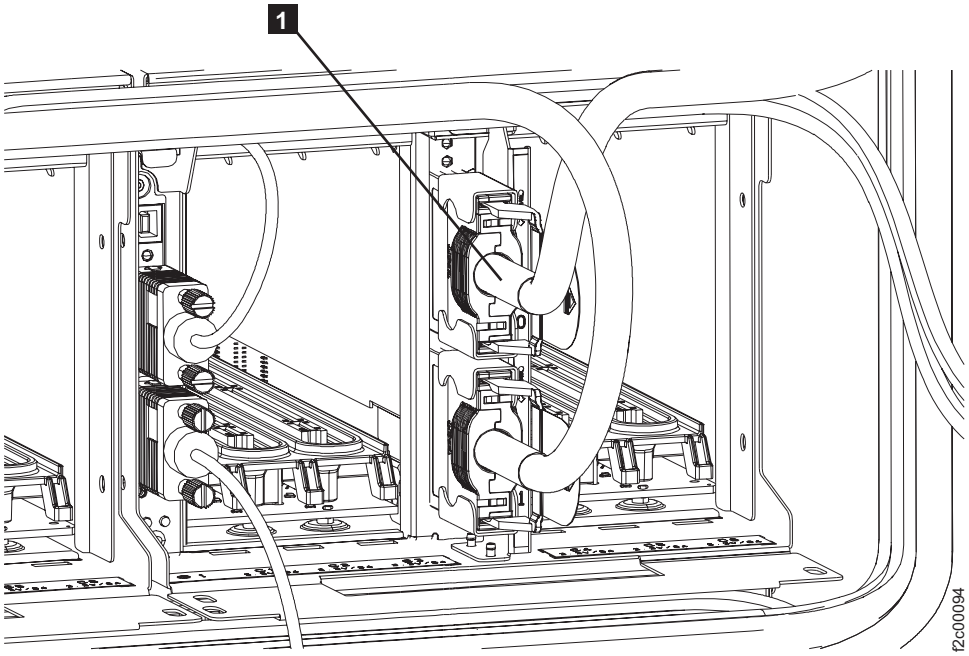


Figure 634. RIO cable connector

5. Unplug the two black power cables from the 208VDC bus bars. From the rear of the rack:
   a. Trace the power cables **1** from the upper left corner of the I/O enclosure to the 208VDC bus bars **2** . See Figure 635 on page 1158.

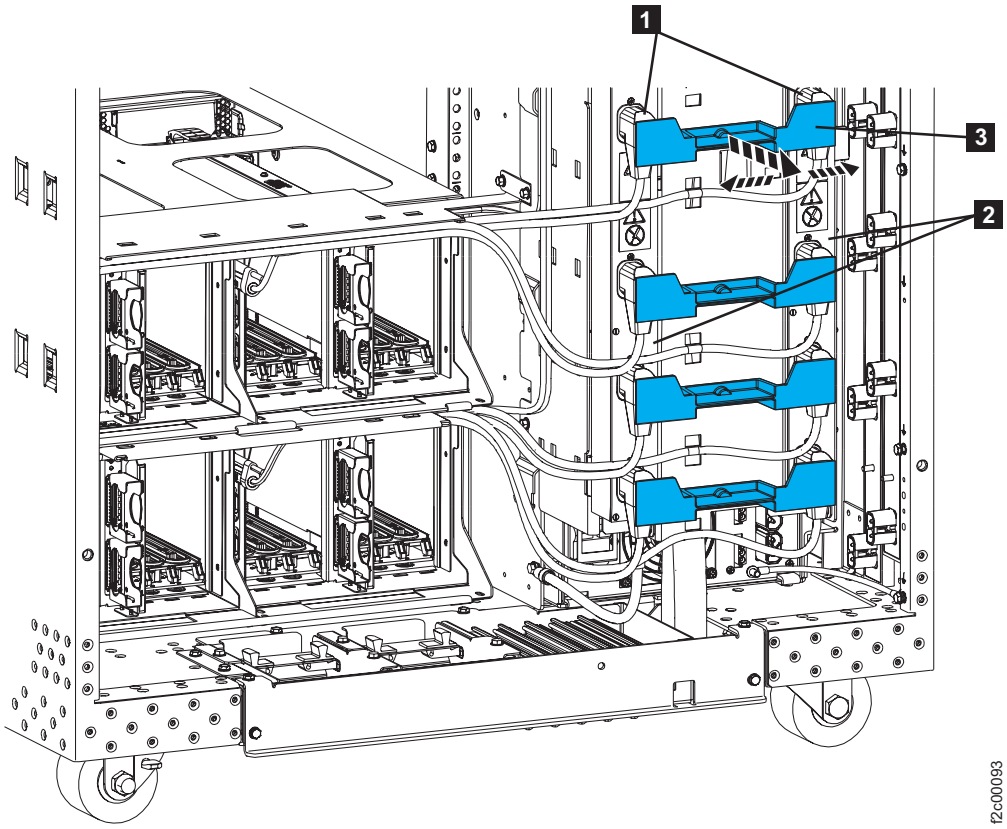


Figure 635. I/O with power cables

b. At the 5/12 V bus bar gate, gently pull out on the blue plastic cable retention bracket **1**, and then slide it sideways to remove the power cables **2** one at a time. See Figure 636 on page 1159.

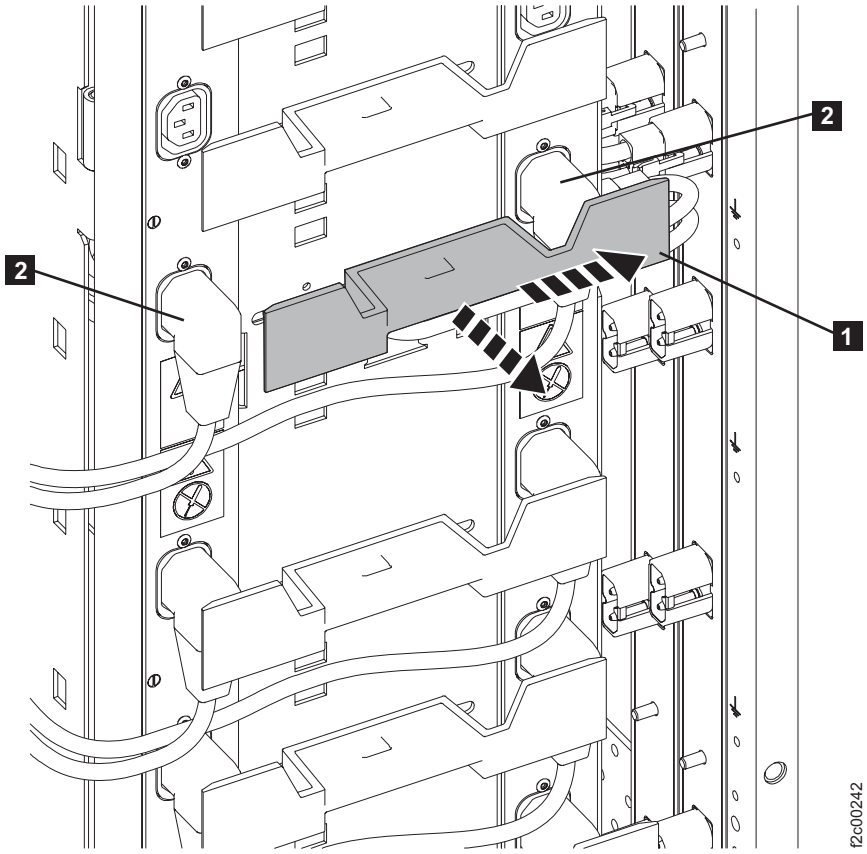


Figure 636. Bus bar, 5/12V, power cables

c. Remove any cable retention hardware to allow the cables to hang free.

6. Remove the I/O enclosure from the rack. See Figure 637 on page 1160.
   a. At the rear of the rack, remove the two hold-down screws **1** .
   b. Push the I/O enclosure **2** forward, towards the front of the rack.

      If the I/O enclosure seems to hit something as you begin to push it out, go to the front of the rack. The later levels of racks might have a bent over sheet metal tab that can catch the I/O enclosure as it begins to slide out. Grasp the I/O enclosure and move it side to side as you pull. It should move past the tab and then slide out normally.
   c. At the front of the rack, pull the I/O enclosure out the front, being careful to balance it when it is free of the rack.
   d. Place the I/O enclosure on a static-free surface.

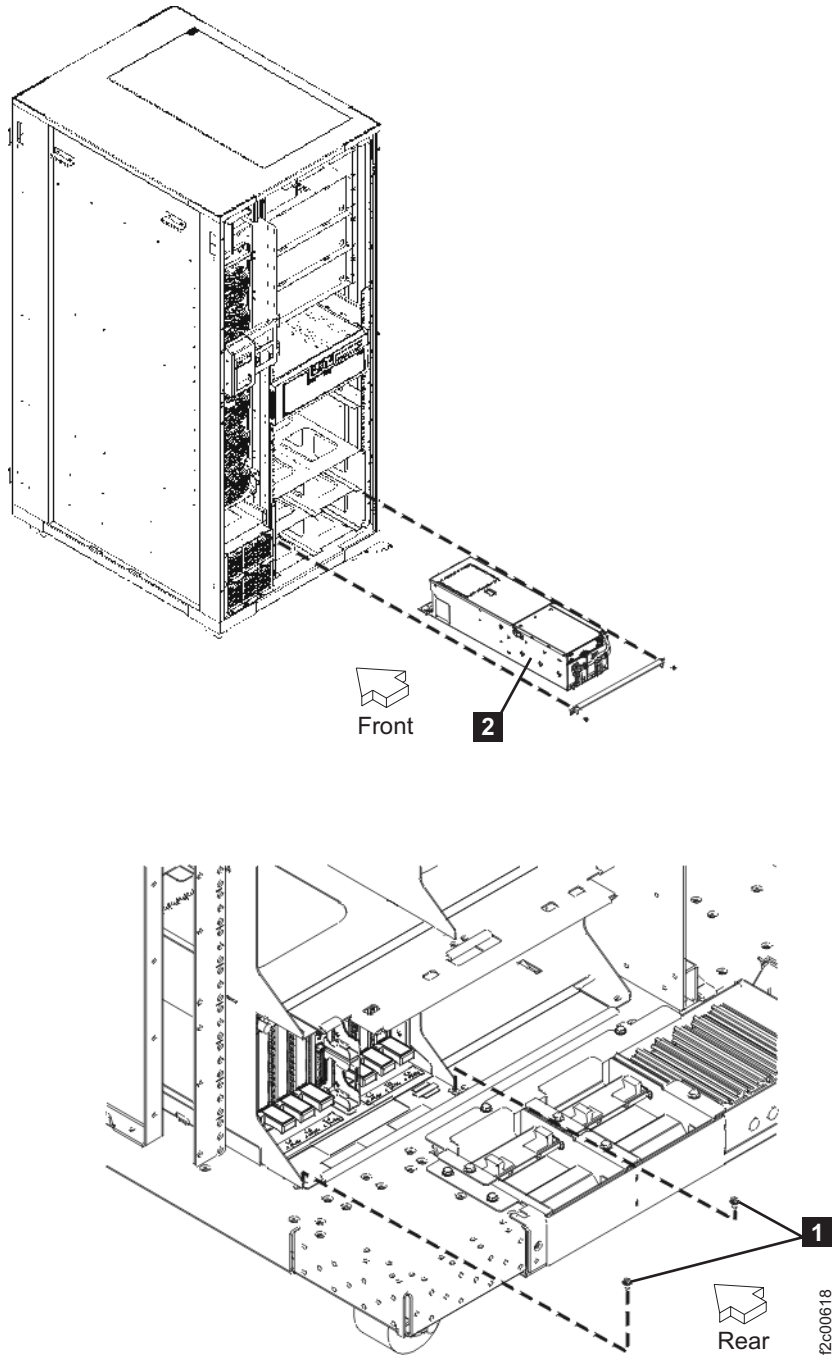


Figure 637. Remove the I/O enclosure chassis

7. Remove the top sheet metal cover over the enclosure.
   a. Remove the 4 mm hex head screw **1** securing the top sheet metal cover tab **2** . See Figure 638 on page 1161.

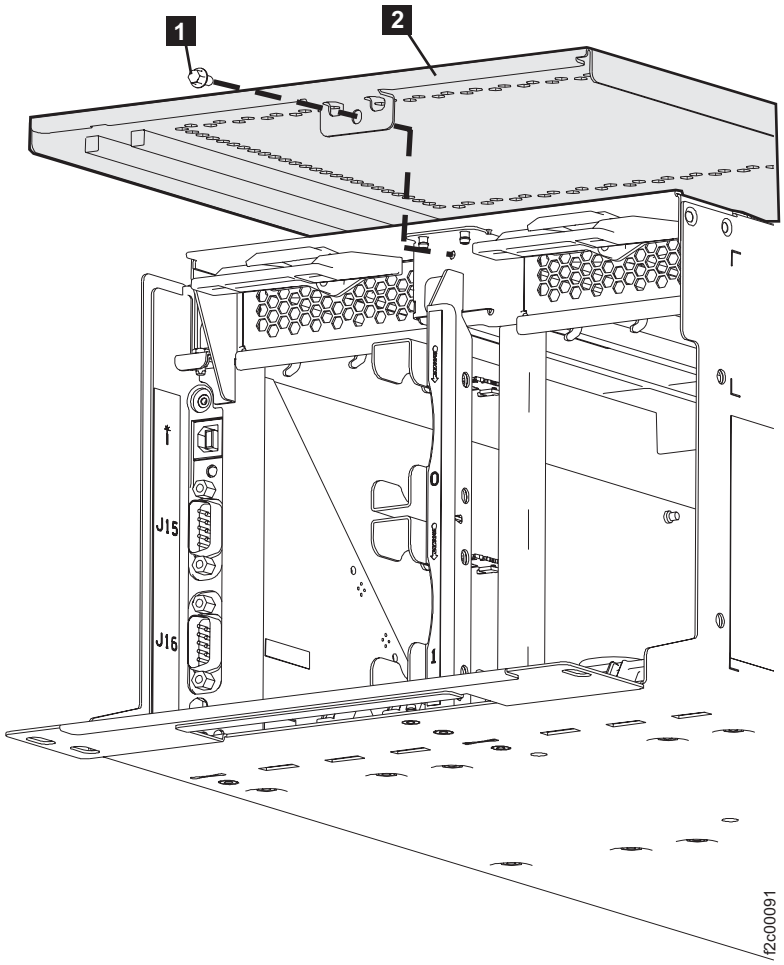


Figure 638. RIO card (remove sheet metal screw)

b. Insert a screwdriver into the gap behind the cover, and then twist the screwdriver to pry the cover towards the rear of the I/O enclosure. See Figure 639 on page 1162.

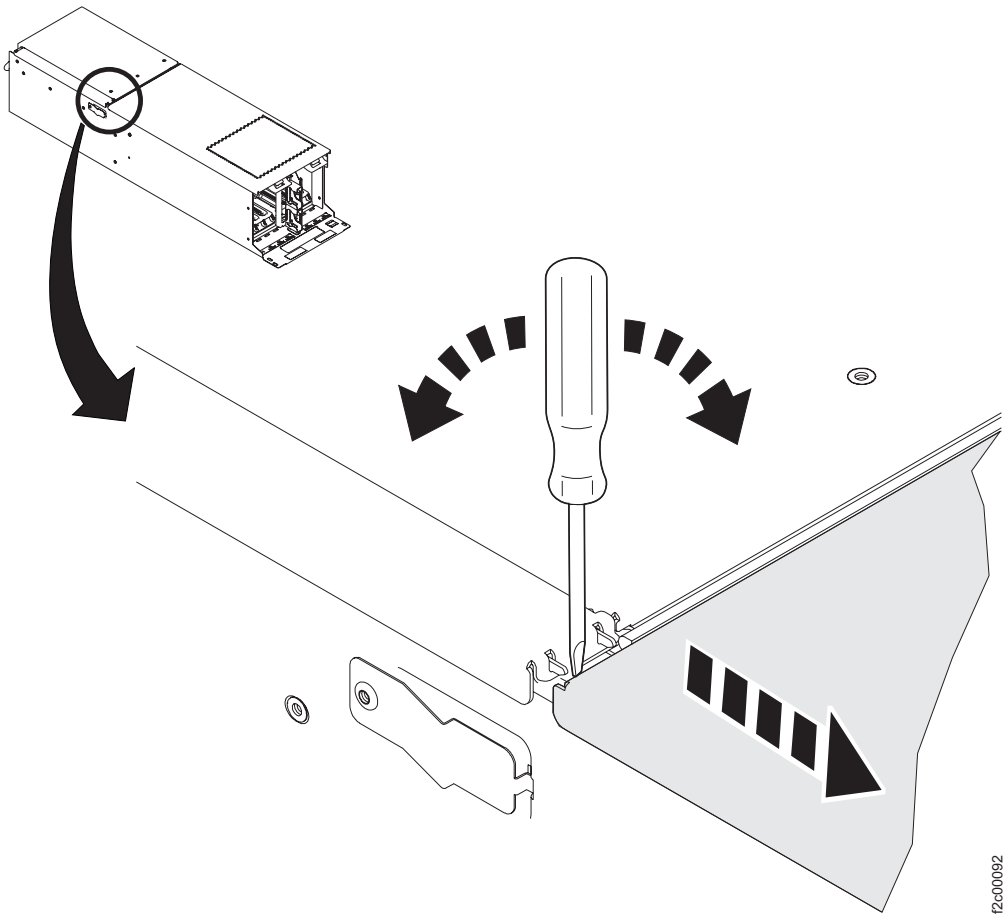


Figure 639. I/O enclosure (pry off)

c. Slide the cover about 1 inch (2.54 cm) back, until it can be lifted up and removed.

8. Remove the I/O enclosure RIO card. See Figure 640 on page 1163.
   a. Release the two blue I/O enclosure RIO card retention latches **1**, and pivot them to the vertical position.
   b. Remove the card.

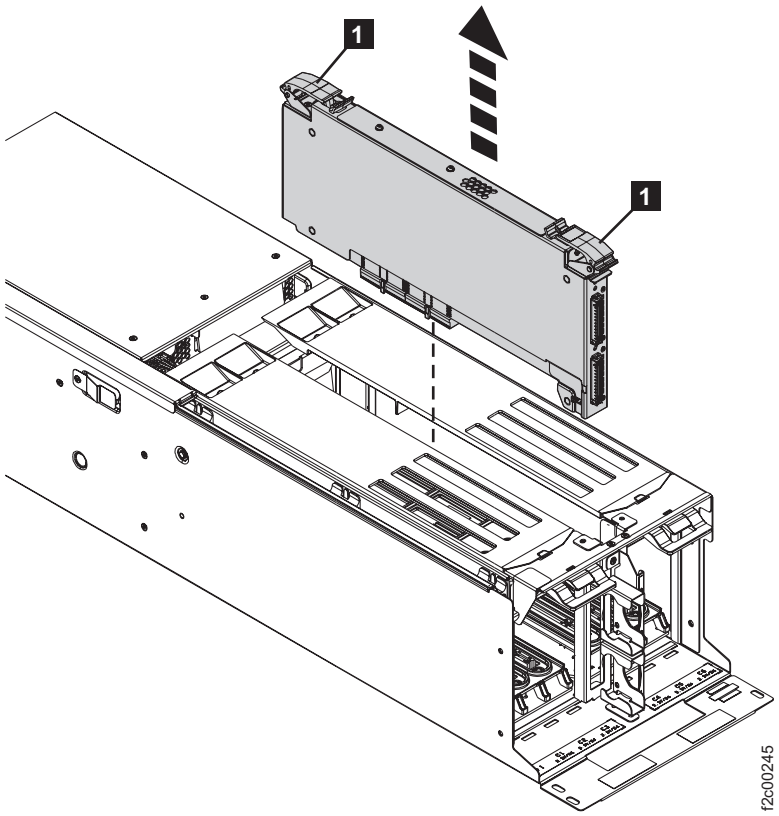


Figure 640. I/O enclosure RIO card

9. Remove the device adapter and host cards.

   Note: Each card **must** be placed in the same slot in the new I/O enclosure.

   a. Remove the card retention bracket above the card being removed. Push down on the blue tab **1** , and then rotate the bracket **2** down to remove it. See Figure 641 on page 1164.

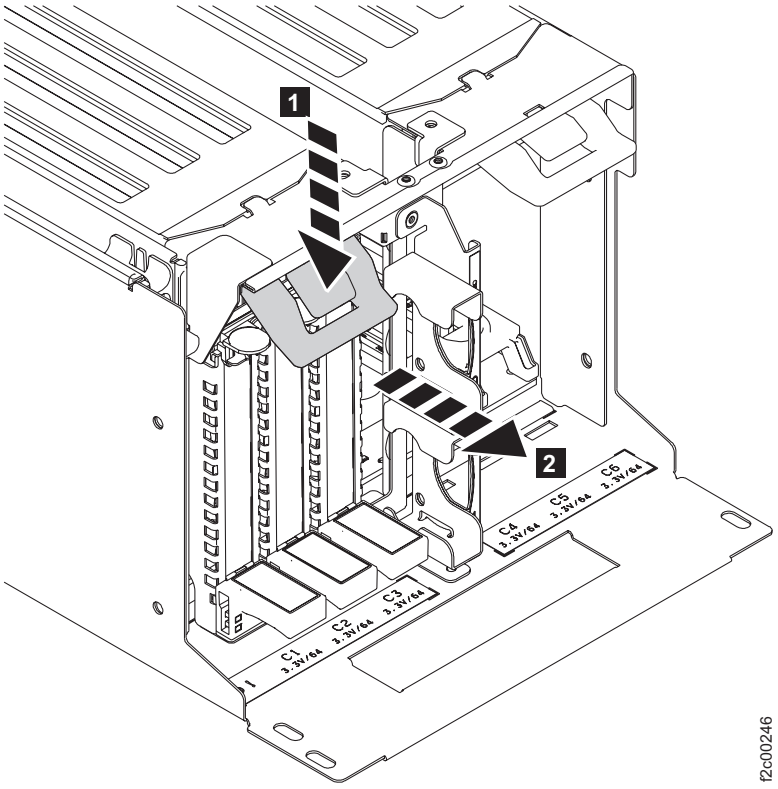


Figure 641. I/O enclosure adapter card retention bracket

b. At the bottom of the card is an orange lifting tab. Lift the tab up until the card is felt to be unplugged. Then slide the card out of the I/O enclosure. See Figure 642 on page 1165.

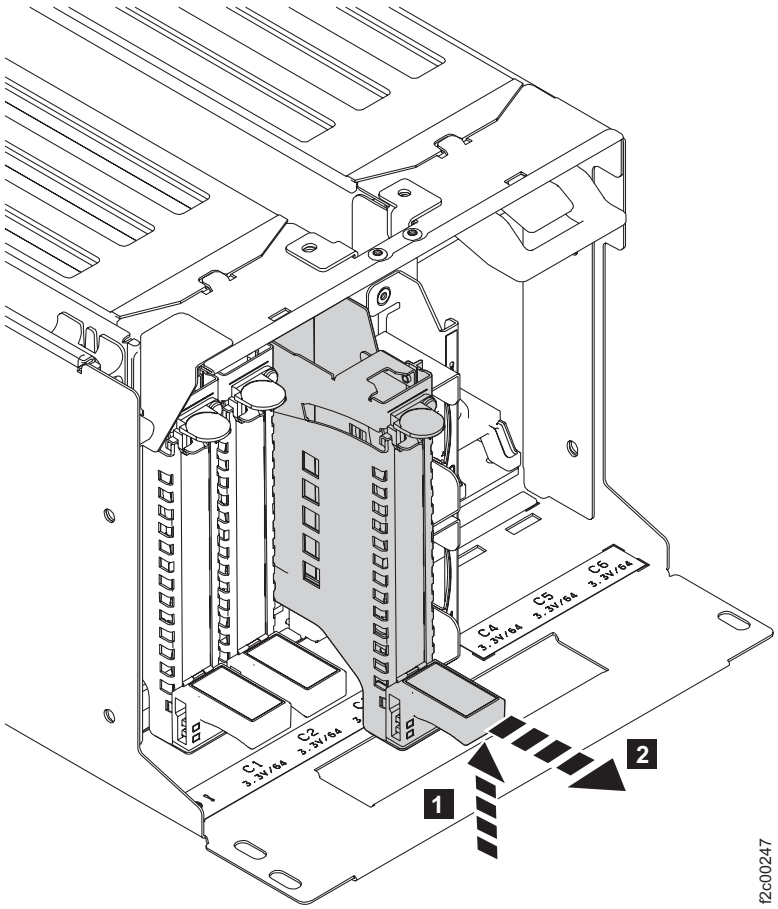


Figure 642. I/O enclosure host or device adapter card

10. Remove the two black power cables.
    a. Remove the power cable trough sheet metal cover above the power supply.
    b. Slide the cover **1** towards the rear until it is free and can be removed. See Figure 643 on page 1166.

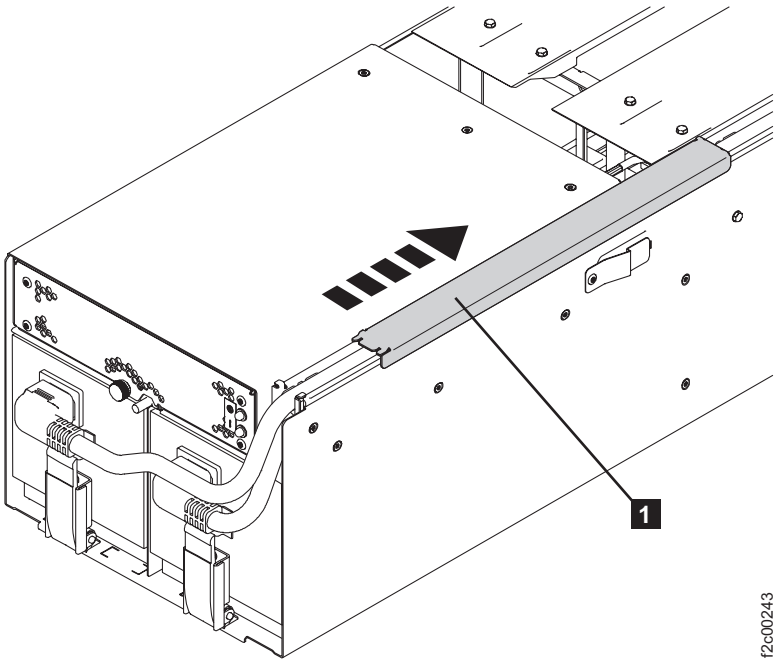


Figure 643. I/O enclosure power cable cover

c. Remove the cables.

11. Remove the 5 mm hex head screws **1** that hold the two upper PCI card mounting guides and remove the guides **2** . See Figure 644

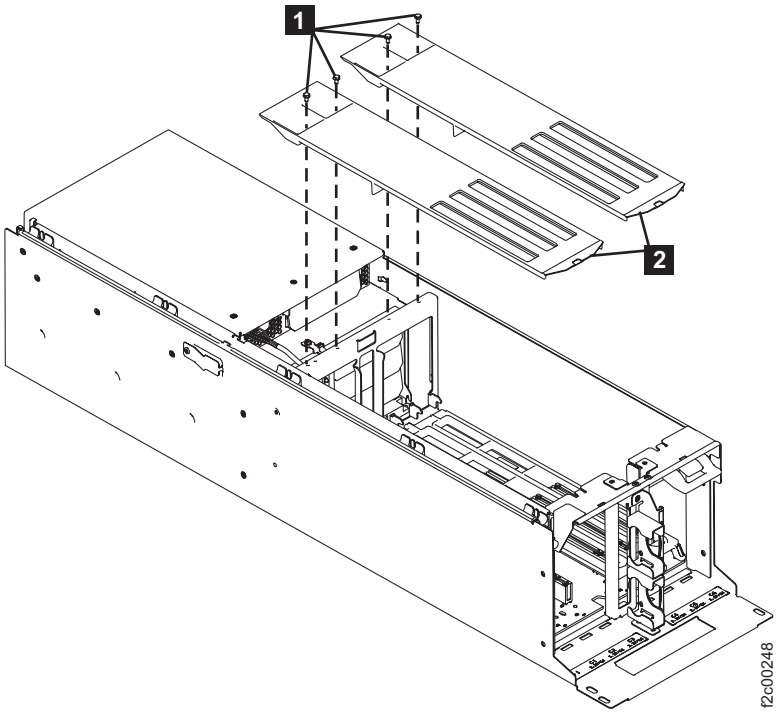


Figure 644. I/O enclosure adapter mounting guides

12. Remove the 5 mm hex head screws **1** at each end of the power cord tray, and then remove the power cord tray **2** . See Figure 645 on page 1167.

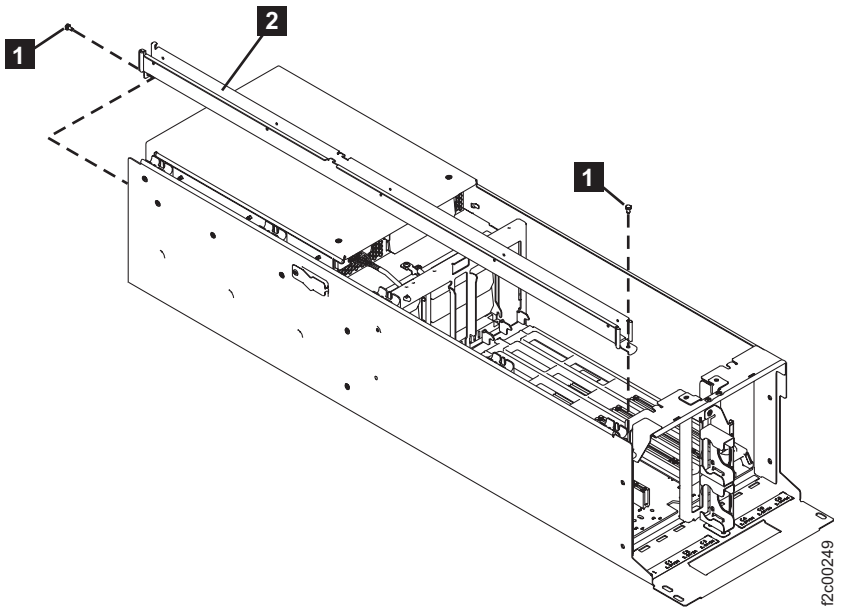


Figure 645. I/O enclosure power cord tray

13. Remove the 5 mm hex head bottom screw **1**, and then remove the SPCN connector card **2** from the I/O enclosure backplane. See Figure 646.

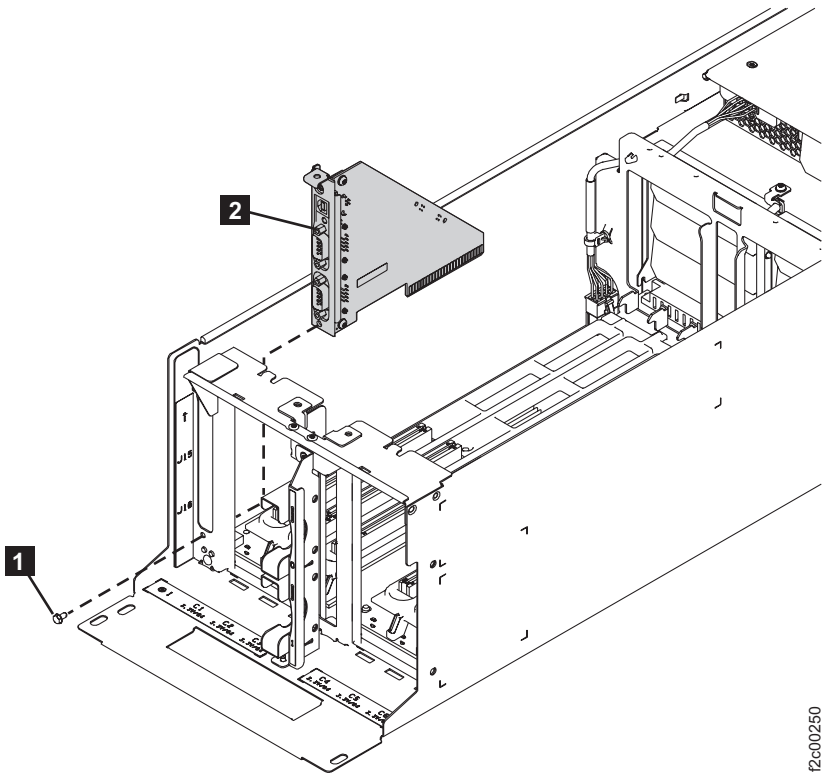


Figure 646. I/O enclosure SPCN connector card

14. Remove the 4 mm hex head screws **1** that hold the two lower PCI card mounting-guides, and then remove the guides **2**. See Figure 647 on page 1168

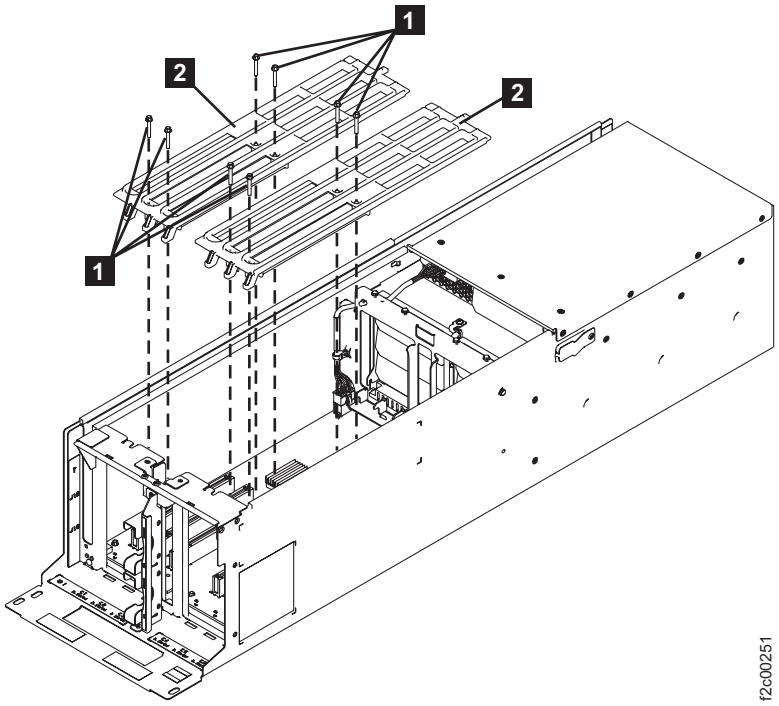


Figure 647. I/O enclosure PCI adapter mounting screws

15. Disconnect the fan cable **1** from the I/O enclosure backplane. See Figure 648 on page 1169.
16. Remove the two screws **2** from the bulkhead bracket **3** . The screws are accessed from the outside of the chassis. See Figure 648 on page 1169.
17. Disconnect the fan cable **4** from the bulkhead bracket, and then remove the bulkhead bracket **3** . See Figure 648 on page 1169.

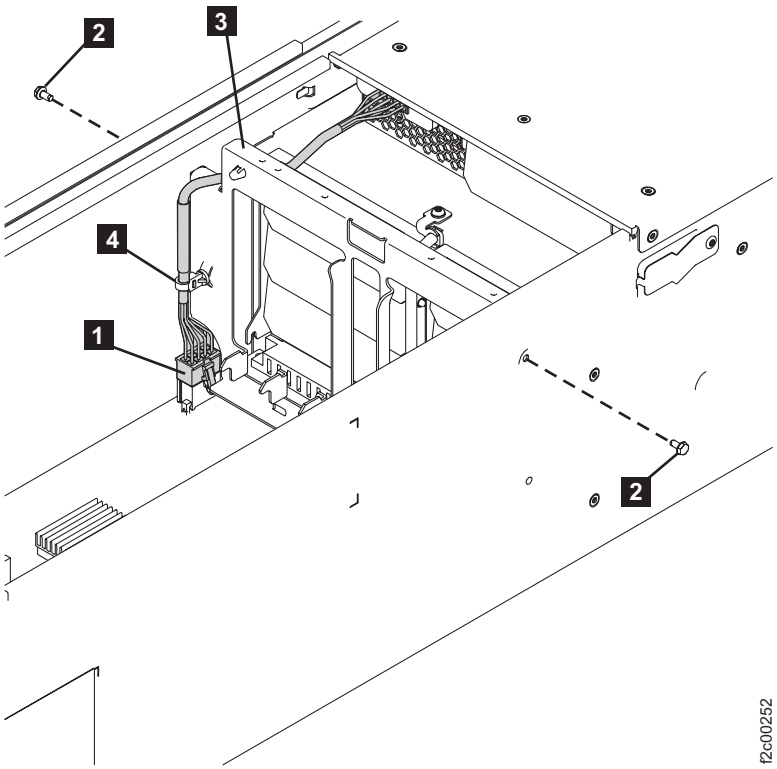


Figure 648. I/O enclosure fan cable

18. Remove the remaining 4 mm hex head screws **1** that secure the I/O enclosure backplane to the chassis and remove the I/O enclosure backplane **2** . See Figure 649 on page 1170.

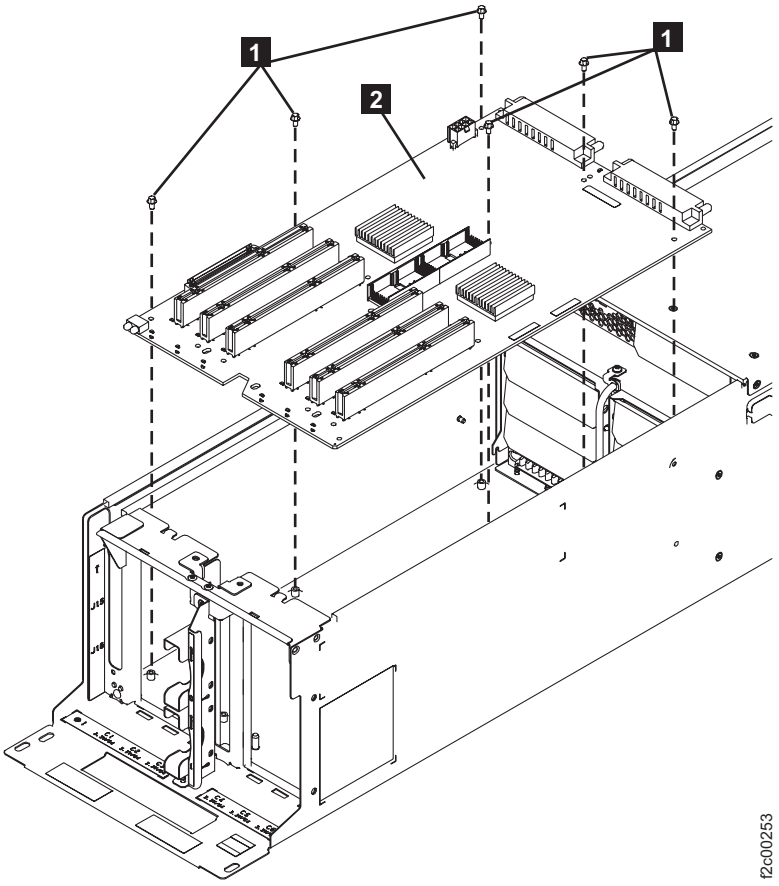


Figure 649. I/O enclosure backplane screws

Install the I/O enclosure backplane

1. Install the I/O enclosure backplane in the I/O enclosure. Only install the short screws in the holes not used for the two lower PCI card mounting-guides. Do not install the two lower PCI card mounting guides at this time.
2. Attach and route the fan cable to the bulkhead bracket. Install the bulkhead bracket in the chassis with the two screws.
3. Connect the fan cable to the I/O enclosure backplane.
4. Install the two lower PCI card mounting guides.
5. Install the SPCN connector card using the single bottom screw.
6. Install the power cord tray with the screw at each end.
7. Install the two upper PCI card mounting guides.
8. Install the two black power cables in the power cord tray, allowing enough length that they can be connected to the I/O enclosure power supplies, which are installed after the chassis is back in the rack.
9. Install the power cord tray cover (above the power supplies) by sliding it into place.
10. Install the device and host cards in their original positions.
11. Install the I/O enclosure RIO card.
12. Install the top sheet metal cover. Slide it into place and install the one screw.

13. At the front of the rack, slide the I/O enclosure chassis into the rack. At the rear of the rack, install the two screws that secure the chassis to the rack.
14. At the front of the rack, install both I/O enclosure power supplies and connect the black power cables.
15. Install the fan assembly.
16. At the rear of the rack, connect all the cables (ID, SPCN, RIO, FC-AL, and customer host).
17. Route and connect the two black power cables to the 5/12 V bus bar connectors.
    a. Slide the blue plastic cable retention brackets so that the cables cannot be unplugged.
    b. Secure the cables with the cable retention hardware.
18. Return to the procedure that sent you here.

Exchange the I/O enclosure fan


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Note: Attention: I/O enclosure fan is a hot-pluggable FRU.

Remove the I/O enclosure fan

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. Unscrew the orange thumbscrew **(1)** above the power supplies and then use it to pull the fan assembly straight out from the I/O enclosure **(2)**.

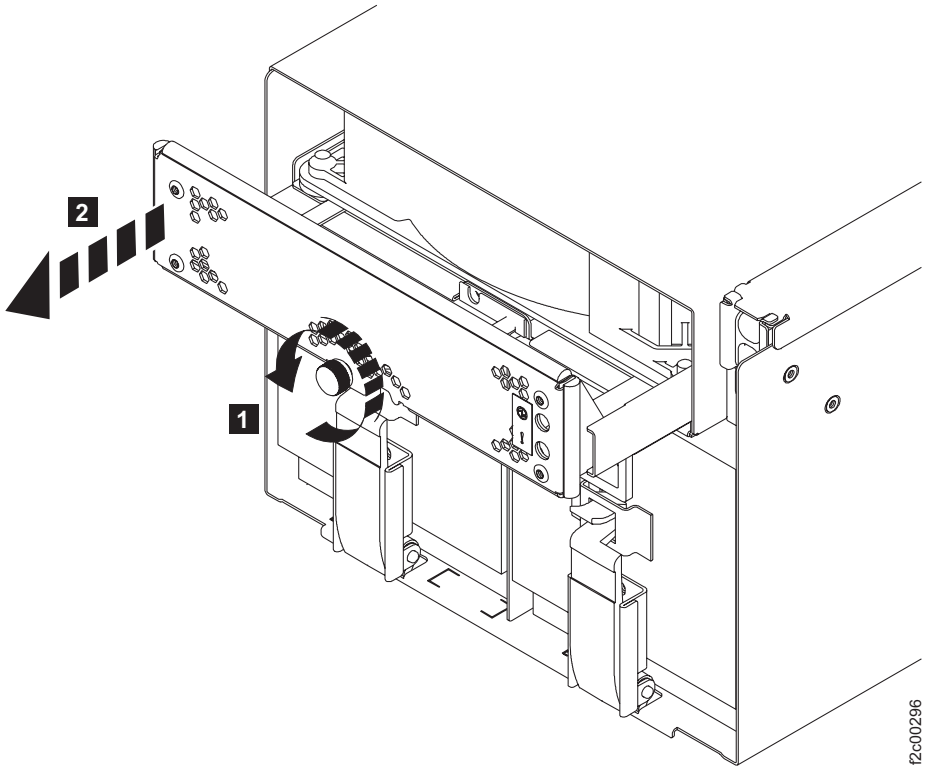


Figure 650. Server partition, Server Management panel

Install the I/O enclosure fan

1. Slide the new fan assembly into the I/O enclosure and fasten the orange thumbscrew.
2. Return to the procedure that sent you here.

Exchange the I/O enclosure power supply

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the I/O enclosure power supply

Attention: Power supplies are hot-pluggable FRUs. Only remove one power supply at a time.

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:

- Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
- Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.

2. The power good LED on the I/O enclosure power supply not being removed must be lit before going to the next step. This will ensure the I/O enclosure remains powered on when the failing power supply is removed. If the power good LED is not lit, DO NOT CONTINUE, instead call the next level of support.
3. Disconnect the power cord **(2)** from the power supply **(1)**.
4. You have **FOUR MINUTES MAXIMUM** from the time you remove the power supply until you install the power supply, otherwise the I/O enclosure will automatically power off.

   Note: The SPCN code will automatically power off the I/O enclosure if an I/O enclosure power supply is detected as missing for more than four minutes. This means that you have a maximum of four minutes from the time you pull the power supply out until you slide a power supply back in. The power supply you slide in does not have to work, it just needs to be physically detected by the SPCN code. The input power cable does not have any time limit to be plugged back in.
5. Unlatch the power supply handle **(3)** and rotate the handle downward to unseat the power supply.
6. Pull the power supply straight out from the I/O enclosure.

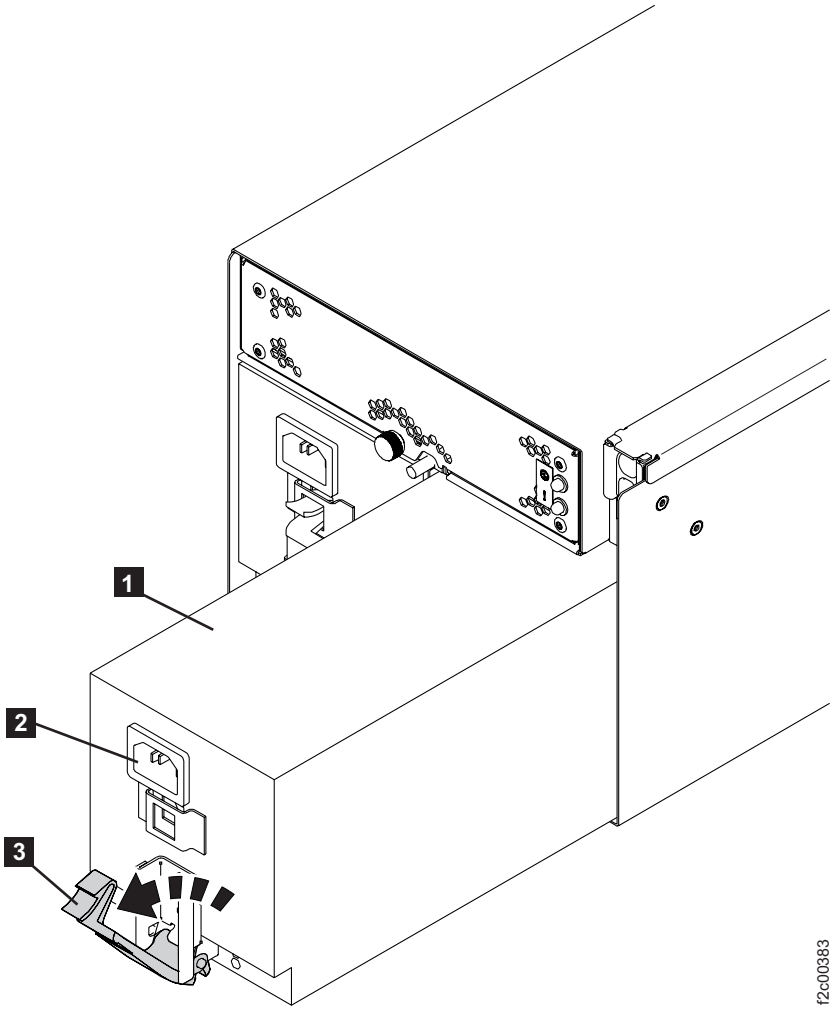


Figure 651. I/O enclosure power supply, power connector, and handle

Install the I/O enclosure power supply

1. Slide the new power supply into the I/O subsystem.
2. Rotate the power supply handle upward and latch the handle to fully seat the power supply.
3. Connect the power cord to the power supply.

Exchange the I/O enclosure RIO card

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified, so they can be reinstalled correctly.
2. The I/O enclosure must be fully removed from the rack for this procedure.

Remove the I/O enclosure RIO card

Note: You need a 4mm socket to remove a hex head screw for this FRU.

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, which are listed in "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, which are listed in "MAP1245 Finding FRUs using location codes" on page 514.
2. At the front of the rack, unplug the black power cable **2** to each power supply in the I/O enclosure **1**. See Figure 652.

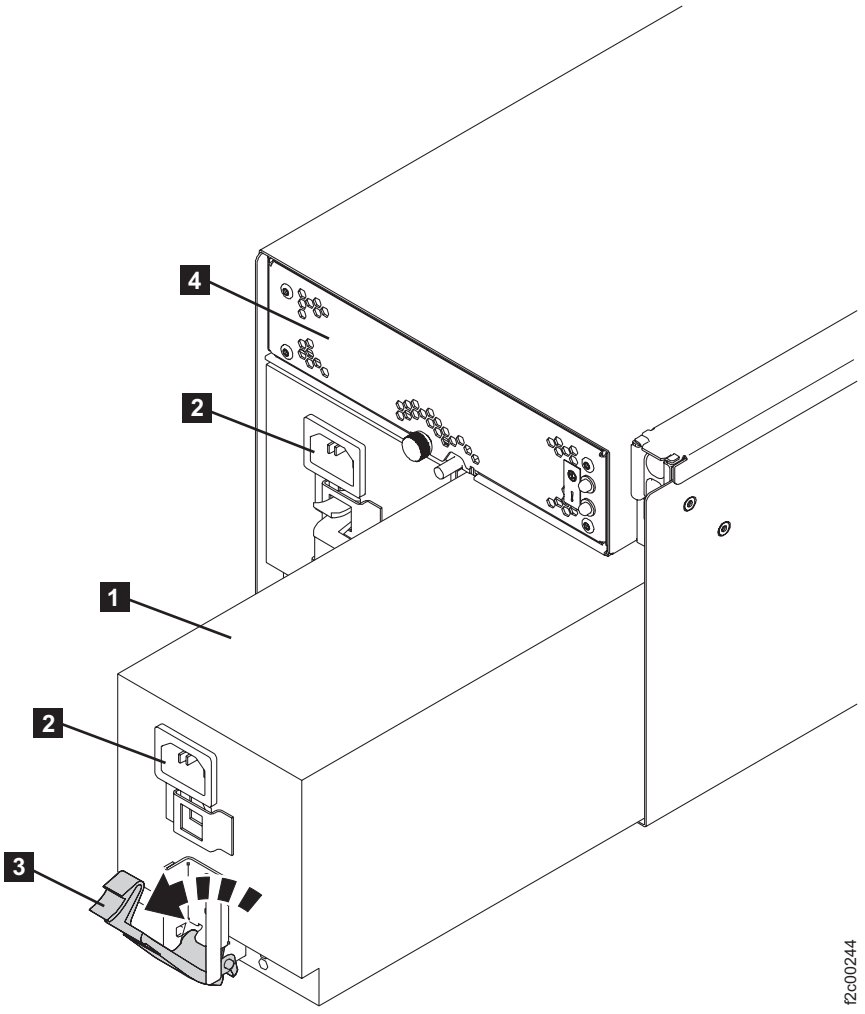


Figure 652. I/O enclosure power connections

3. Remove both power supplies **1** and the fan assembly **4**. See Figure 652.
   a. Unlatch the power supply handle **3** and rotate the handle downward to unseat the power supply. Then pull the power supply straight out.

b. Unscrew the orange thumbscrew above the power supplies, and then use it to pull the fan assembly straight out.

4. At the rear of the rack, unplug all the cables (ID, SPCN, RIO, FC-AL, and customer host). Ensure each cable is labeled so it can be properly replugged. See Figure 653.

   Note: To unplug the RIO cable, gently push in on the RIO cable, then gently pull the blue release handle towards you, and then pull the cable connector free of the sheet metal guide bracket.

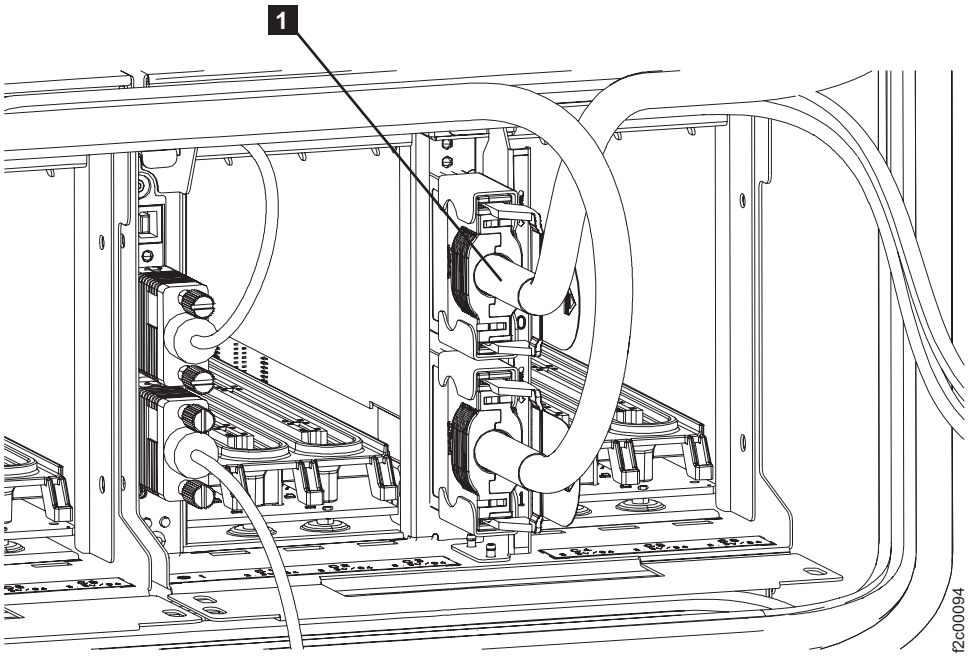


Figure 653. RIO cable connector

5. Unplug the two black power cables from the 208VDC bus bars. From the rear of the rack:
   a. Trace the power cables **1** from the upper left corner of the I/O enclosure to the 208VDC bus bars **2** . See Figure 654 on page 1177.

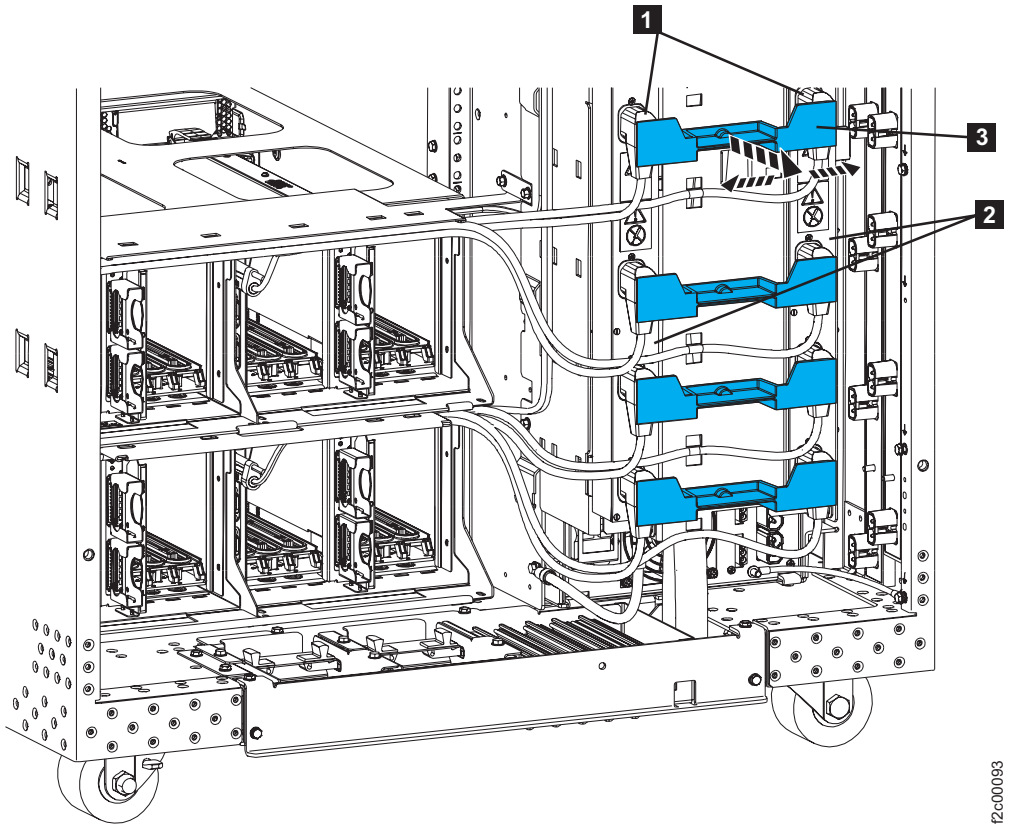


Figure 654. I/O with power cables

b. At the 5/12 V bus bar gate, gently pull out on the blue plastic cable retention bracket **1** , and then slide it sideways to remove the power cables **2** one at a time. See Figure 655 on page 1178

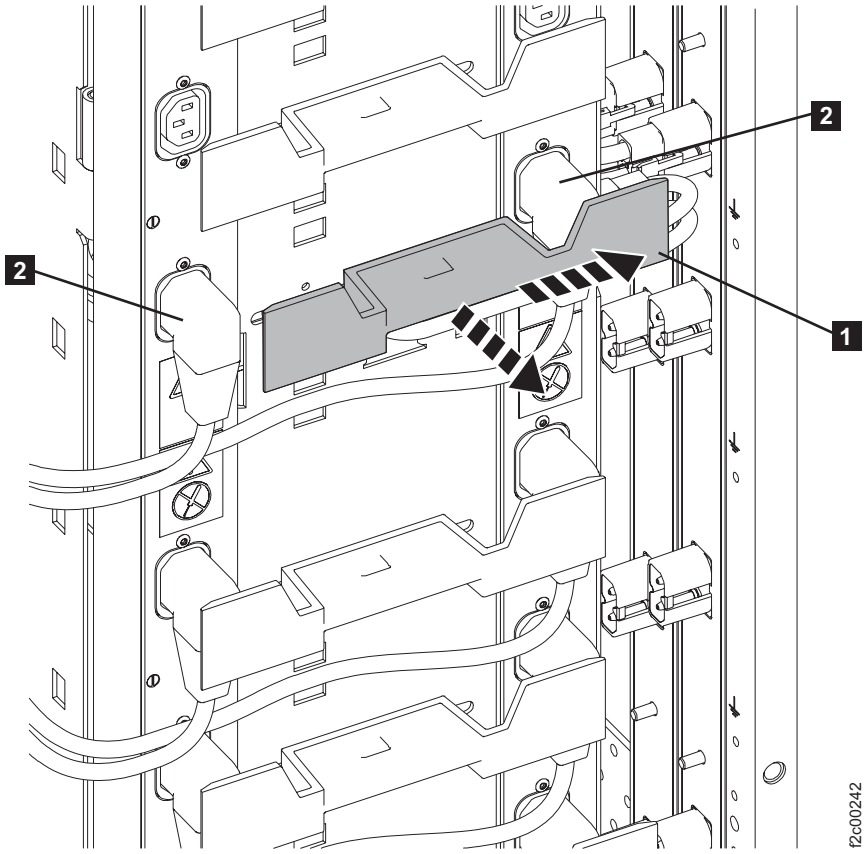


Figure 655. Bus bar, 5/12V, power cables

c. Remove any cable retention hardware to allow the cables to hang free.

6. Remove the I/O enclosure chassis from the rack. See Figure 656 on page 1179.
   a. At the rear of the rack, remove the two hold down screws **1** .
   b. Push the I/O enclosure **2** forward towards the front of the rack.

      If the I/O enclosure seems to hit something as you begin to push it out, go to the front of the rack. The later levels of racks might have a bent over sheet metal tab that can catch the I/O enclosure as it begins to slide out. Grasp the I/O enclosure and move it side to side as you pull. It should move past the tab and then slide out normally.
   c. At the front of the rack, pull the I/O enclosure out the front, being careful to balance it when it is free of the rack.
   d. Place the I/O enclosure on a static-free surface.

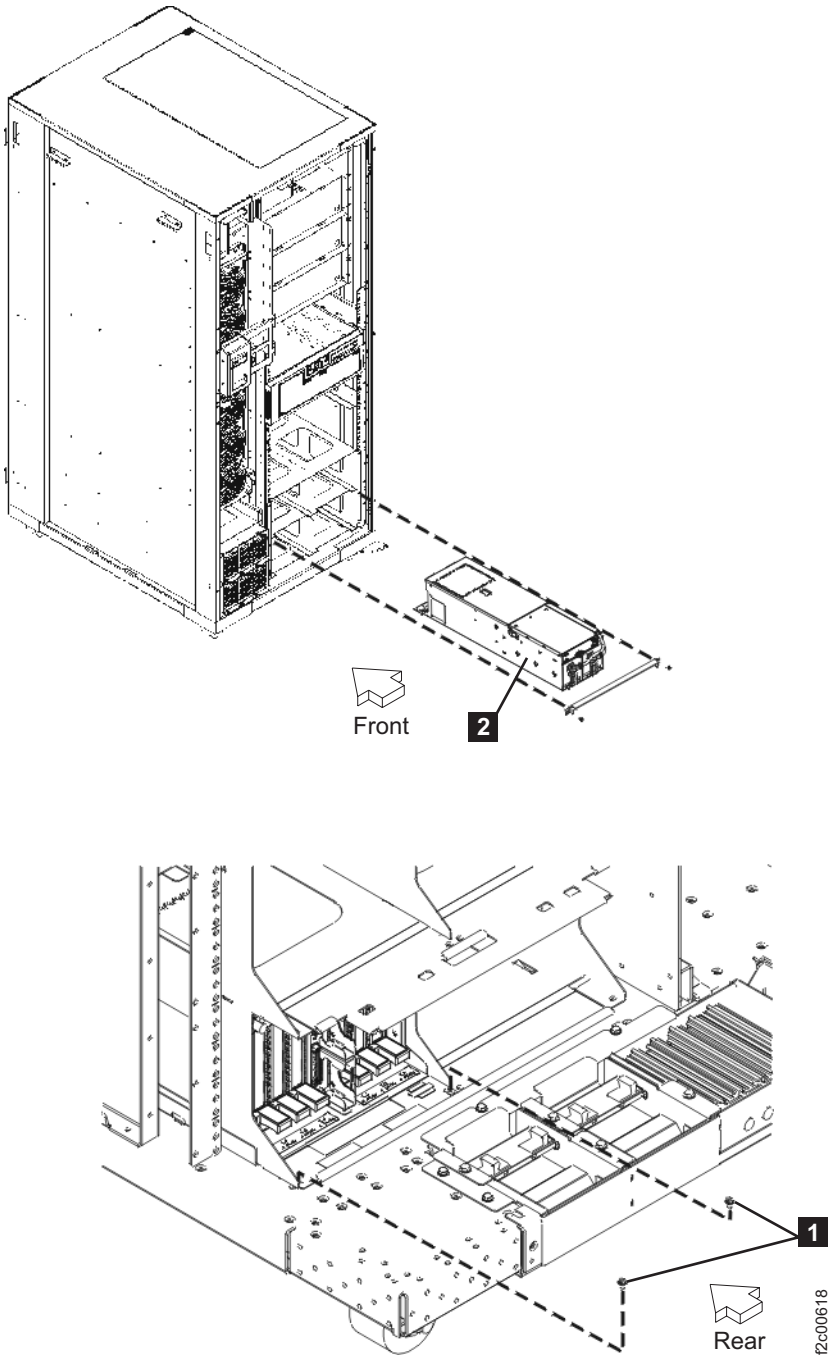


Figure 656. Remove the I/O enclosure chassis

7. Remove the sheet metal cover over the RIO and adapter cards.
   a. Remove the 4 mm hex head screw **1** securing the sheet metal cover tab **2** . See Figure 657 on page 1180.

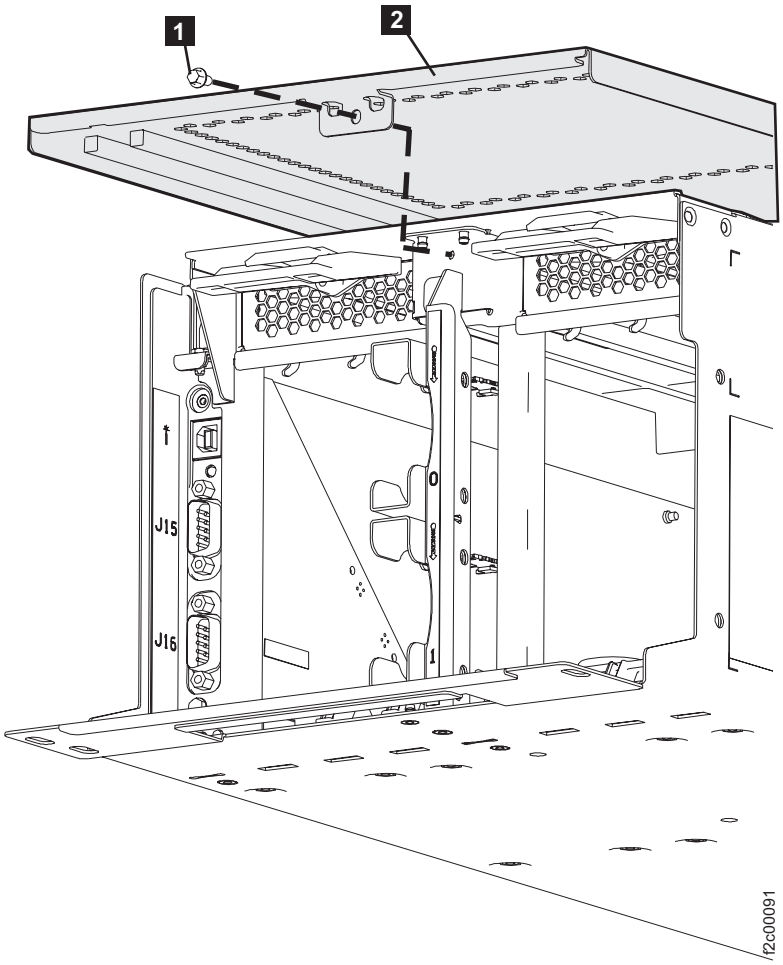


Figure 657. RIO card (remove sheet metal screw)

b. Insert a screwdriver into the gap behind the cover and then twist the screwdriver to pry the cover towards the rear of the I/O enclosure. See Figure 658 on page 1181.

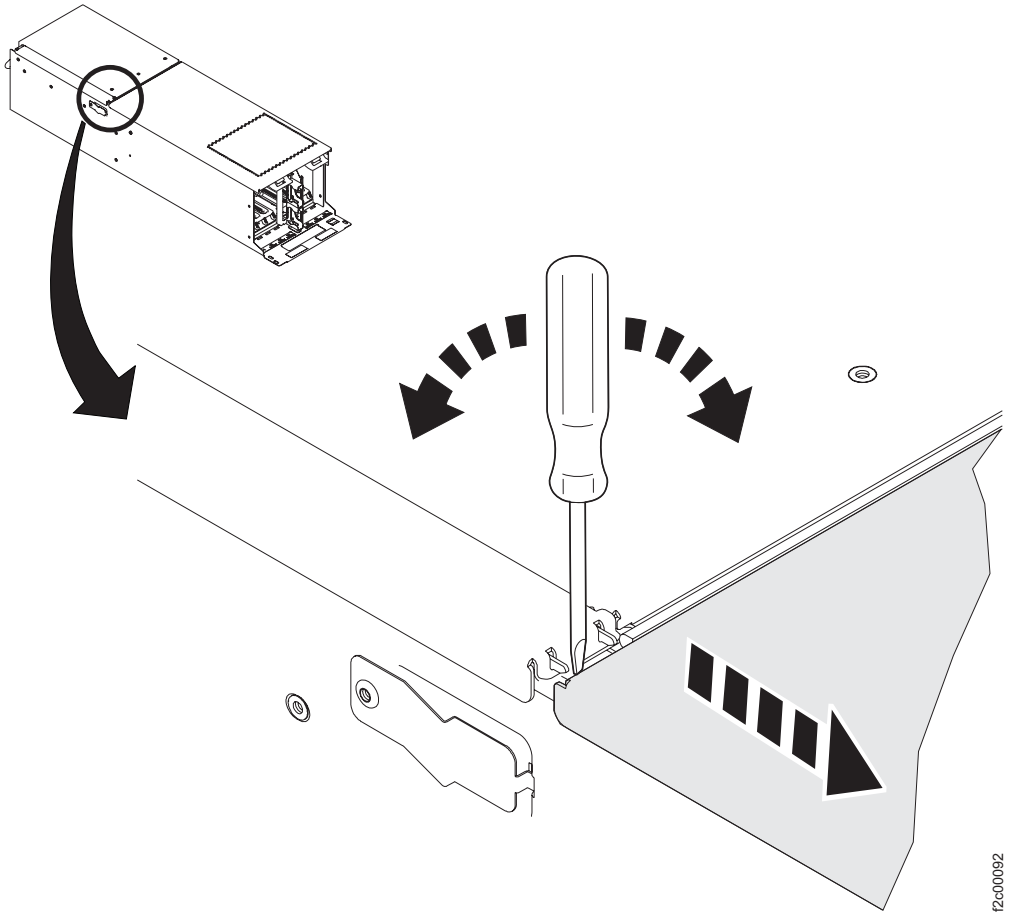


Figure 658. I/O enclosure (pry off)

c. Slide the cover about 1 inch (2.54 cm) back until it can be lifted up and removed.

8. Remove the RIO card by releasing the two blue RIO card retention latches **(1)** and pivoting them to the vertical position. This will lift the card from the connector to the I/O enclosure backplane so you can remove it. See Figure 659 on page 1182.

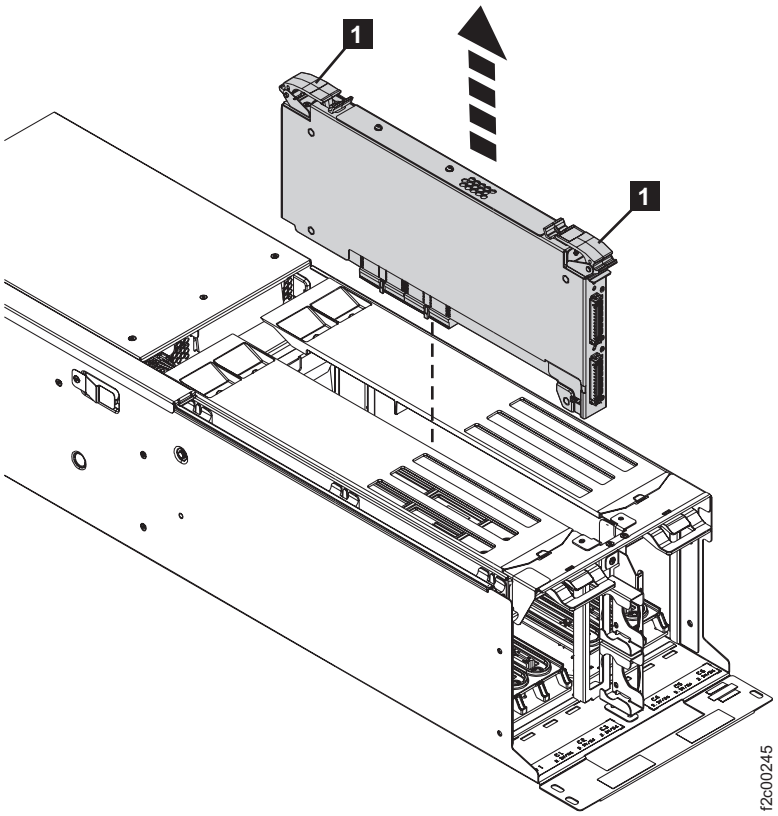


Figure 659. I/O enclosure RIO card

Install the I/O enclosure RIO card

Note: Do not use the blue handles to plug the card down into the connector. Instead, use a firm steady pressure on the middle of the card to plug it into the connector, and then use the blue handles to latch the card in position.

1. Install the I/O enclosure sheet metal cover over the RIO card.
2. Slide the I/O enclosure back into the rack and install the two hold down screws.
3. At the rear of the rack, connect all the cables.
4. Connect the two black power cables to the power supplies.
5. Route and connect the power cables to the 208VDC bus bars.
6. Reinstall the cable retention hardware.
7. Return to the procedure that sent you here.

Exchange Rio Cable

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure that you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Exit this procedure and go to "MAP4E10 RIO cable parts exchange without a serviceable event" on page 741.

Chapter 38. Management Console, Hubs, and other

Use these procedures to install or replace parts within the management console, hubs, or parts outside of the other assemblies.

Exchange the Ethernet switch

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the Ethernet switch

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. At the rear of the rack:
   a. Disconnect the Ethernet cables **(1)**.
   b. Disconnect the power cord **(2)**.

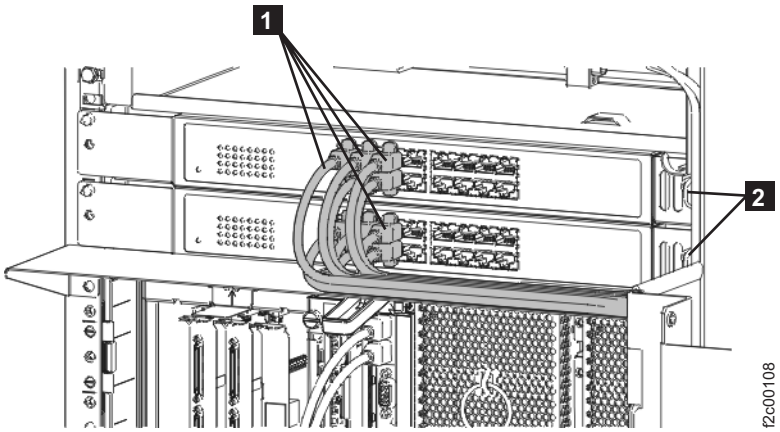


Figure 660. Ethernet switch with cables

3. Unscrew the two captive thumbscrews **(1)** and remove the Ethernet switch from the rack.
4. Unplug the power cable **(3)** from the Ethernet switch.

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5. Remove the 4 screws **(2)** that attach the left and right sheet metal brackets.

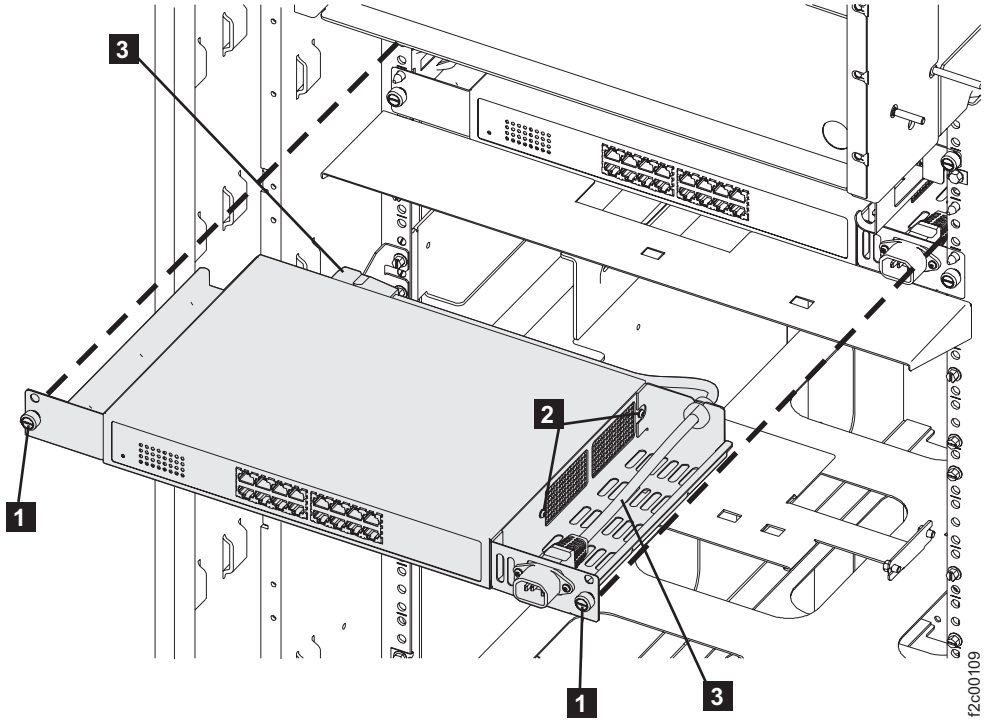


Figure 661. Ethernet switch (removed)

Install the Ethernet switch

1. Install the left and right sheet metal brackets with two screws **(2)** each.
2. Connect the power cable **(3)** to the Ethernet switch.
3. At the rear of the rack:
4. Install the Ethernet switch in the rack and secure it with the two captive thumb screws **(1)**. See Figure 661.
   a. Connect the Ethernet cables **(1)**.
   b. Connect the power cord **(2)**. See Figure 660 on page 1185.
5. Return to the procedure that sent you here.

Exchange the management console display/keyboard

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the management console display/keyboard

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. Ensure the management console has been shutdown.
   a. At the Hardware Management Console GUI window click **Console** to open the drop down menu.
   b. Click **Exit**.
   c. At the Exiting Hardware Management Console pop up, click **Exit Now**.
   d. From the listed exit options, select **Shutdown Console**.
   e. Wait for the management console to display: `The system will be halted immediately. Master Resource Control: renlevel 0 has been reached`

   Note: The management console Power LED in the lower right corner of the management console server will stay lit. In this state, when the management console server power cord is unplugged and replugged, the server will automatically power on.
3. Power off the management console display, use the power button **(2)**. Ensure the power LED **(1)** is off.



Figure 662. Management Console Power LED and Switch

4. At the rear of the rack, disconnect the management console server power cable **(1)**.
5. At the rear of the rack, disconnect the management console keyboard/display integrated cable **(2)** from the management console server.

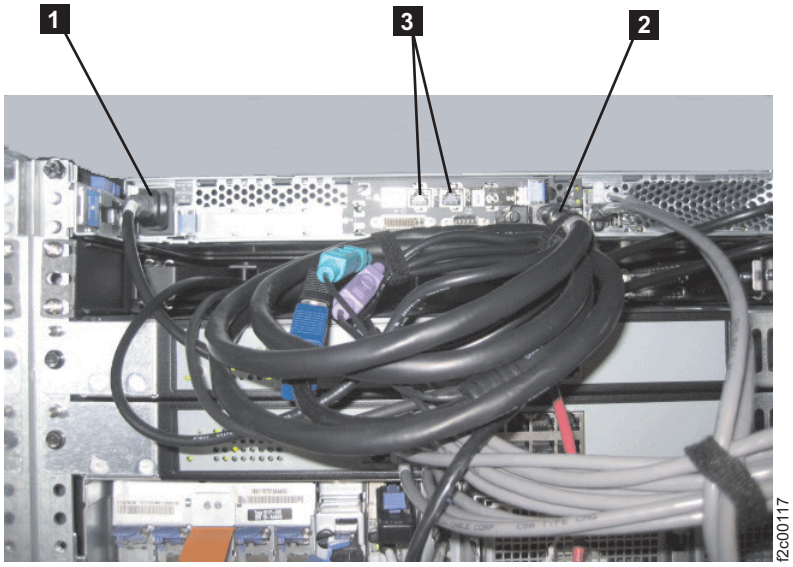


Figure 663. Management console rear connectors

6. Disconnect the management console keyboard/display power cable **(1)** from the rack power cable.



Figure 664. Management console keyboard/display power cable

7. Disconnect the three connectors **(1)** between the management console keyboard/display integrated cable **(3)** and the management console keyboard/display cable **(2)**. Set the integrated cable aside for now.

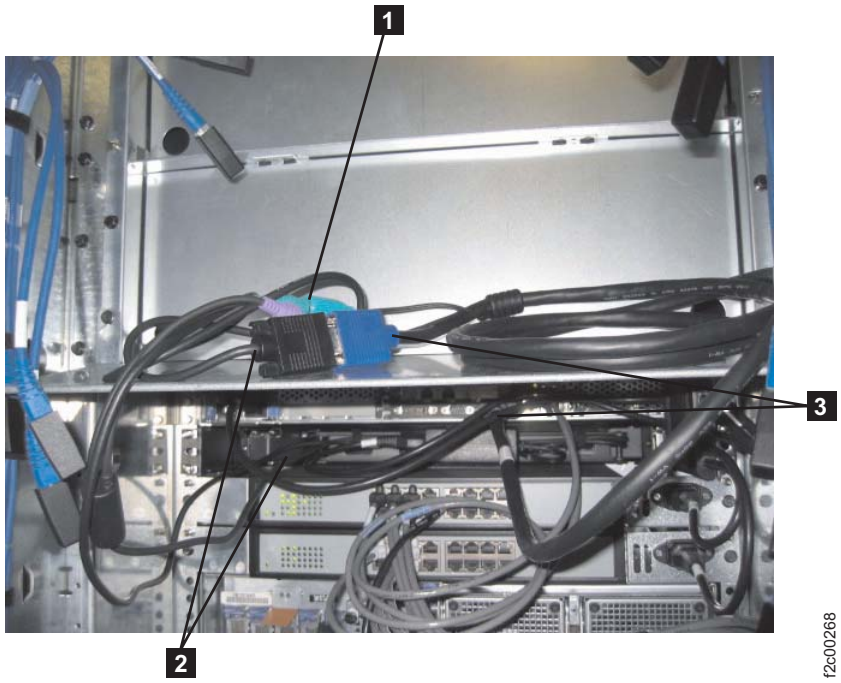


Figure 665. Management console keyboard/display integrated cable

8. At the front of the rack:
   a. Loosen the two black thumbscrews **(1)**.
   b. Move the keyboard/display out **(2)** from the rack (leave the display in the down position).
   c. Remove the four screws **(3)** that fasten the keyboard/display rails to the rack.

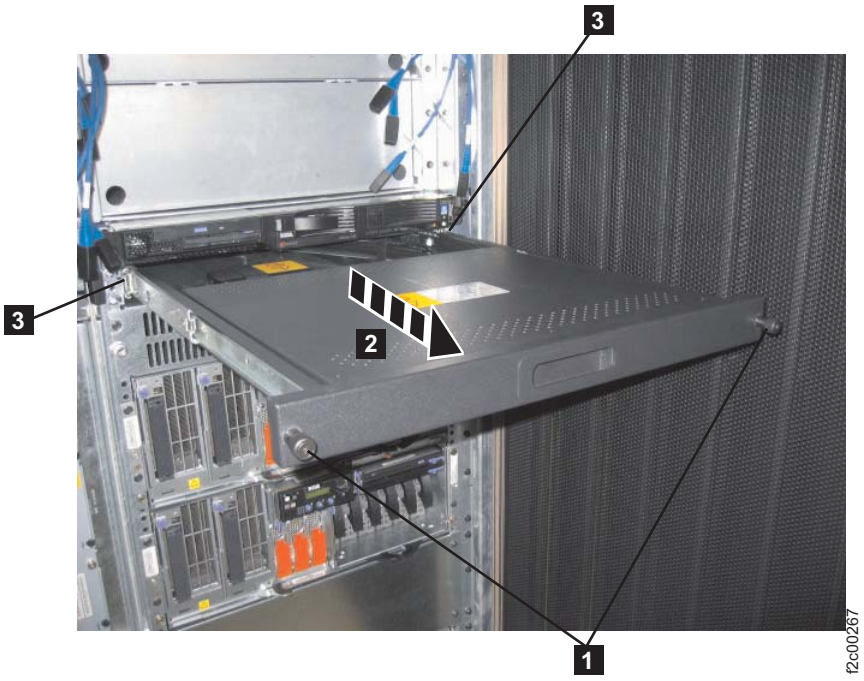


Figure 666. Management console keyboard/display rail screws

9. At the rear of the rack, move the 208V multi-cable away from the right rear rail. Loosen the two screws **(1)**.

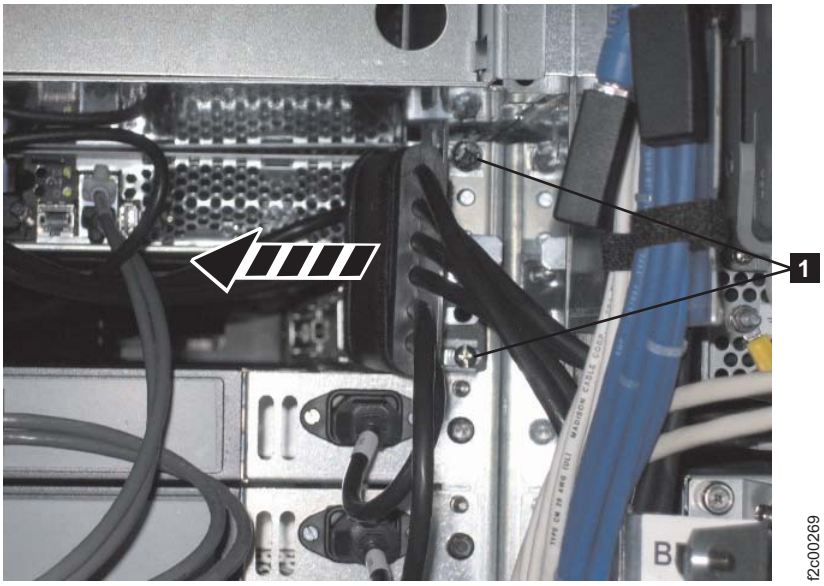


Figure 667. 208VDC multi-cable

10. Remove the 4 screws **(1)** holding the rear rails (right two screws shown).

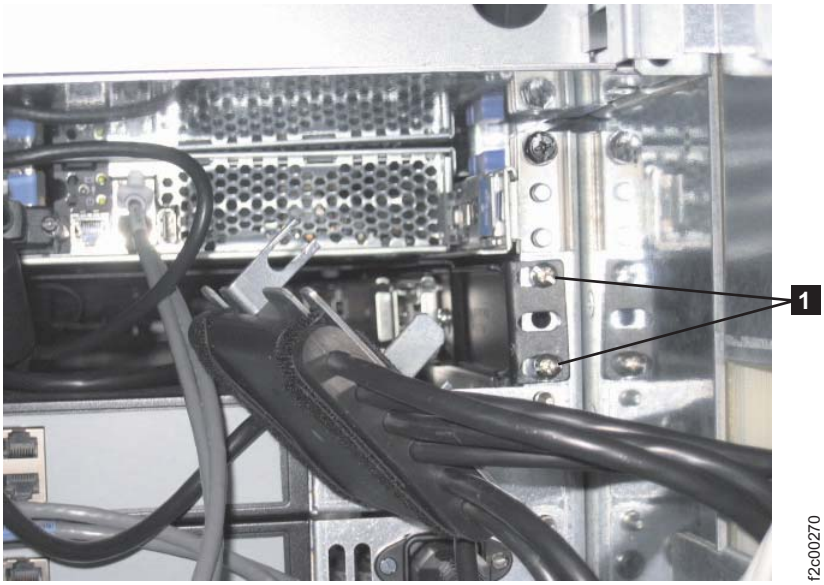


Figure 668. Management console rear rail screws

11. Squeeze the rails towards each other, so they can clear the rack rails they were fastened to. Then push them in towards the front of the rack just a little (management console keyboard/display shown on table for clarity only).



Figure 669. Management console rear rails

12. At the front of the rack, slowly pull the keyboard/display tray out of the rack and set it on a work surface.
    a. As in the previous step, the rails will need to be squeezed to clear the front rack mounting surface.

Install the management console display/keyboard

Note: Ensure the management console has been shutdown. Go to step 2 on page 1187 above, then return here.

1. Set the new management console keyboard/display on a work surface. Unscrew the two black thumbscrews at the display end, so you can pull the display and make the rails full length. See Figure 669.
2. Loosen, but do not remove, the rail length adjustment screw **(1)** on each rail. This will allow you in a later step to adjust the length once it is in the rack.



Figure 670. Management console rear rail length adjustment screw

3. At the front of the rack, carefully slide the keyboard/display into its slot.
   a. You may need to squeeze the rails towards each other so they can go past the vertical rack mount surfaces.
   b. Ensure the cables are not damaged as you do this.
4. At the rear of the rack, squeeze the rails towards each other so they can go past the vertical rack mount surfaces.
5. At the front of the rack, install and tighten the four screws that fasten the rails to the rack mount surface.
6. At the rear of the rack, install and tighten the two left screws and the upper right screw that fasten the rails to the rack mount surface. Install the right bottom screw but leave it two turns loose.
7. Install the 208V multi-cable sliding it under the two screws **(1)** and then tighten the screws. See Figure 667 on page 1190.
8. Reach in and tighten the rail length adjustment screw on each rail.
9. Connect the three connectors **(1)** between the management console keyboard/display integrated cable **(3)** and the management console keyboard/display cable **(2)**. See Figure 665 on page 1189.
10. Connect the management console keyboard/display power cable **(1)** to the rack power cable The management console server will automatically power on. See Figure 664 on page 1188.
11. At the front of the rack, ensure the keyboard/display tray can be pushed in and the two black thumbscrews tightened.
12. Put the keyboard/display in the service position with the display up. Press the display power key **(2)** and ensure the power LED **(1)** is on. See Figure 662 on page 1187.
13. Return to the procedure that sent you here.

Exchange the management console server


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the management console server

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. Ensure the management console has been shutdown using the Management Console shutdown procedure:
   a. At the Hardware Management Console GUI window click **Console** to open the drop down menu.
   b. Click **Exit**.
   c. At the Exiting Hardware Management Console pop up, click **Exit Now**.
   d. From the listed exit options, select **Shutdown Console**.
   e. Wait for the management console to display: `The system will be halted immediately. Master Resource Control: renlevel 0 has been reached`

   Note: The management console Power LED in the lower right corner of the management console server will stay lit. In this state, when the management console server power cord is unplugged and replugged, the server will automatically power on.
3. Power off the management console display, use the power button **(2)**. Ensure the power LED **(1)** is off.



Figure 671. Management Console Power LED and Switch

4. At the rear of the rack, disconnect the management console server power cable **(1)**.
5. Disconnect the following cables:
   a. Each Ethernet cable **(3)** and verify that the cable label port number is correct.
   b. The keyboard/display integrated cable **(2)**.

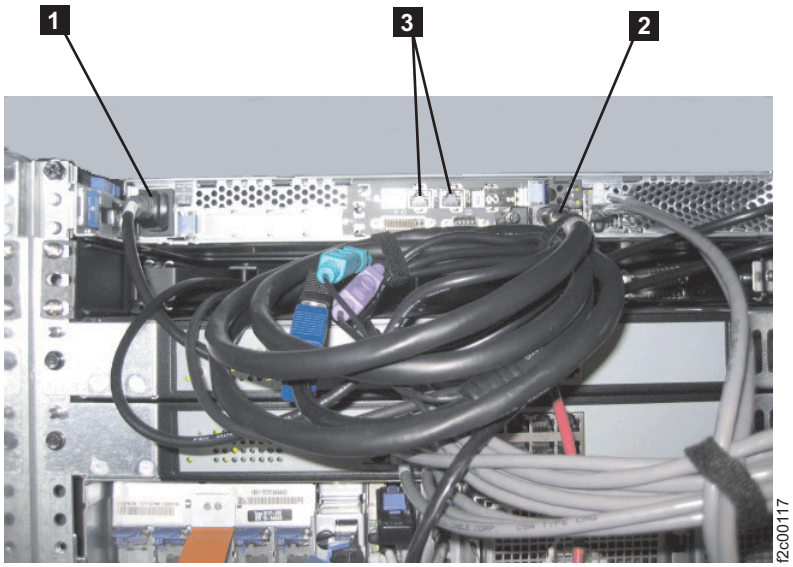


Figure 672. Management console rear connectors

6. Disconnect the management console server power cable **(1)**.
7. At the front of the rack, unscrew the two captive thumbscrews.
8. Carefully slide the eServer out of the rack and place it on a static free work surface.

Install the management console server

1. At the front of the rack, carefully slide the eServer in the rack and tighten the two captive thumbscrews.
2. At the rear of the rack, connect the following cables:
   a. Ethernet cable **(3)** (verify that the cable label port number is correct).
   b. The keyboard/display integrated cable.
3. Connect the management console power cable **(1)**. See Figure 672 on page 1194.

   Note: The management console will automatically power on and boot up.
4. Return to the procedure that sent you here.

Chapter 39. Rack Power and Cooling

Exchange the 5/12V DDM power module

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

DANGER

Hazardous voltage, current, or energy levels are present inside of a component to which this label is attached. (L001)



Remove the 5/12V DDM power module

1. If this rack is a machine type 2107 (not 242x), then see MAP2512 to ensure the 5/12V DDM power module’s heavy black power cables are properly crimped into the cable connectors before continuing.
2. To locate this FRU, do one of the following, and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, see “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, see “MAP1245 Finding FRUs using location codes” on page 514.
3. Open the 208VDC bus bar gate **2** to the service position by removing the two screws **1** and swinging it open to the left. See Figure 673 on page 1198.

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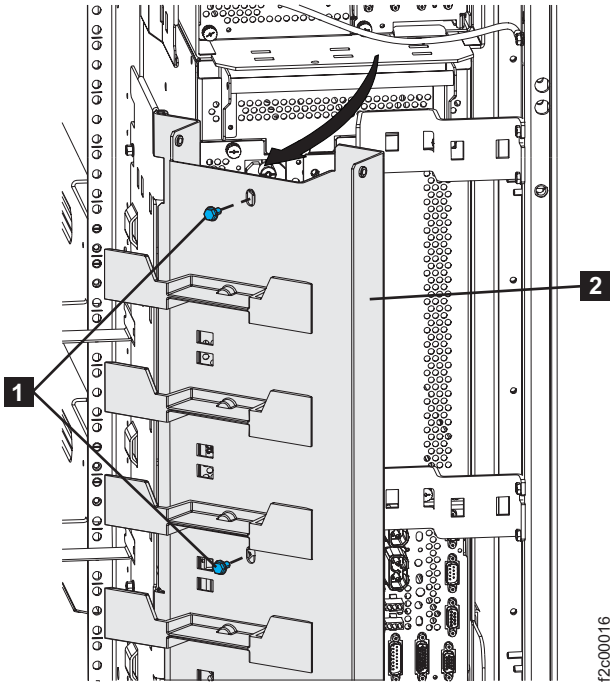


Figure 673. 208VDC bus bar gate service position

4. Remove power.
   a. Instruct the customer to switch off the circuit breaker that supplies mainline AC voltage to the power receptacle for the mainline power cable you are replacing.

      Attention: Attach a "Do Not Operate" tag, *S229-0237*, and the safety lockout padlock to the customer's AC voltage circuit breaker. Refer to the *Electrical Safety for IBM Customer Engineers* book.
   b. On the PPS, at the AC input power module, set the CB00 switch **1** to Off (down).
   c. Disconnect the mainline power cord from the AC input power module. Push the two release levers **2**.

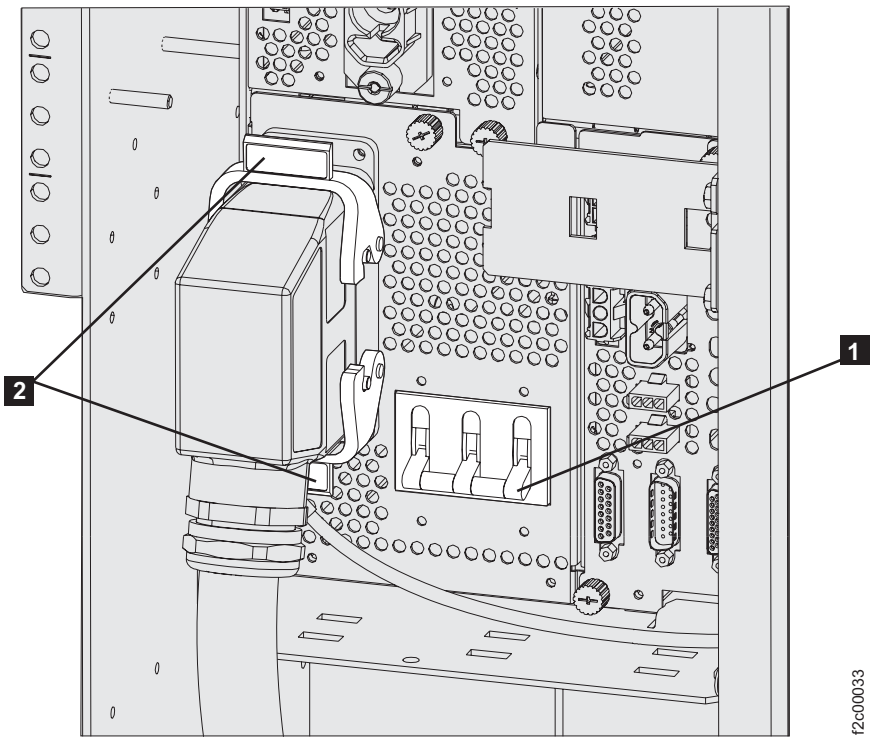


Figure 674. Remove the AC mainline power cord

5. At the rear of the PPS that does not contain the module that is being replaced, disconnect the **J3** PPS-to-PPS communication cable at the bottom right of the PPS sequencer module (see Figure 675 on page 1200).

   Notes:

   a. Disconnecting the cable from the PPS that does not contain the module that is being replaced will protect that PPS. Then, when the other end of the cable is disconnected from the PPS containing the module that is being replaced, no pins inside that connector will be able to touch ground and shut down the PPS that does not contain the module that is being replaced.

   b. This removes the remaining logic power from the PPS containing the module that is being replaced; all PPS LEDs should now be off.

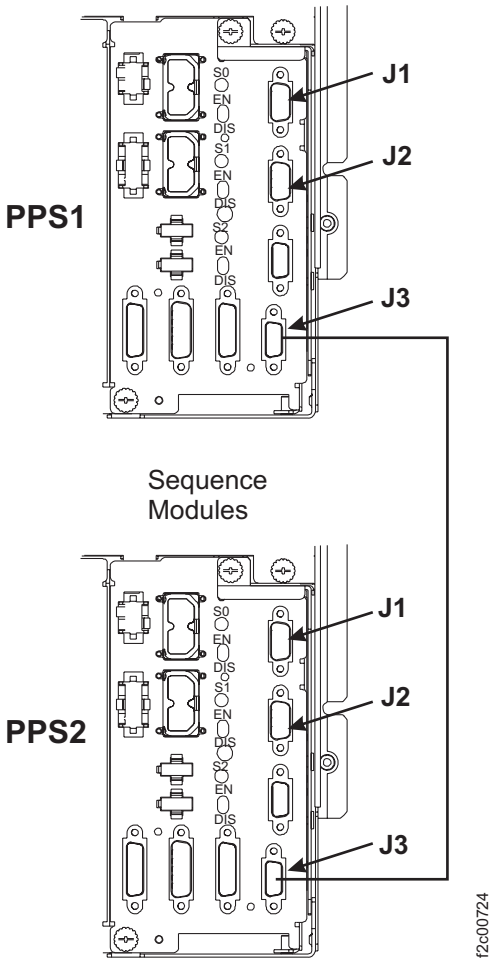
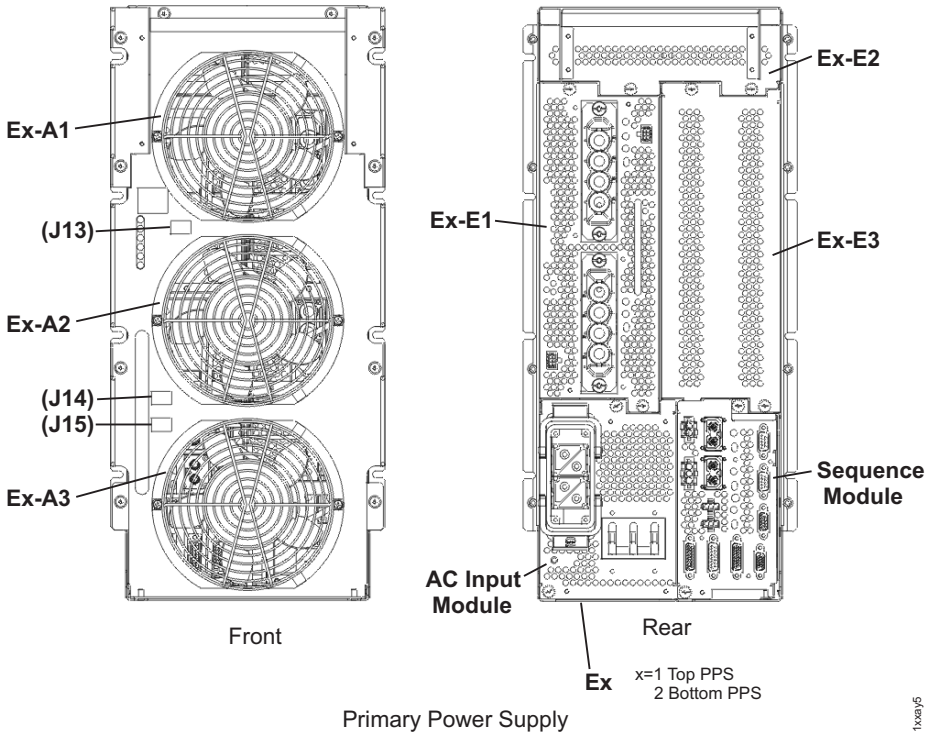


Figure 675. PPS rear view, lower right: PPS-to-PPS communication cable connection

6. At the rear of the PPS containing the module that is being replaced, disconnect the J3 PPS-to-PPS communication cable at the bottom right of the PPS sequencer module.
7. Disconnect the cables from the 5/12V DDM power module.
8. Remove the 5/12V DDM module.
   a. Remove the screws **1** from the 5/12V DDM power module.
   b. Remove any cable routing brackets that are blocking the module. Each bracket is held by two screws that only need to be loosened, not removed.
   c. Remove the 5/12V DDM module. Use the location code to determine which module location (E1 or E3).



- Part of the base PPS

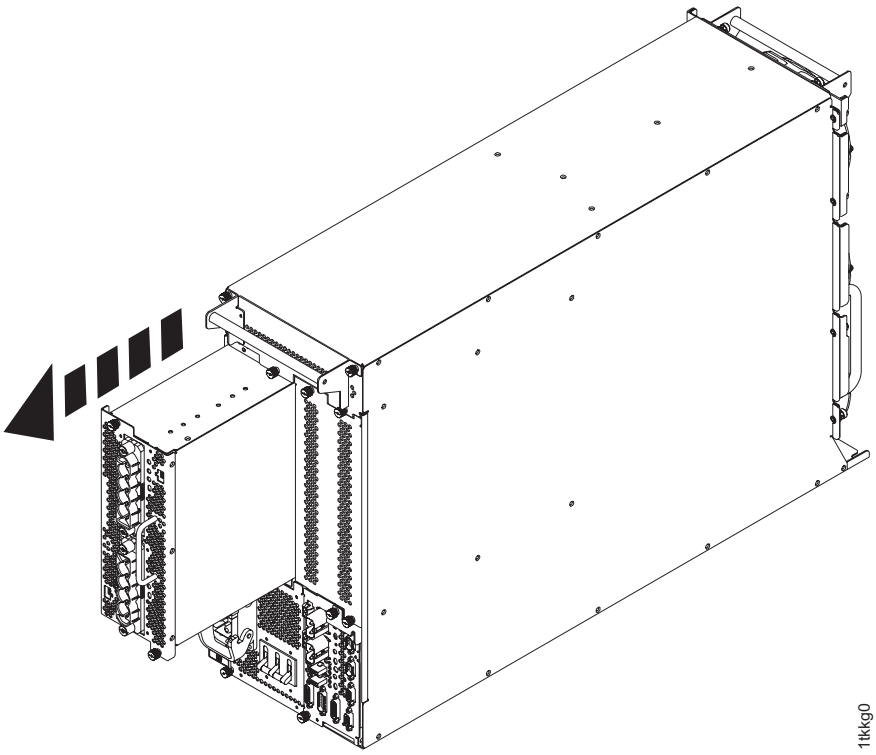


Figure 676. 5/12V DDM module 2

- Optional module

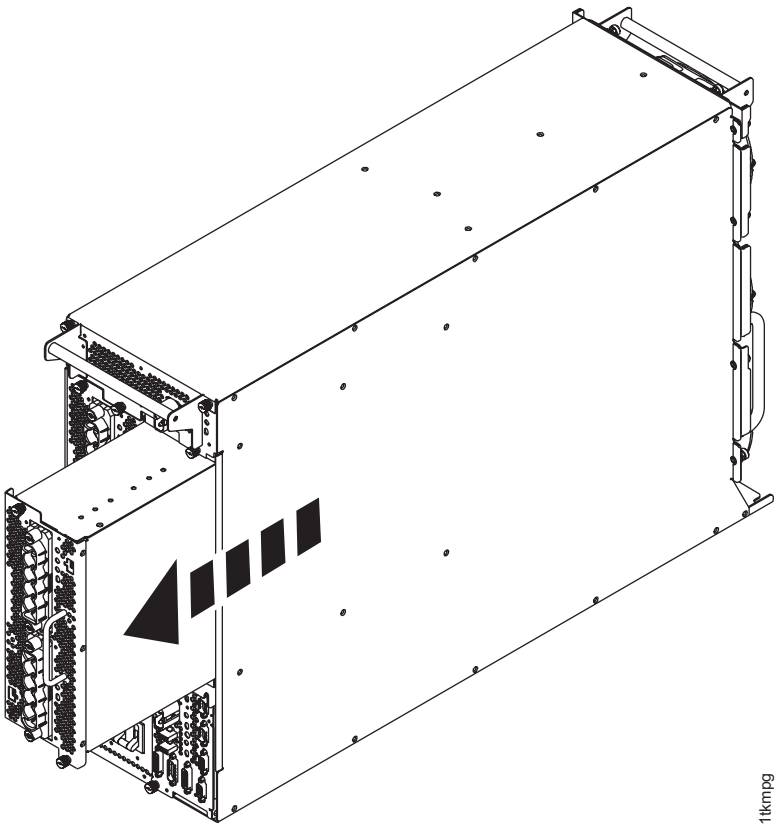


Figure 677. Optional module

Install the 5/12V DDM power module

1. Install the 5/12V DDM module
   a. Install the new 5/12V DDM module. Secure the two silver thumbscrews.
   b. Reinstall any cable brackets that were removed.

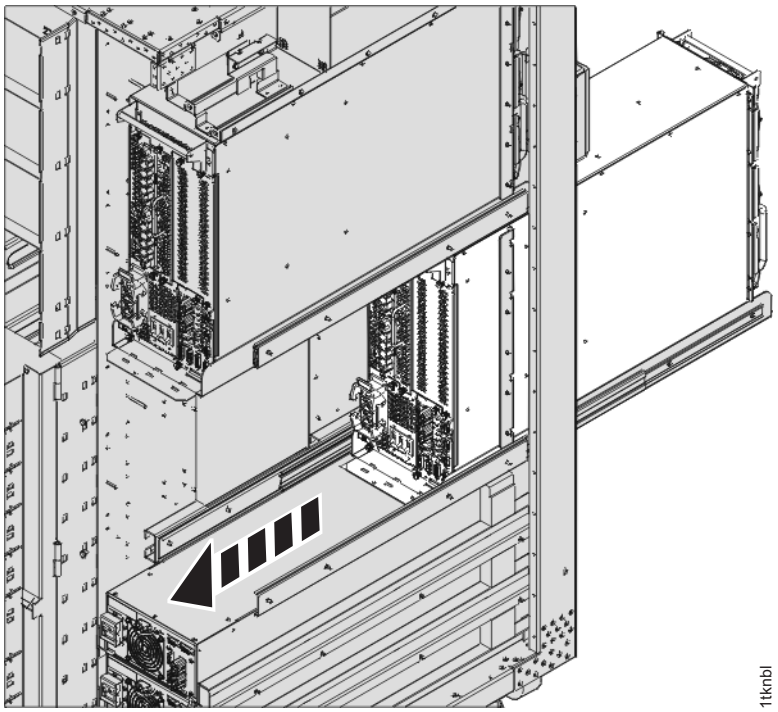


Figure 678. Reset PPS service position

2. At the rear of the PPS containing the replacement module, connect the **J3** PPS-to-PPS communication cable at the bottom right of the PPS sequencer module.
3. At the rear of the PPS that does not contain the replacement module, connect the **J3** PPS-to-PPS communication cable at the bottom right of the PPS sequencer module.

   Note: One or more of the PPS LEDs may now be lit on the PPS containing the replacement module.
4. Disconnect the cables from the 5/12V DDM power module.
5. Connect power.
   a. At the PPS, connect the mainline power cord to the AC input power module. Secure it with both release levers **2** .
   b. At the AC input power module, set the CB00 switch to on (up) **1** .

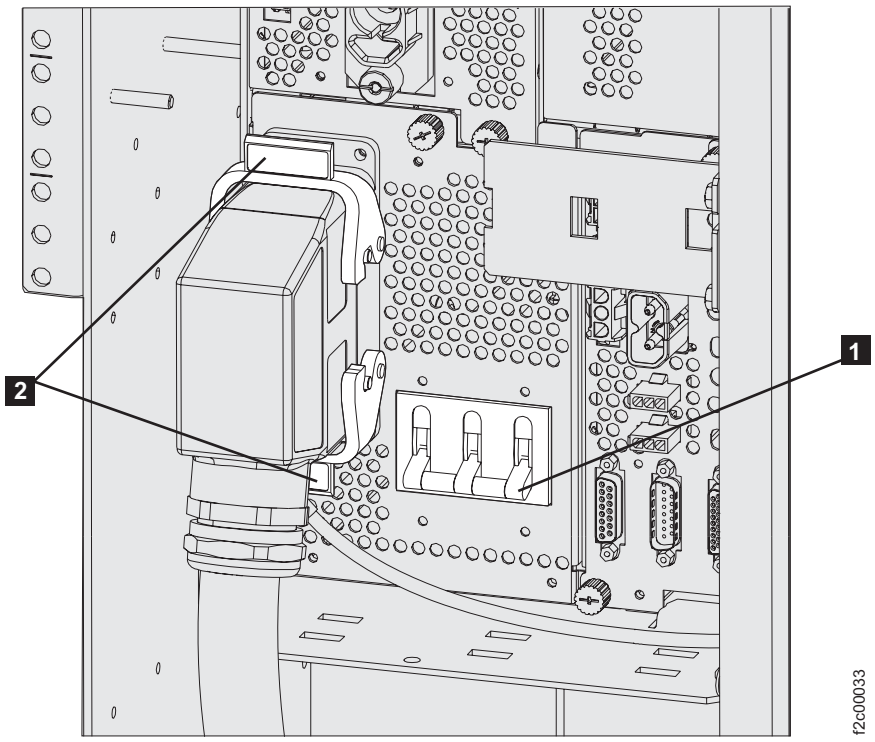


Figure 679. Connect the AC mainline power cord

c. Instruct the customer to switch on the mainline circuit breaker that supplies mainline AC voltage to the power receptacle for the primary power supply you are replacing.

6. Return the 208VDC bus bar gate to the closed position.
   a. Pivot the 208VDC bus bar gate closed, being careful that both mainline power cables lie in the space between the two 208VDC bus bars.
   b. Install the two screws.
7. Return to the procedure that sent you here.

Exchange the battery module chassis

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

DANGER

Hazardous voltage, current, or energy levels are present inside of a component to which this label is attached. (L001)



Remove the battery module chassis

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. If this is an expansion rack and it has old level sheetmetal, the sheetmetal baffle **(2)** to the left of the gate and at the bottom of the storage enclosure chassis might need to be removed to allow the gate to swing open. Remove the two screws **(1)** that fasten the baffle to the 19″ rack mount vertical rails. If the baffle is the new level sheetmetal, it has a flexible plastic cutout that bends out of way when the gate is swung open.

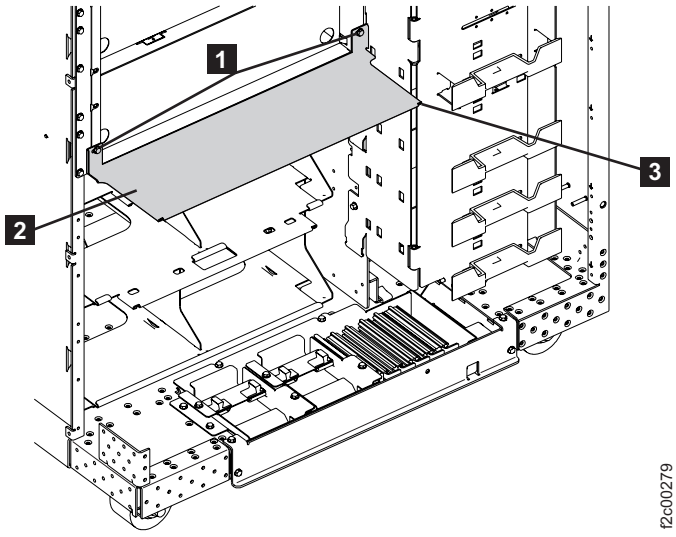


Figure 680. Air baffle

3. Remove the two screws **(1)** and open the 208VDC bus bar gate to the service position.

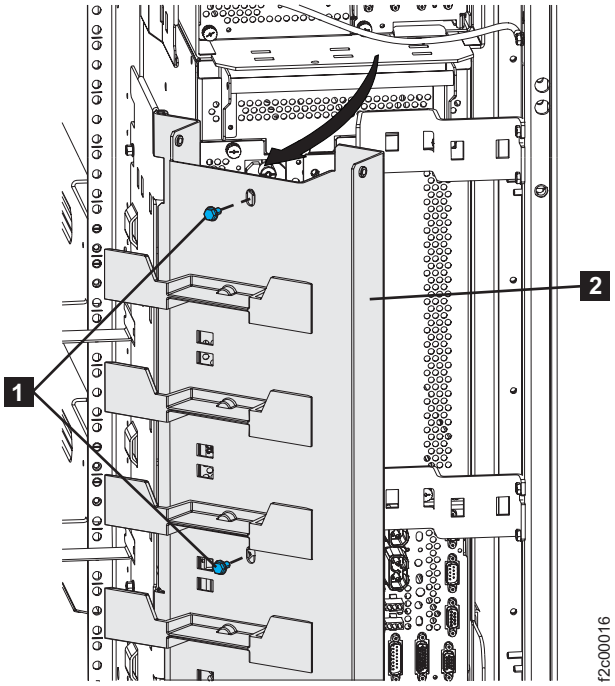


Figure 681. 208VDC bus bar gate service position

4. At the rear of the rack, set the CB0 and CB1 switches to off (down) on the battery module chassis.
5. At the front of the rack, remove the three battery modules from the battery module chassis.
   a. Loosen the thumbscrew at the top of each battery module **(1)**.

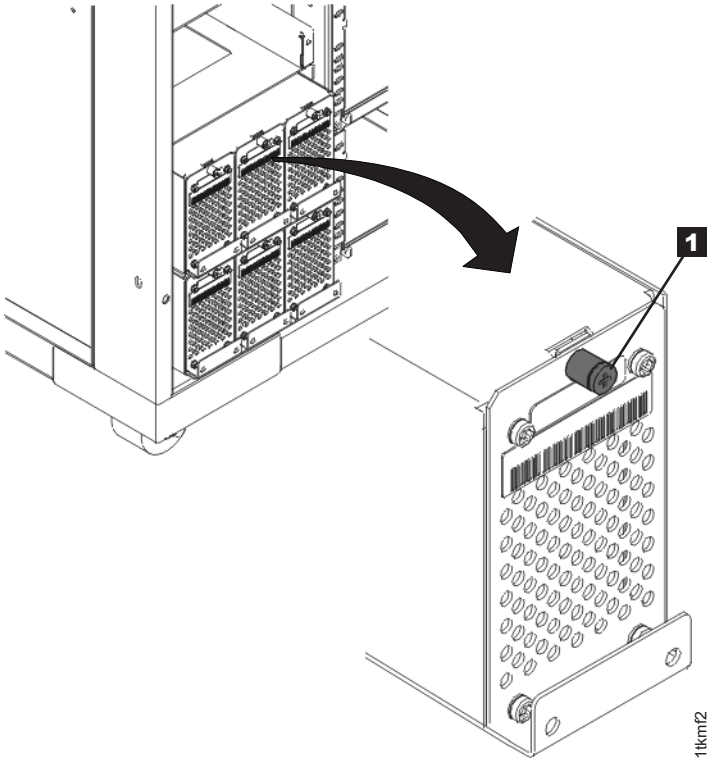


Figure 682. Loosening the thumbscrew

b. Gently slide the modules out of their slots. Be ready to support the weight of each module as the module is being removed.

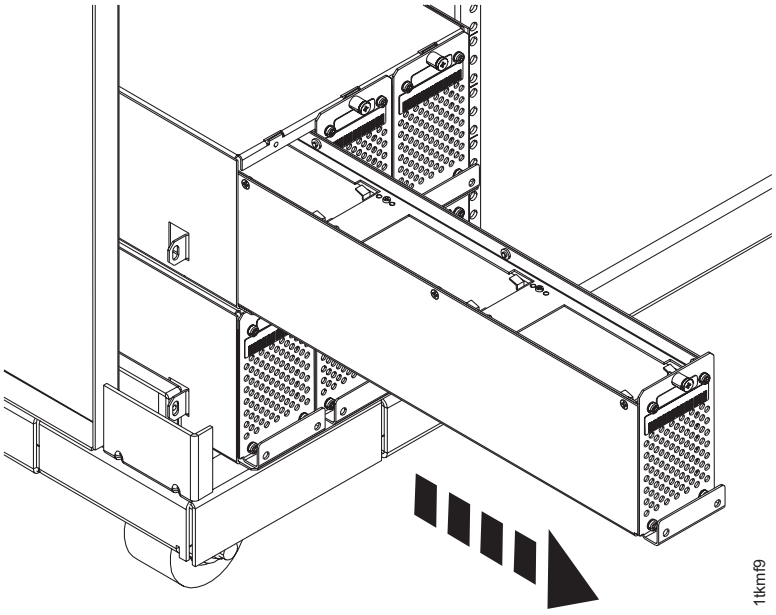


Figure 683. Removing the modules

6. At the rear of the rack, unplug all the cables (except the J7 fan cable) from the battery module chassis.
7. At the rear of the rack, disconnect the yellow/green ground wire from the rack frame. Be careful to keep any serrated washers used for good contact.

8. At the front of the rack, remove the two rack mount screws.
9. Slide the battery module chassis out the front of the rack.

Install the battery module chassis

1. Ensure that CB0 and CB1 switches are set to off (down) on the new battery module chassis.
2. Slide the chassis into the front of the rack.
3. Screw in the two rack mount screws to secure the chassis.
4. At the rear of the rack, connect all cable including the yellow/green ground wire.
5. At the front of the rack, install the three battery modules.
6. At the rear of the rack, set CB0 and CB1 switches to on (up).
7. Close the 208VDC bus bar gate and install the two screws.

   Note: If this is an expansion rack and the sheetmetal baffle to the left of the gate was removed, reinstall it now with the two screws.
8. Return to the procedure that sent you here.

Exchange the battery module chassis fan


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the battery module chassis fan

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. If this is an expansion rack and it has old level sheetmetal, the sheetmetal baffle **(2)** to the left of the gate and at the bottom of the storage enclosure chassis might need to be removed to allow the gate to swing open. Remove the two screws **(1)** that fasten the baffle to the 19″ rack mount vertical rails. If the baffle is the new level sheetmetal, it has a flexible plastic cutout that bends out of way when the gate is swung open.

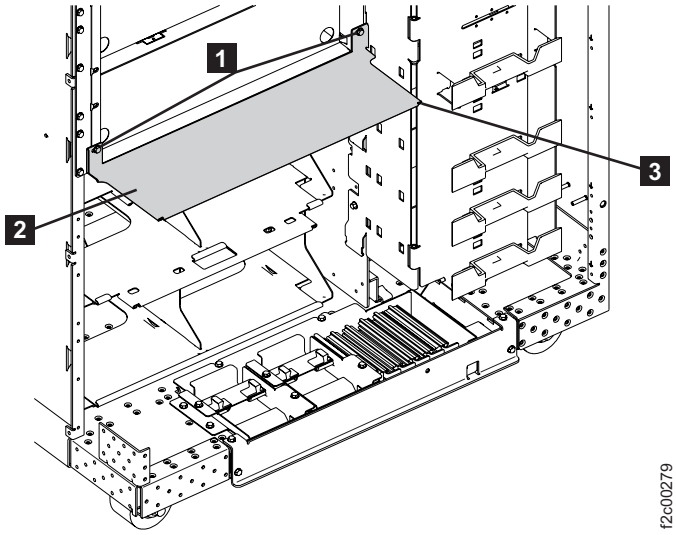


Figure 684. Air baffle

3. Open the 208VDC bus bar gate **(2)** to the service position by removing the two screws **(1)** and swinging it to the left.
4. Unplug the battery module chassis fan cable.
5. Unscrew the screws **(1)** to loosen the fan from the battery backup unit.

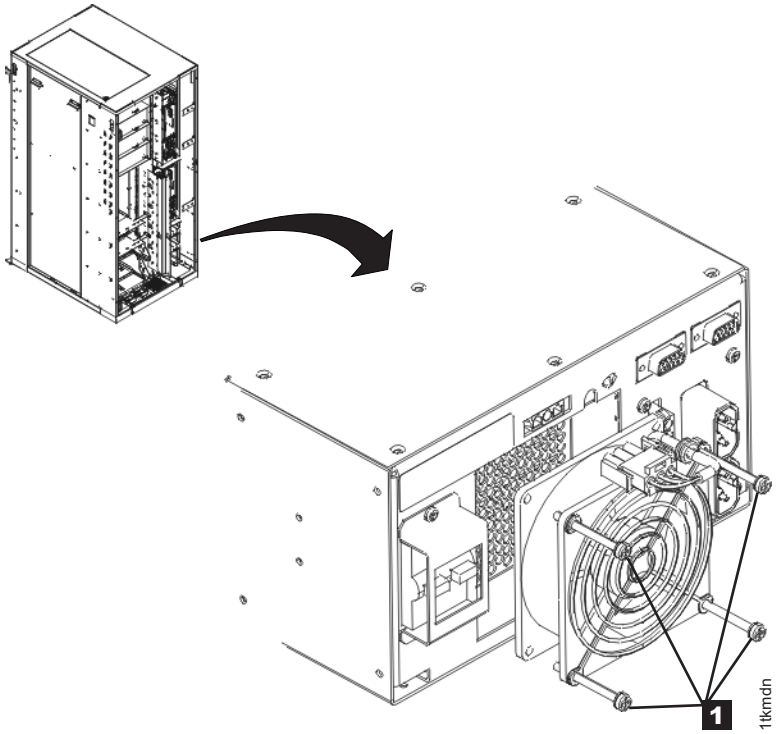


Figure 685. Remove the battery backup unit fan

6. Remove the fan.

Install the battery module chassis fan

1. Position the fan cable rubber grommet up into the sheetmetal slot and then place the fan into the fan recess.
2. Install fan wire guard and the four screws **(1)**. See Figure 685 on page 1209.
3. Close the 208VDC bus bar gate and install the two screws.

   Note: If this is an expansion rack and the sheetmetal baffle to the left of the gate was removed, reinstall it now with the two screws.
4. If this is an expansion rack and the sheetmetal baffle to the left of the gate was removed, reinstall it now with the two screws.
5. Return to the procedure that sent you here.

Exchange the battery module set


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. The battery module set contains three battery modules. Each battery module does not exceed the weight to be replaced by a single service provider. **All three battery modules must be replaced as a set**.

Remove the battery module set

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. If this is an expansion rack and it has old level sheetmetal, the sheetmetal baffle **(2)** to the left of the gate and at the bottom of the storage enclosure chassis might need to be removed to allow the gate to swing open. Remove the two screws **(1)** that fasten the baffle to the 19″ rack mount vertical rails. If the baffle is the new level sheetmetal, it has a flexible plastic cutout that bends out of way when the gate is swung open.

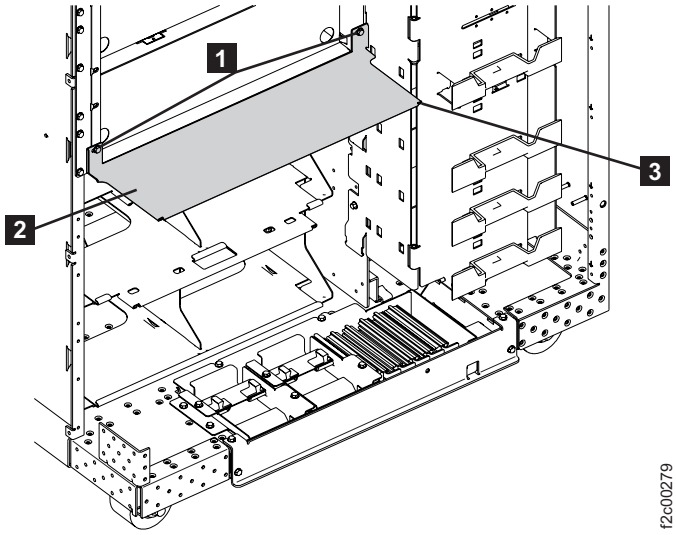


Figure 686. Air baffle

3. At the rear of the rack remove the two screws **(1)** and open the 208VDC bus bar gate **(2)** to the service position.

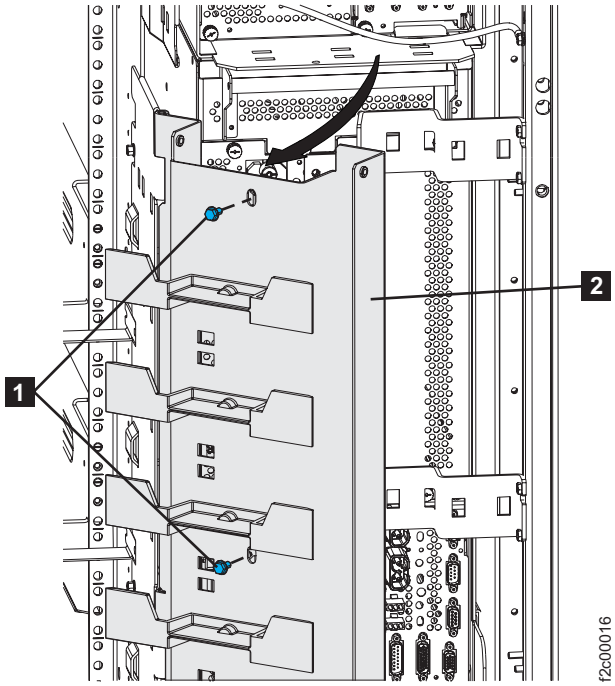


Figure 687. 208VDC bus bar gate service position

4. Set the CB0 and CB1 switches to Off (down) on the battery module chassis.
5. Loosen the thumbscrew at the top of each battery module **(1)**.

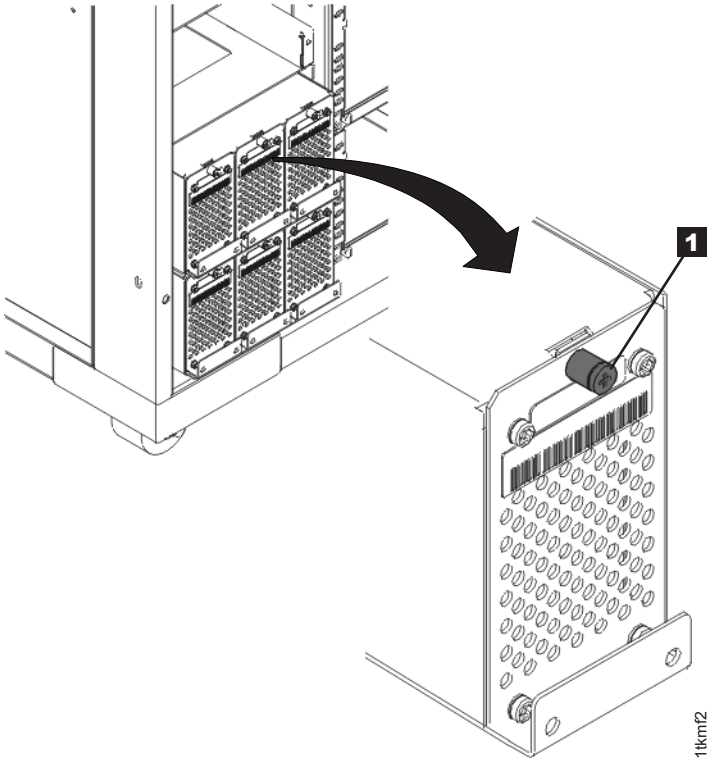


Figure 688. Loosening the thumbscrew

6. Gently slide each battery module unit out of its slot. Support the weight of the module when the module is near being removed.

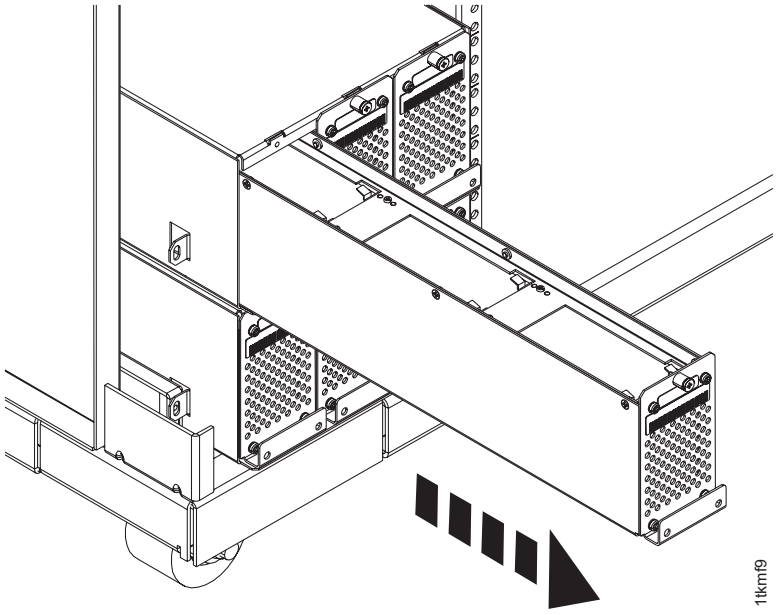


Figure 689. Removing the battery module

Install the battery module set

1. Slide each battery module into its slot.
2. Tighten each thumbscrew.

3. At the rear of the rack, set CB0 and CB1 switches to on (up).
4. Pivot the 208VDC bus bar gate closed being careful that both mainline power cables lay in the space between the two 208VDC bus bars. Install the two screws.

   Note: If this is an expansion rack and the sheetmetal baffle to the left of the gate was removed, reinstall it now with the two screws.
5. This FRU contains lead/acid gel batteries that must be properly disposed of. See return instructions in the FRU packaging or use your local procedures.
6. Return to the procedure that sent you here.

Exchange the booster power module

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

DANGER

Hazardous voltage, current, or energy levels are present inside of a component to which this label is attached. (L001)



Remove the booster power module

1. If this rack is a machine type 2107 (not 242x), then see MAP2512 to ensure the 5/12V DDM power module's heavy black power cables are properly crimped into the cable connectors before continuing.
2. You must disconnect the J3 PPS-to-PPS communication cable and reconnect the **J1**, **J2** (PPS to RPC cables), and **J3** PPS-PPS communication cable in the proper sequence to prevent possible problems to the other PPS. Ensure you carefully follow the steps in this procedure.
3. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.

4. If this is an expansion rack and it has old level sheet metal, the sheet metal baffle **2** to the left of the gate and at the bottom of the storage enclosure chassis might need to be removed to allow the gate to swing open. Remove the two screws **1** that fasten the baffle to the 19″ rack mount vertical rails. If the baffle is the new level sheet metal, it has a flexible plastic cutout that bends out of way when the gate is swung open.

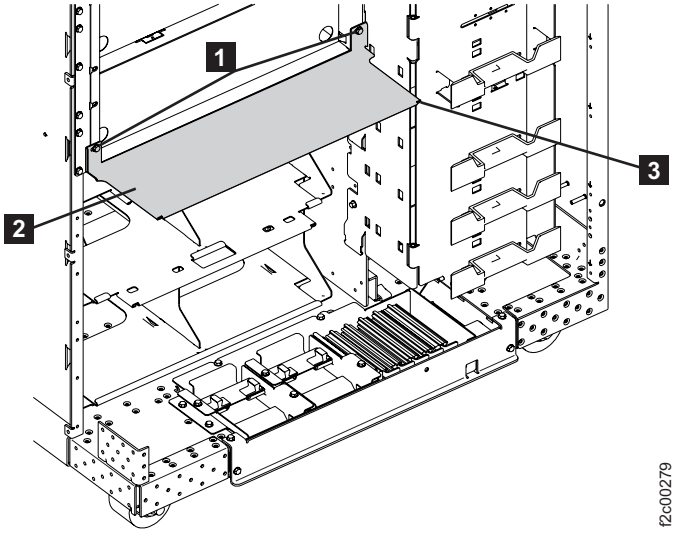


Figure 690. Air baffle

5. Open the 208VDC bus bar gate **2** to the service position by removing the two screws **1** and swinging it open to the left. See Figure 691.

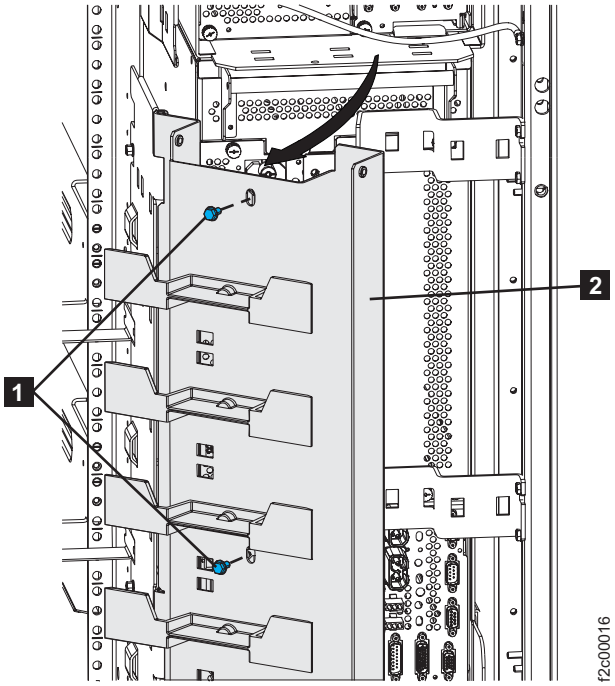


Figure 691. 208VDC bus bar gate service position

6. Remove power. See Figure 692 on page 1215.

a. Instruct the customer to switch off the circuit breaker that supplies mainline AC voltage to the power receptacle for the mainline power cable you are replacing.

   Attention: Attach a "Do Not Operate" tag, *S229-0237*, and the safety lockout padlock to the customer's AC voltage circuit breaker. Refer to the *Electrical Safety for IBM Customer Engineers* book.

b. At the PPS, on the AC input power module, set the CB00 switch **1** to off (down).

c. Disconnect the mainline power cord from the AC input power module. Push the two release levers **2** .

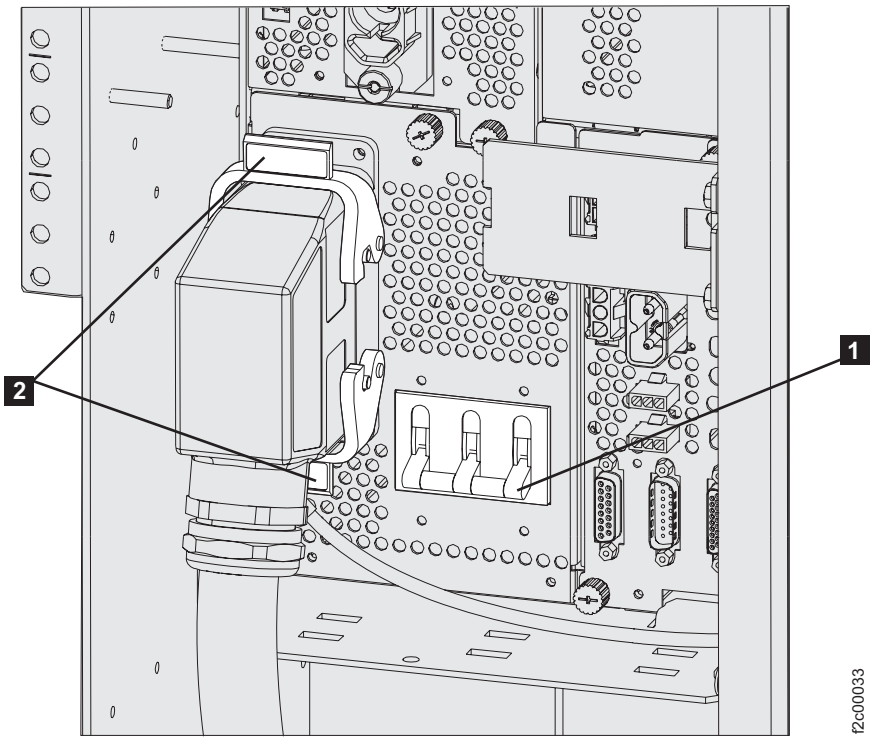


Figure 692. Remove the AC mainline power cord

7. At the rear of the PPS that does not contain the module that is being replaced, disconnect the J3 PPS-to-PPS communication cable at the bottom right of the PPS sequencer module (see Figure 693 on page 1216).

   Notes:

   a. Disconnecting the cable from the PPS that does not contain the module that is being replaced will protect that PPS. Then, when the other end of the cable is disconnected from the PPS containing the module that is being replaced, no pins inside that connector will be able to touch ground and shut down the PPS that does not contain the module that is being replaced.

   b. This removes the remaining logic power from the PPS containing the module that is being replaced; all PPS LEDs should now be off.

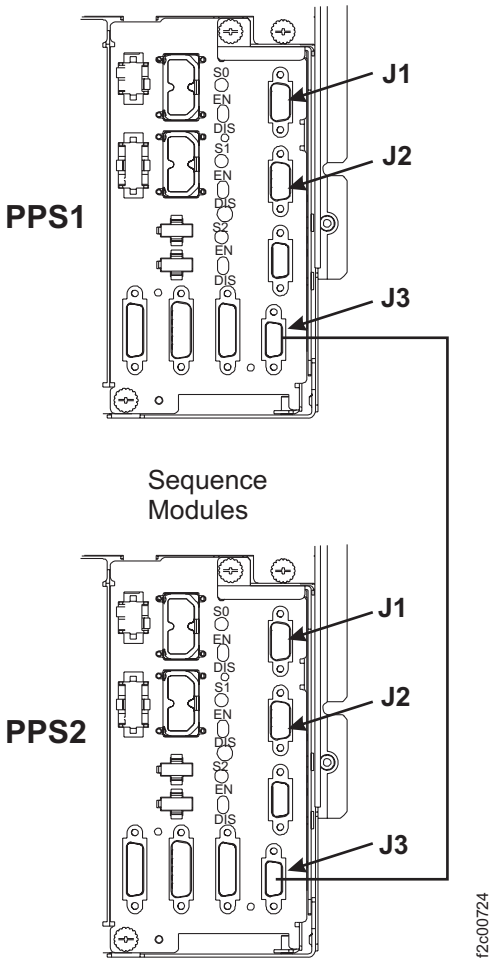


Figure 693. PPS rear view, lower right: PPS-to-PPS communication cable connection

8. At the rear of the PPS containing the module that is being replaced, disconnect the J3 PPS-to-PPS communication cable at the bottom right of the PPS sequencer module.
9. Disconnect the cables from the booster power module.
10. If removing the booster power module from PPS2 (lower PPS) slide the PPS forward into the service position:
    a. Disconnect the remaining cables from the rear of the PPS.
    b. Remove the green/yellow ground wire from the PPS.
    c. Remove the hook-and-loop fasteners **1** securing the mainline power cable to PPS2 (lower PPS). Remove the screw securing the mainline power cable bracket, and then remove the mainline power cable bracket **2** . See Figure 694 on page 1217.

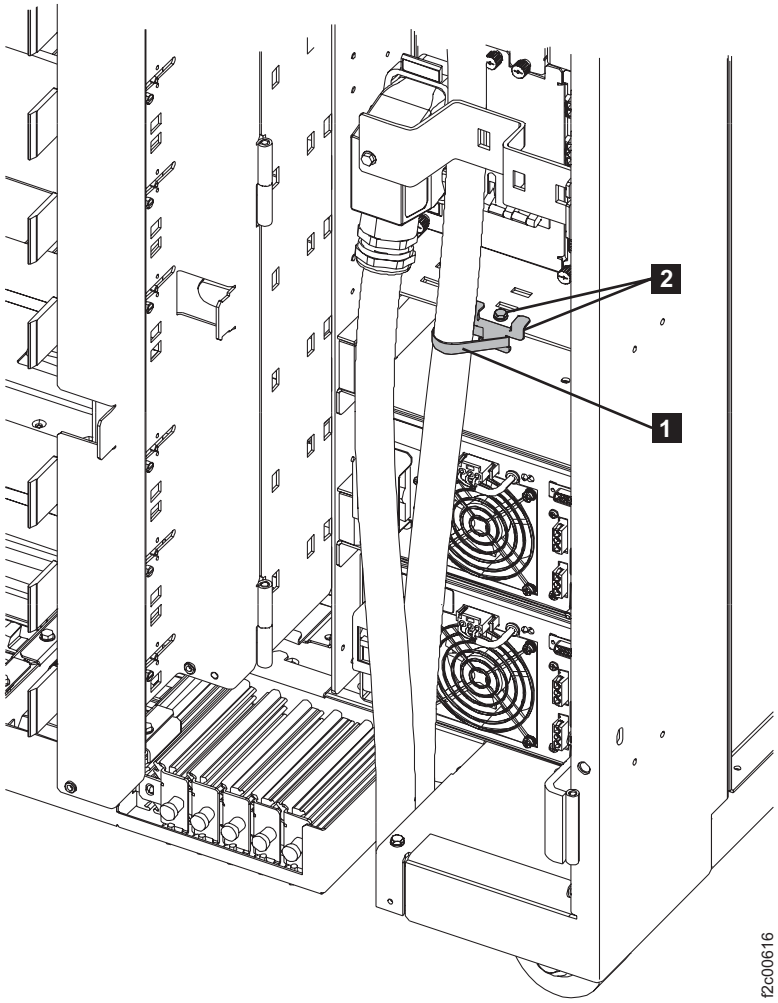


Figure 694. Power supply main line

d. At the front of the rack, remove the eight screws **2** from the fan plate. See Figure 695 on page 1218.

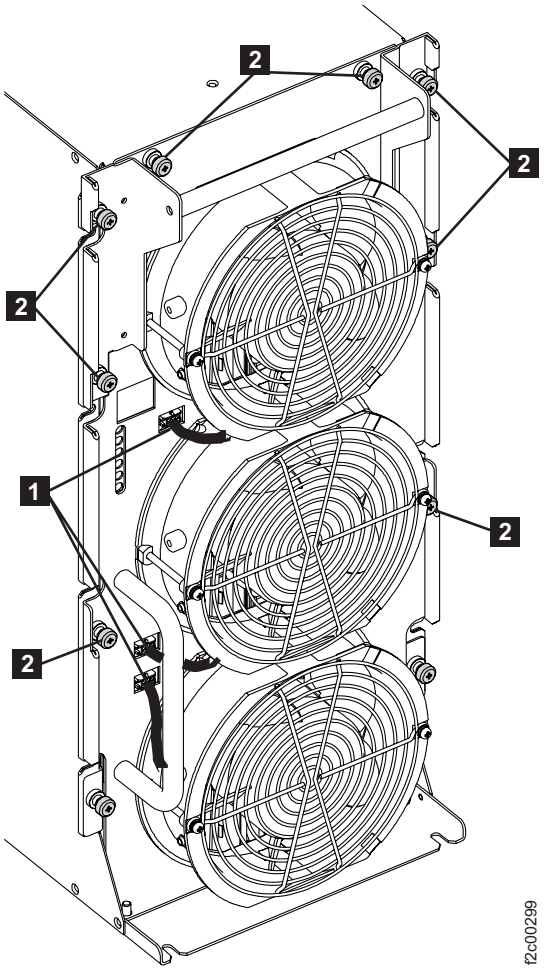


Figure 695. Remove fan cables and fan assembly screws

e. Slide the entire primary power supply forward into service position until it stops. See Figure 696 on page 1219.

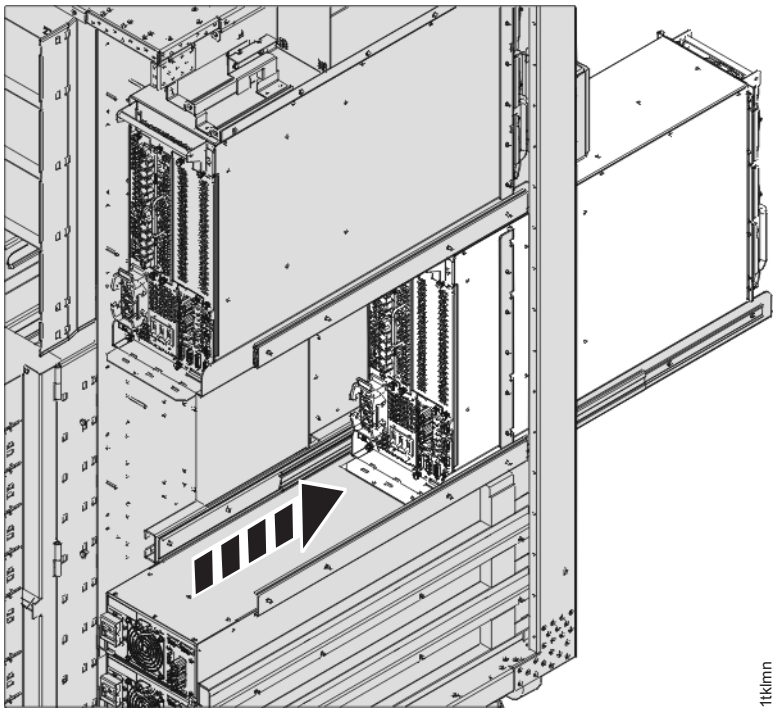


Figure 696. PPS service position

11. Remove the screws **1** from the power booster module and then slide the module out. See Figure 697 on page 1220.
    - You might need to remove one or more cable frame routing brackets from the rear of the frame so that there is enough clearance. Each bracket is held by two screws that only need to be loosened, not removed.
    - You may need to rotate the module it to the vertical position **2** to fully remove it from the rack.

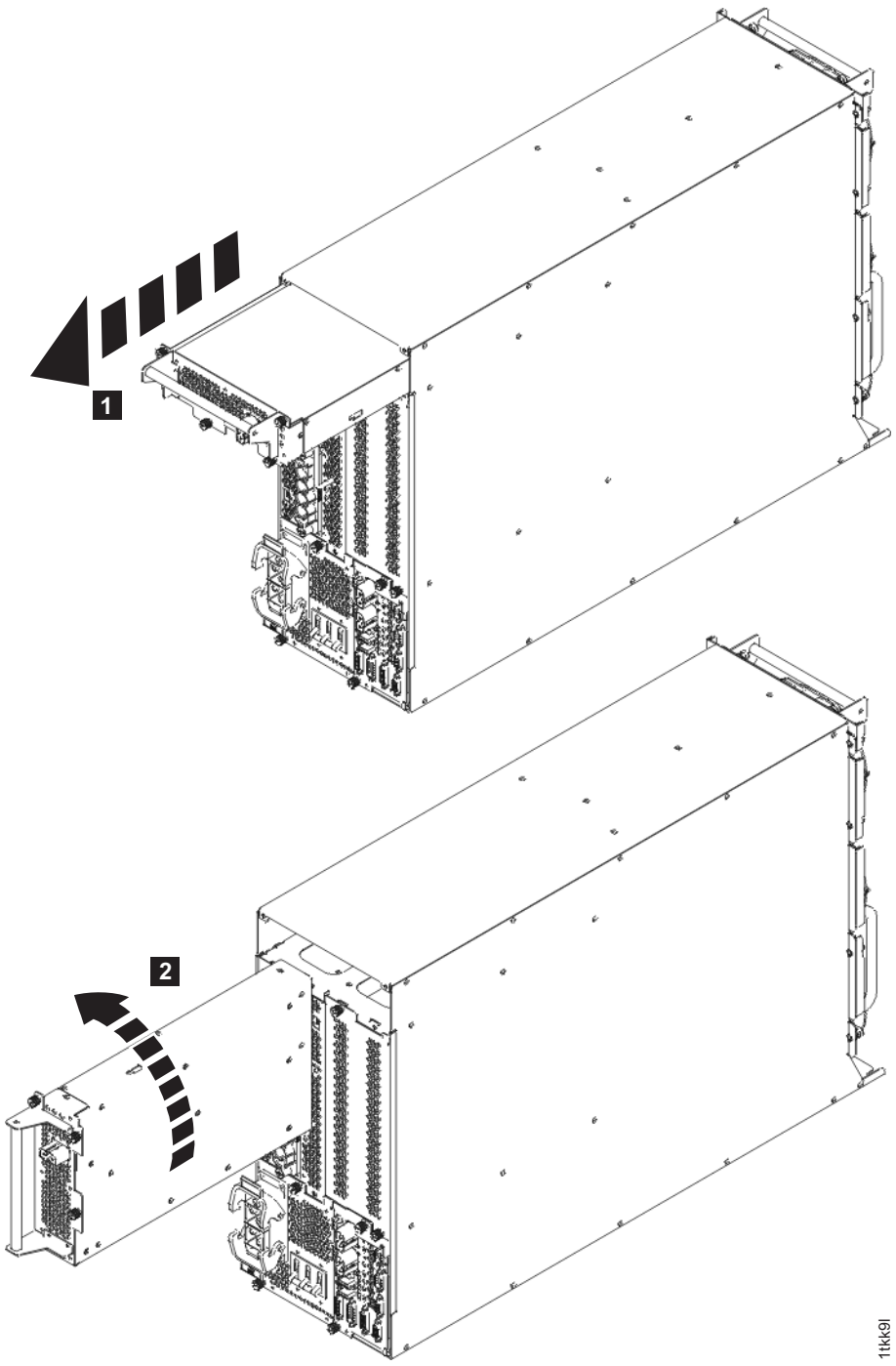


Figure 697. Removing optional booster module

Install the booster power module

1. You must connect the **J1**, **J2** (PPS to RPC cables), and **J3** PPS-PPS communication cable in the proper sequence to prevent possible problems to the other PPS. Ensure you carefully follow the steps in this procedure.
2. Install the booster power module
   a. At the rear of the rack, install the new booster power module.

b. Secure the two silver thumbscrews.

3. Do this step if the PPS was put in the service position. See Figure 698.
   a. At the front of the rack, press the slide release levers and then slide the PPS chassis fully into the rack.
   b. Install the eight black hex head screws that fasten the PPS chassis to the rack.
   c. Reinstall the mainline power cable bracket.

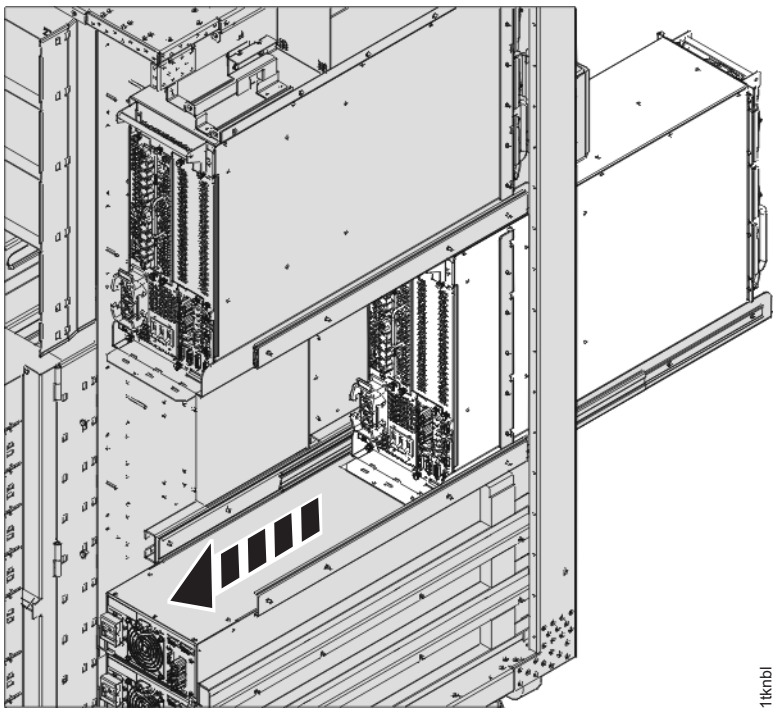


Figure 698. Reset PPS service position

4. Do this step if the PPS was put in the service position. At the rear of the PPS, connect the **J1** and **J2** cables now to the sequence module. See Figure 693 on page 1216 above.
5. Do not connect the J3 PPS-to-PPS communication cable or mainline power cable until later steps.
   a. Connect the remaining rear cables.
   b. Install the green/yellow ground wire, ensuring all the contact washers are in place.
   c. Ensure the enable/disable switches on the rear modules are in the on position (up).
   d. Reinstall any frame cable routing bracket that was removed.
6. Connect all but two rear cables.
   a. Do not connect the PPS sequencer module (bottom right) J3 PPS-to-PPS communication cable or mainline power cord until directed in later steps.
   b. Connect the remaining rear cables.
   c. Install the green/yellow ground wire, ensuring all the contact washers are in place.

d. Ensure the enable/disable switches on the rear modules are in the on position (up).
e. Reinstall any frame cable routing bracket that was removed.

7. At the rear of the PPS containing the replacement module, connect the J3 PPS-to-PPS communication cable at the bottom right of the PPS sequencer module.
8. At the rear of the PPS that does not contain the replacement module, connect the J3 PPS-to-PPS communication cable at the bottom right of the PPS sequencer module.

   Note: One or more of the PPS LEDs may now be lit on the PPS containing the replacement module.
9. Connect power.
   a. Connect the mainline power cord to the AC input power module. Secure it with both release levers **2** .
   b. Set the CB00 switch to on (up) **1** . See Figure 692 on page 1215.
   c. Instruct the customer to switch on the mainline circuit breaker that supplies mainline AC voltage to the power receptacle for the primary power supply you are replacing.
10. Reinstall any frame cable routing bracket that was removed.
11. Return the 208VDC bus bar gate to the closed position.
    a. Pivot the 208VDC bus bar gate closed, being careful that both mainline power cables lie in the space between the two 208VDC bus bars.
    b. Install the two screws.

    Note: If this is an expansion rack and the sheet metal baffle to the left of the gate was removed, reinstall it now with the two screws.
12. Return to the procedure that sent you here.

Exchange the bus bar, 208VDC primary


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove Bus bar 208VDC primary

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.

2. If this is an expansion rack and it has old level sheetmetal, the sheetmetal baffle **(2)** to the left of the gate and at the bottom of the storage enclosure chassis might need to be removed to allow the gate to swing open. Remove the two screws **(1)** that fasten the baffle to the 19″ rack mount vertical rails. If the baffle is the new level sheetmetal, it has a flexible plastic cutout that bends out of way when the gate is swung open.

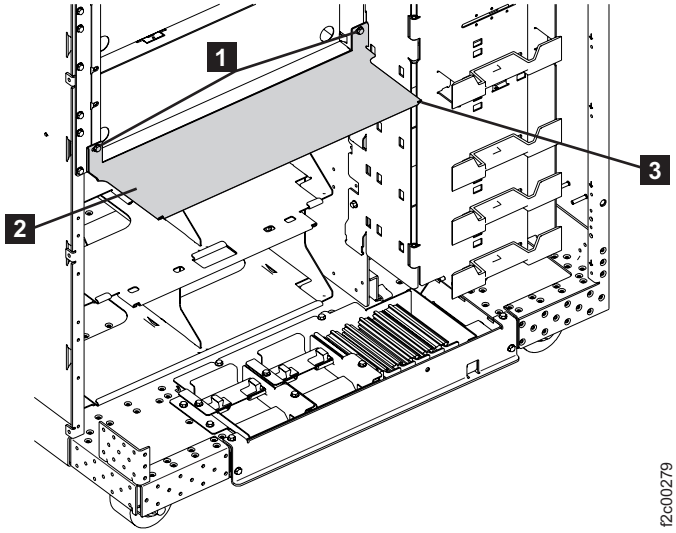


Figure 699. Air baffle

3. Remove the two screws **(1)** and open the 208VDC bus bar gate **(2)** to the service position.

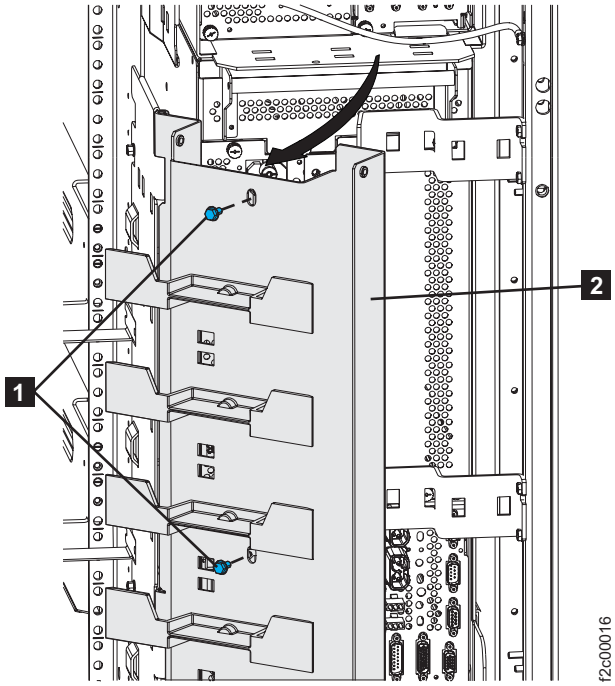


Figure 700. 208VDC bus bar gate service position

4. Determine the PPS supplying 208VDC to the bus bar being replaced.

a. The bus bar nearest the rear of the rack **(1)** is connected to PPS 1 (upper PPS). Verify this by tracing the two black power cables **(4)**.
b. The bus bar nearest the front of the rack **(2)** is connected to PPS 2 (lower PPS). Verify this by tracing the two black power cables between the PPS and bus bar.

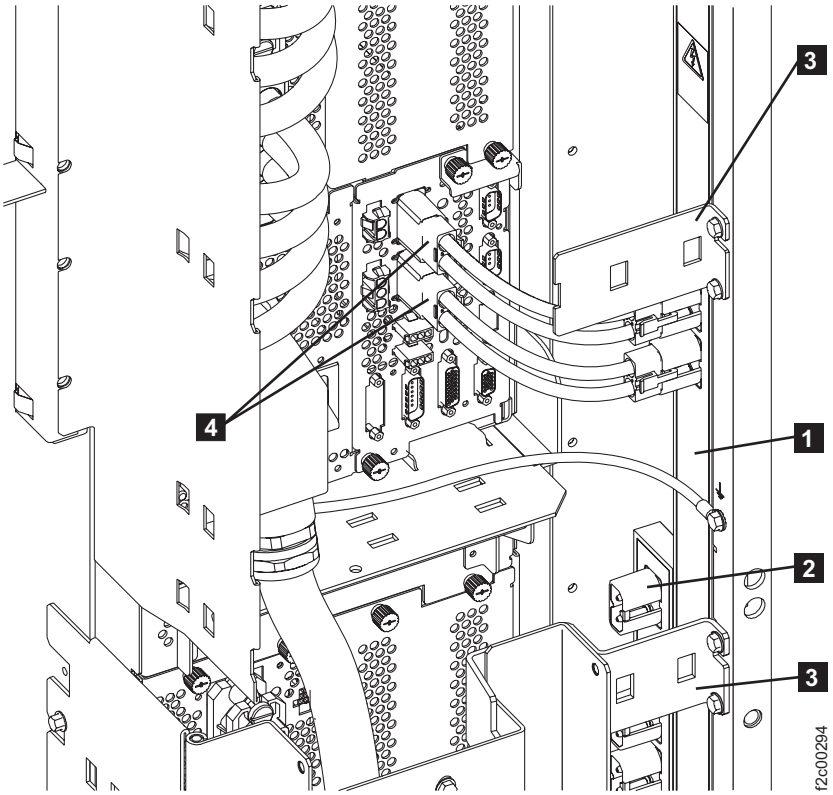


Figure 701. 208VDC primary bus bar cables

5. Switch the PPS input module CB00 switch **(1)** to Off (down).

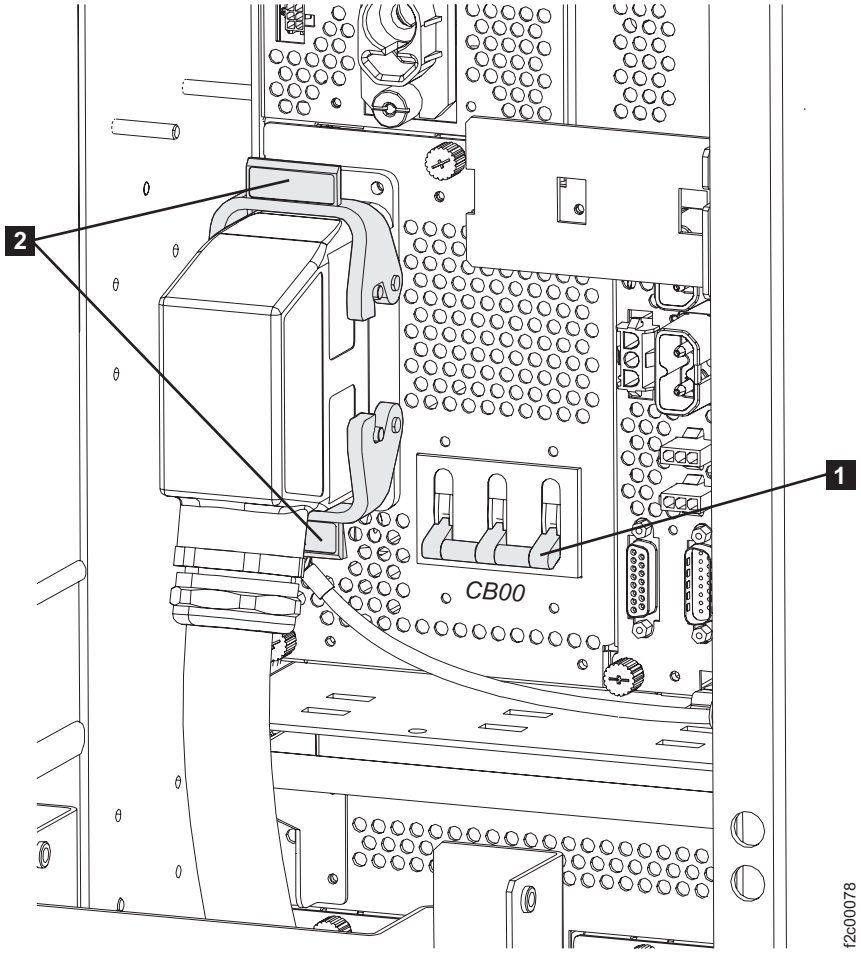


Figure 702. Power supply main line CB00 switch

6. Unplug all the power cables connected to the bus bar.
7. Remove any rack cable brackets **(3)** (see Figure 701 on page 1224) and ground wires as needed to have clearance to remove the bus bar.
8. Remove the nuts holding the bus bar to the threaded frame studs. Remove the bus bar.

Install Bus bar 208VDC primary

1. Place the new bus bar in the rack and install the retention nuts.
2. Reinstall any rack cable brackets and ground wires that were removed.
3. Connect the black power cords to the proper bus bar connectors.
4. Swing the bus bar gate back into the closed position and reinstall the two retention screws.
5. Switch the PPS input module CB00 switch to On (up).
6. Return to the procedure that sent you here.

Exchange the bus bar, 208VDC secondary

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove 208VDC secondary bus bar

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. Unplug the black power cables from the bus bar. To release the connectors, gently pull the blue retention brackets and then slide them to the side.
3. If this is an expansion rack and it has old level sheetmetal, the sheetmetal baffle **(2)** to the left of the gate and at the bottom of the storage enclosure chassis might need to be removed to allow the gate to swing open. Remove the two screws **(1)** that fasten the baffle to the 19″ rack mount vertical rails. If the baffle is the new level sheetmetal, it has a flexible plastic cutout that bends out of way when the gate is swung open.

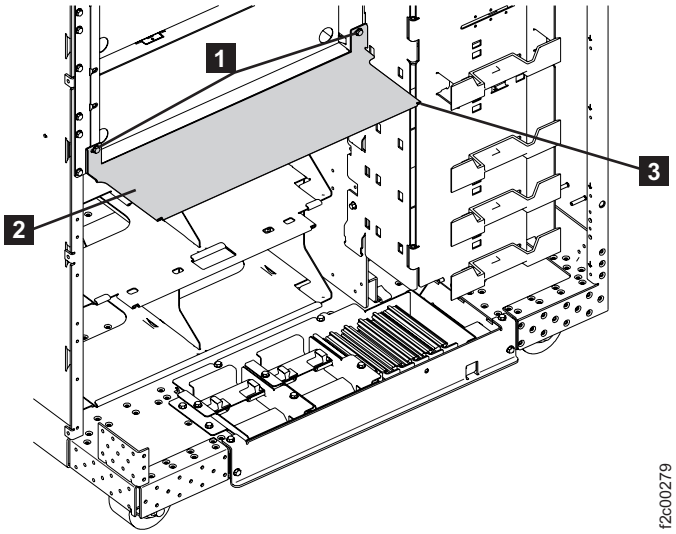


Figure 703. Air baffle

4. Remove the two screws **(1)** and open the 208VDC bus bar gate **(2)** to the service position.

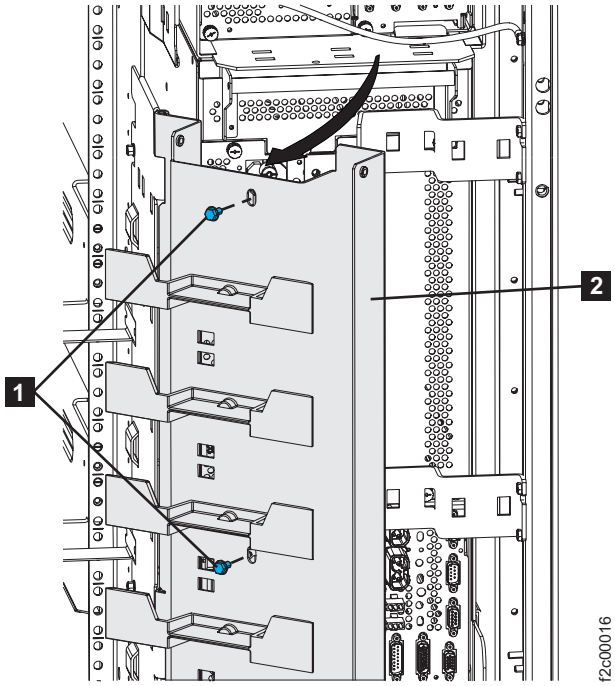


Figure 704. 208VDC bus bar gate service position

5. Unplug the 208VDC power input cable **(1)** only from the side connector on the bus bar being replaced.

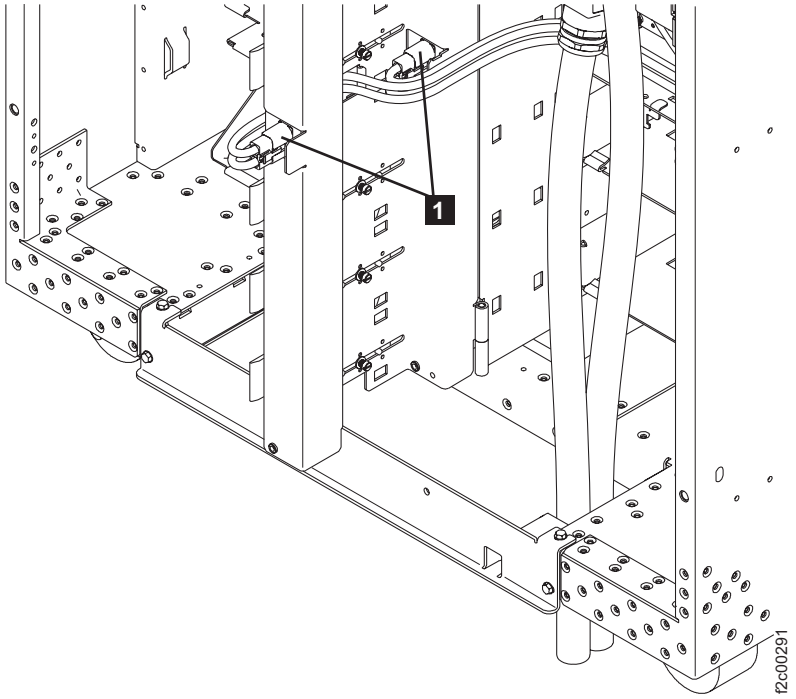


Figure 705. 208VDC power input cable

6. Remove the top screw **(1)** and bottom screw [not shown] holding the bus bar to the swing gate.

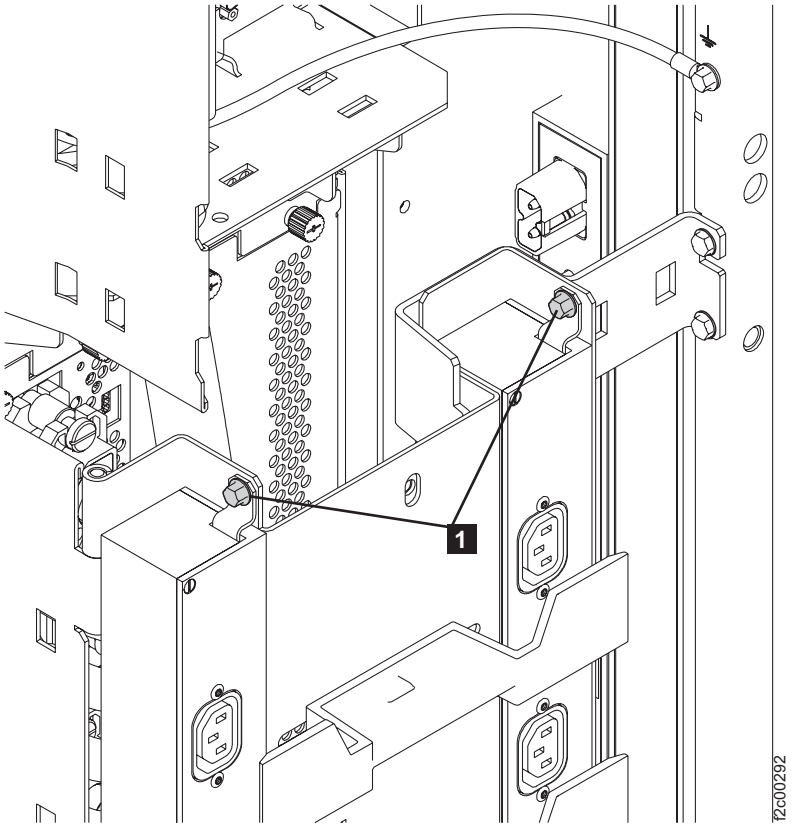


Figure 706. Bus bar swing gate screws

7. Remove the bus bar.

Install 208VDC secondary bus bar

1. Place the new bus bar in the bus bar swing gate and install the top and bottom retention screws.
2. Connect the 208VDC power input cable to the bus bar side connector.
3. Connect the black power cords to the proper bus bar connectors.
4. Move the blue retention brackets back into place.
5. Swing the bus bar gate back into the closed position and reinstall the two retention screws.

   Note: If this is an expansion rack and the sheet metal baffle to the left of the gate was removed, reinstall it now with the two screws.
6. Return to the procedure that sent you here.

Exchange the bus bar, 5/12V primary

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Notes:

1. All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.
2. This procedure is disruptive and requires the storage facility to be powered off.

Remove the primary 5/12V bus bar

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, see "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, see "MAP1245 Finding FRUs using location codes" on page 514.
2. Use the management console to power off the storage facility subsystem.
3. Set the local/remote switch card white switch **(1)** to Local (down). This will prevent the rack from being unexpectedly powered up by the management console (or remote power control if the feature is installed).

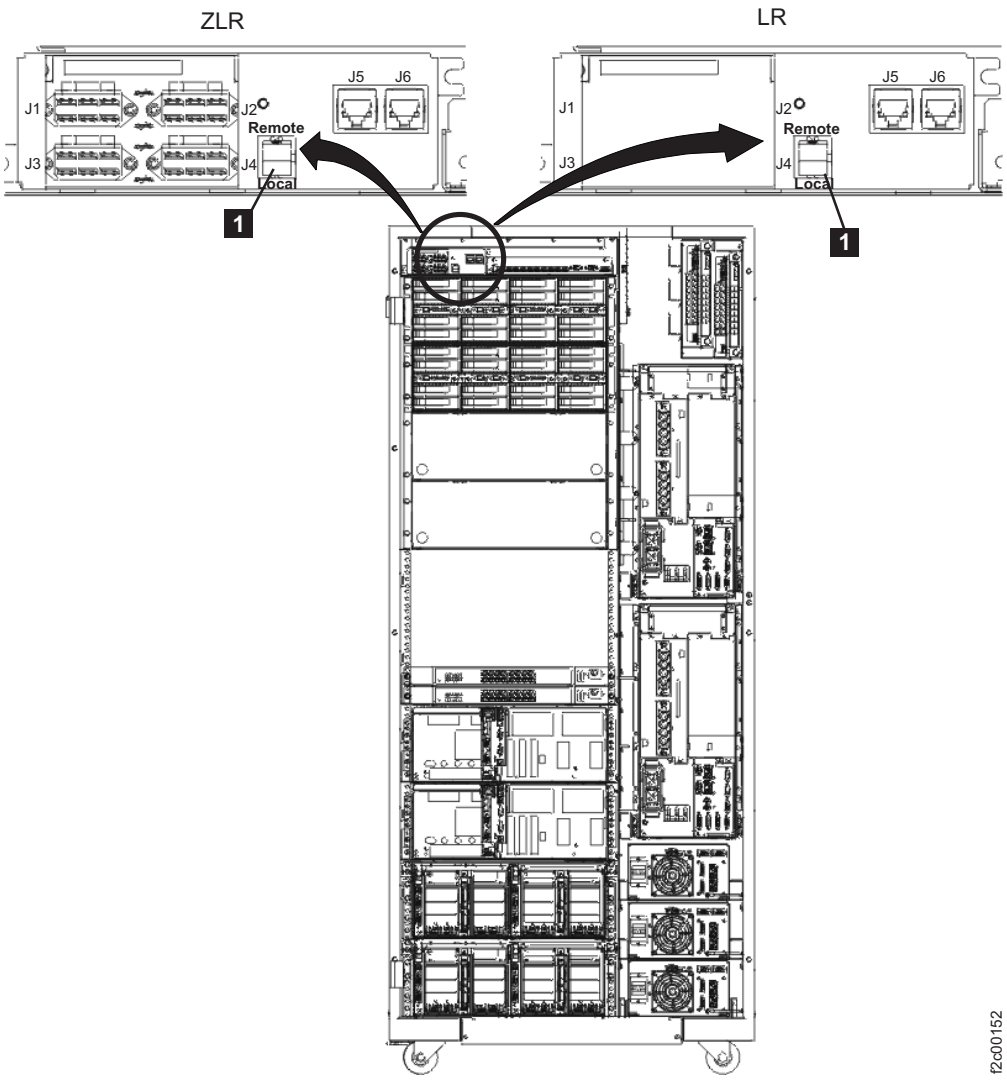


Figure 707. Location of the local remote switch card and the zSeries local remote switch card

4. Does the rack you are repairing contain an integrated management console?

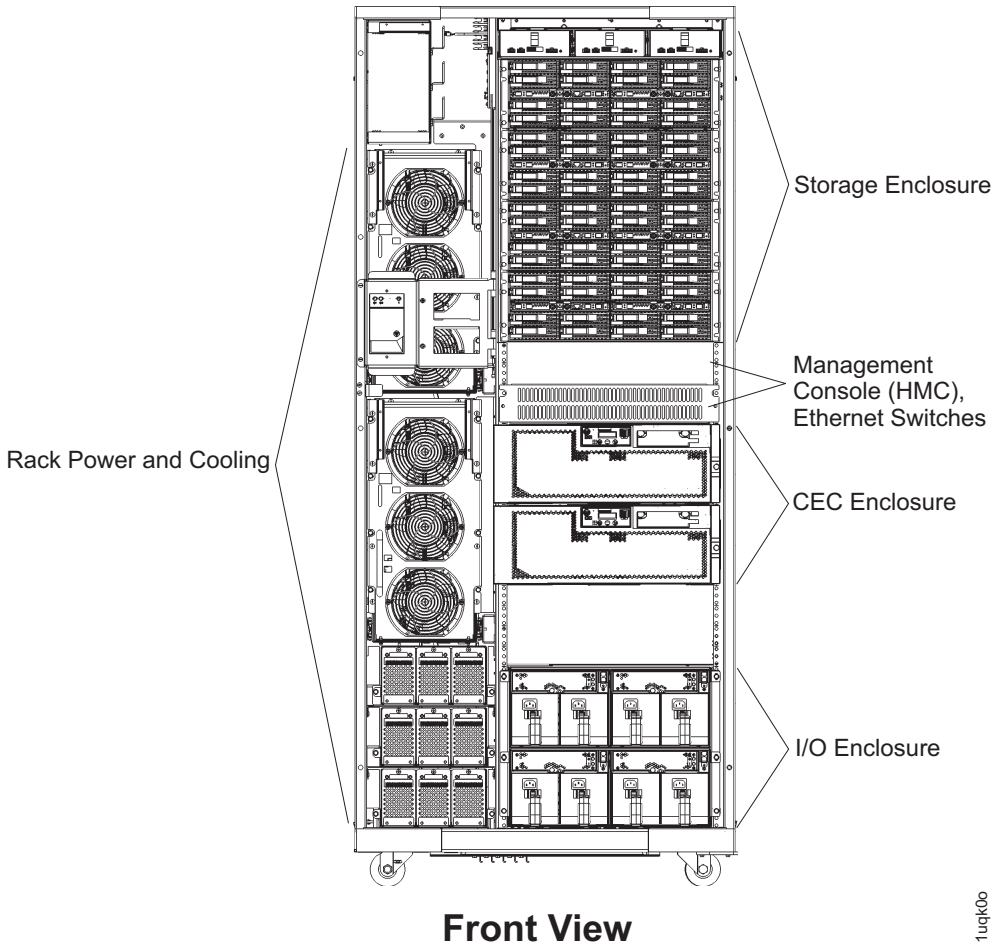


Figure 708. Visual index of Rack-1 (front)

- Yes, go to the next step.
- No, go to the 208VDC bus bar gate to service position instructions in step 9 on page 1232.

5. Is this management console being used to guide this repair?
   - Yes, you will need to use the DS8000 Information Center software to guide this FRU replacement. Bring up the Information Center CD in a PC platform. In the navigation area, select the *Exchanging Parts* Chapter 39, "Rack Power and Cooling," on page 1197 section and select this FRU procedure. Then go to the next step.
   - No, go to the next step.
6. Shutdown the management console.
   a. At the Hardware Management Console GUI window click **Console** to open the drop down menu.
   b. Click **Exit**.
   c. At the Exiting Hardware Management Console pop up, click **Exit Now**.
   d. From the listed exit options, select **Shutdown Console**.
   e. Wait for the management console to display: `The system will be halted immediately. Master Resource Control: renlevel 0 has been reached`

Note: The management console Power LED in the lower right corner of the management console server will stay lit. In this state, when the rack power is restored, the server will automatically power on.

7. Power off the management console display.
8. If this is an expansion rack and it has old level sheetmetal, the sheetmetal baffle **(2)** to the left of the gate and at the bottom of the storage enclosure chassis might need to be removed to allow the gate to swing open. Remove the two screws **(1)** that fasten the baffle to the 19″ rack mount vertical rails. If the baffle is the new level sheetmetal, it has a flexible plastic cutout that bends out of way when the gate is swung open.

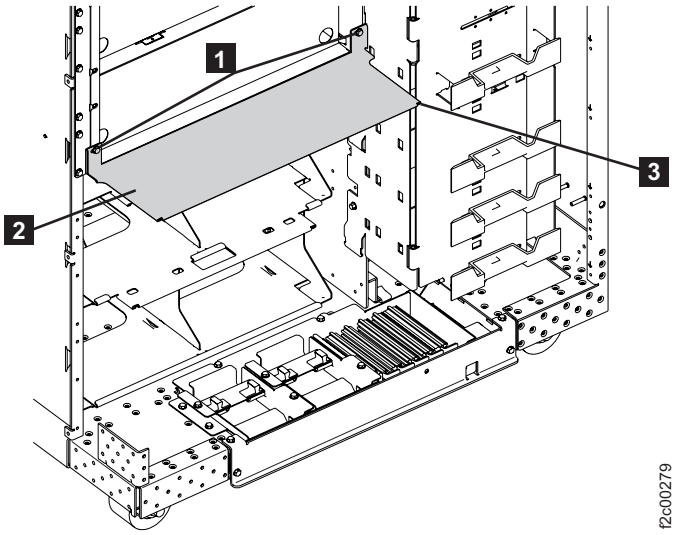


Figure 709. Air baffle

9. Remove the two screws **(1)** and open the 208VDC bus bar gate **(2)** to the service position.

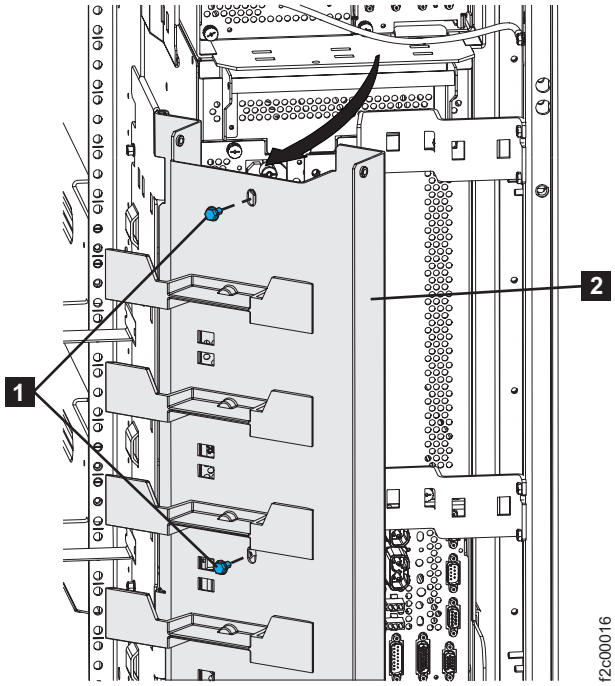


Figure 710. 208VDC bus bar gate service position

10. At both PPSs, remove power:
    a. Instruct the customer to switch off the circuit breakers that supply mainline AC voltage to both power receptacles for the main line power cables to the rack that will have the bus bar FRU replaced.

       Note: Attach a "Do Not Operate" tag, S229-0237, and the safety lockout padlock to the customer's AC voltage circuit breaker. Refer to the *Electrical Safety for IBM Customer Engineers* book.

    b. At both PPSs, set the AC input power module CB00 switch **(1)** to Off (down).
    c. At both PPSs, disconnect the mainline power cord from the AC input power module. Push the two release levers **(2)**.

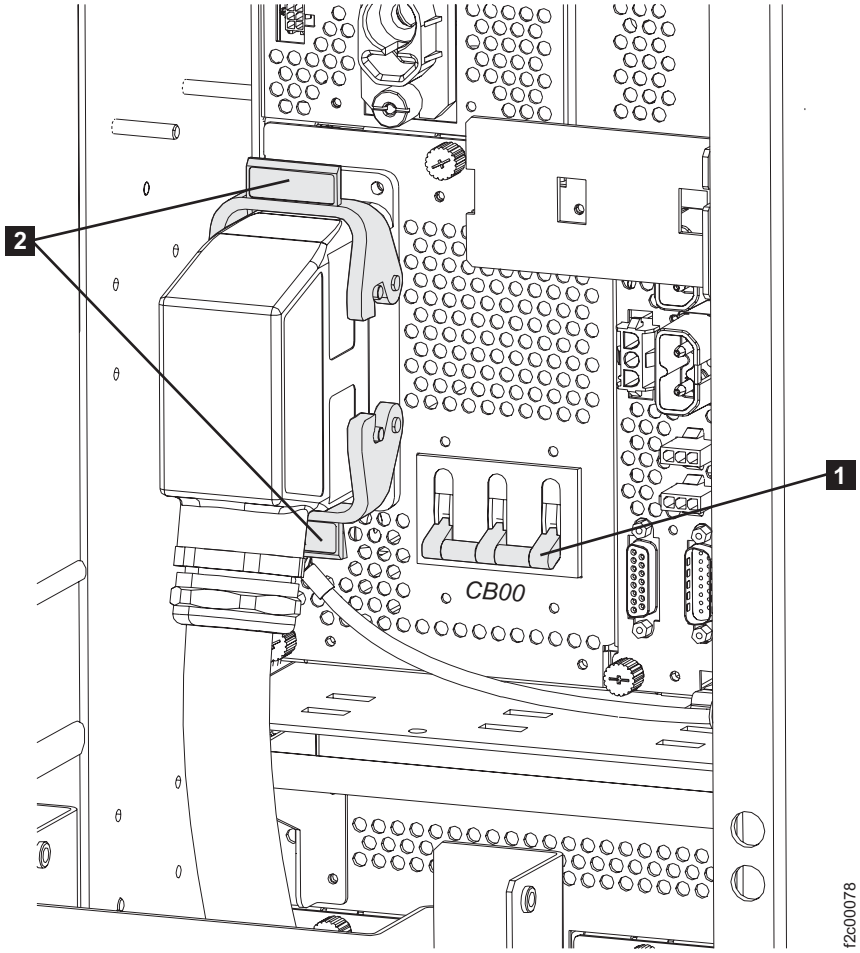


Figure 711. Power supply main line CB00 switch

d. Remove the ″hook and loop″ fastener securing the mainline power cable to PPS 2 (lower PPS).

e. Remove the screw and mainline power cable bracket.

11. At both PPSs, disconnect the rear cables:

a. At the rear of both PPSs, disconnect all the cables.

b. Remove the ″hook and loop″ fastener cable straps at both PPSs.

c. Remove the green/yellow ground wire from the both PPSs.

d. At the front of the rack:

- remove the two screws **(1)** and swing open the rack operator panel.

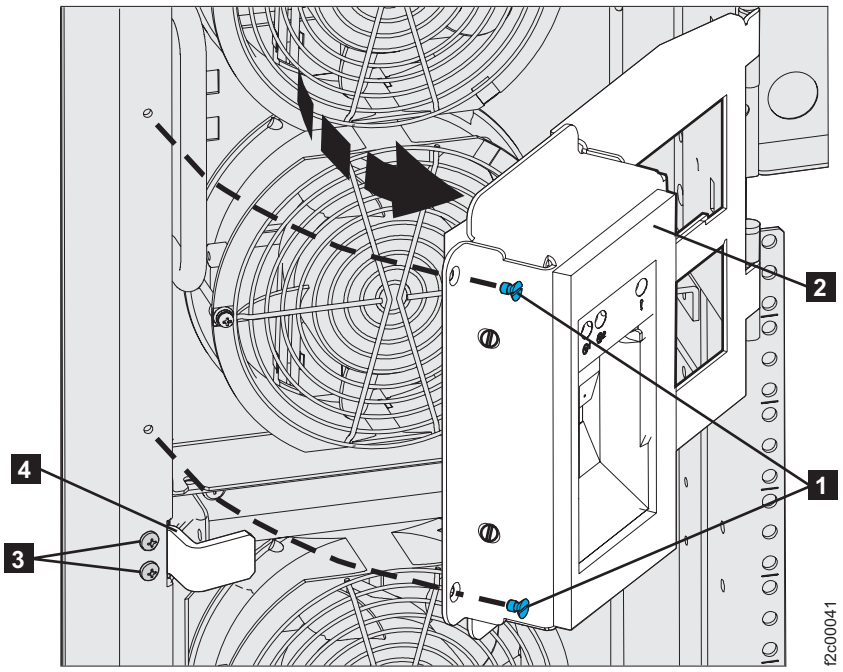


Figure 712. Rack and power operator panel UEPO open

- remove the two screws **(1)** and remove the door latch bracket **(2)**.

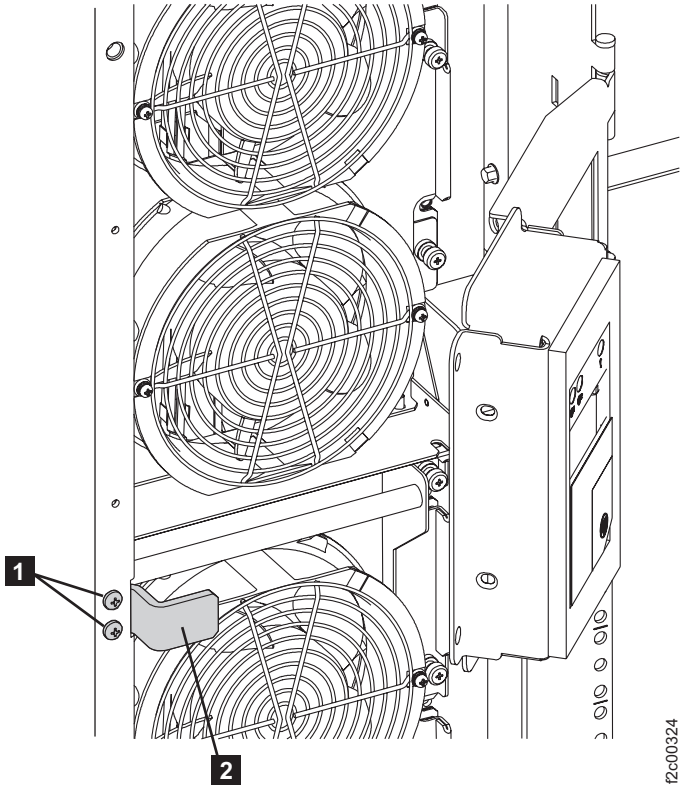


Figure 713. Rack and power operator panel UEPO door latch

12. Put both PPSs in service position 1 (partially extended):

a. At the front of the rack, remove the eight black hex head screws that fasten each PPS chassis to the rack.

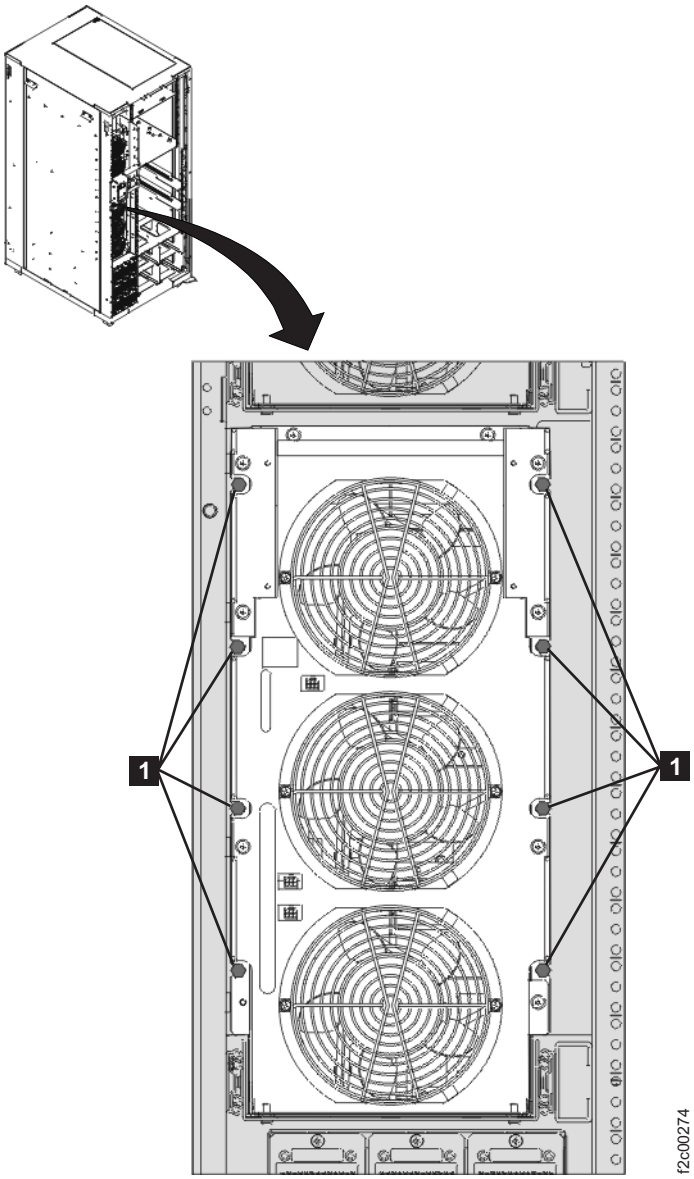


Figure 714. PPS chassis remove

b. Slide both PPSs out to service position 1 (partially extended). The PPS rail detents will click at service position 1 and then will prevent the PPS from being pushed back in to the normal position.

Note: To allow the PPS to be pushed back in, you must pull the PPS out to service position 2 (fully extended), release both slide detents and then push the PPS chassis in fully.

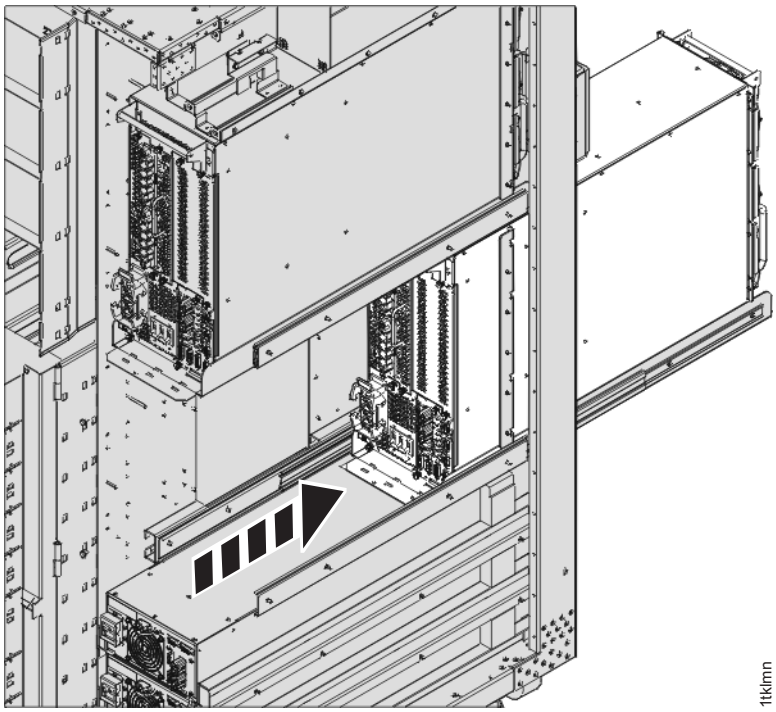


Figure 715. PPS service position

13. Disconnect cables from bus bars:

    Note: You may need to remove both bus bars to get the bus bar being replaced removed.

    a. Disconnect the cables **(1 through 4)** from the top and middle connectors on both bus bars.

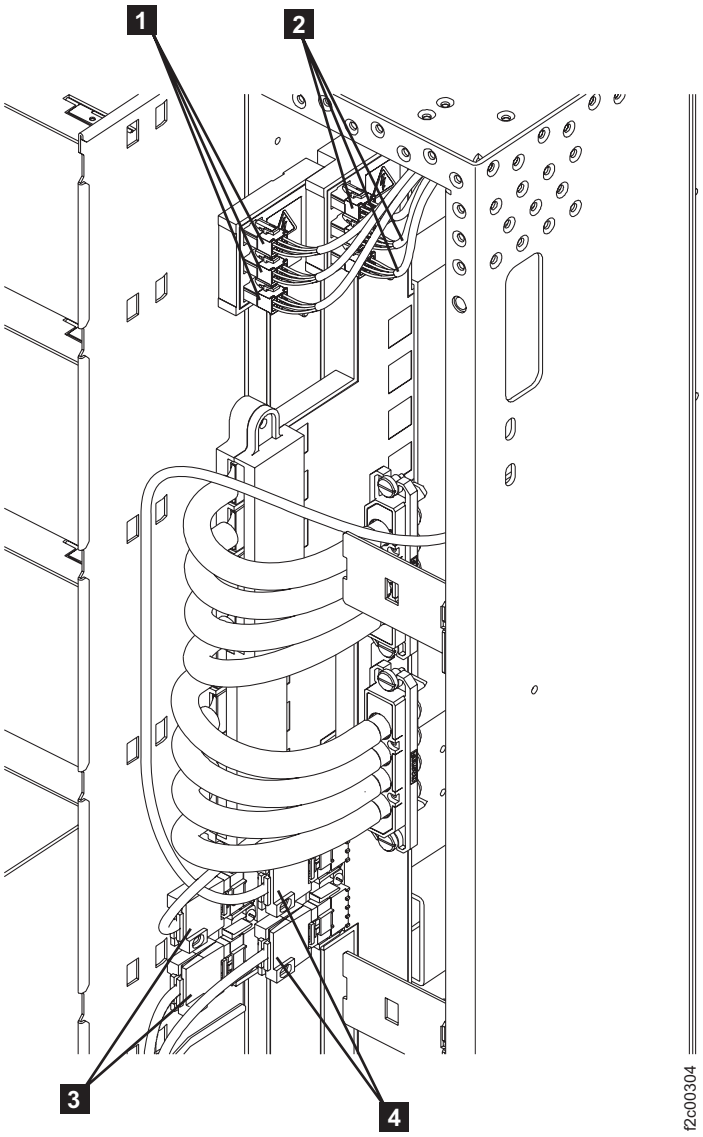


Figure 716. 5/12V bus bar top and middle cable connectors

b. Remove the screw **(1)** at the top of the bus bar cable cover **(2)** and then remove the cover.

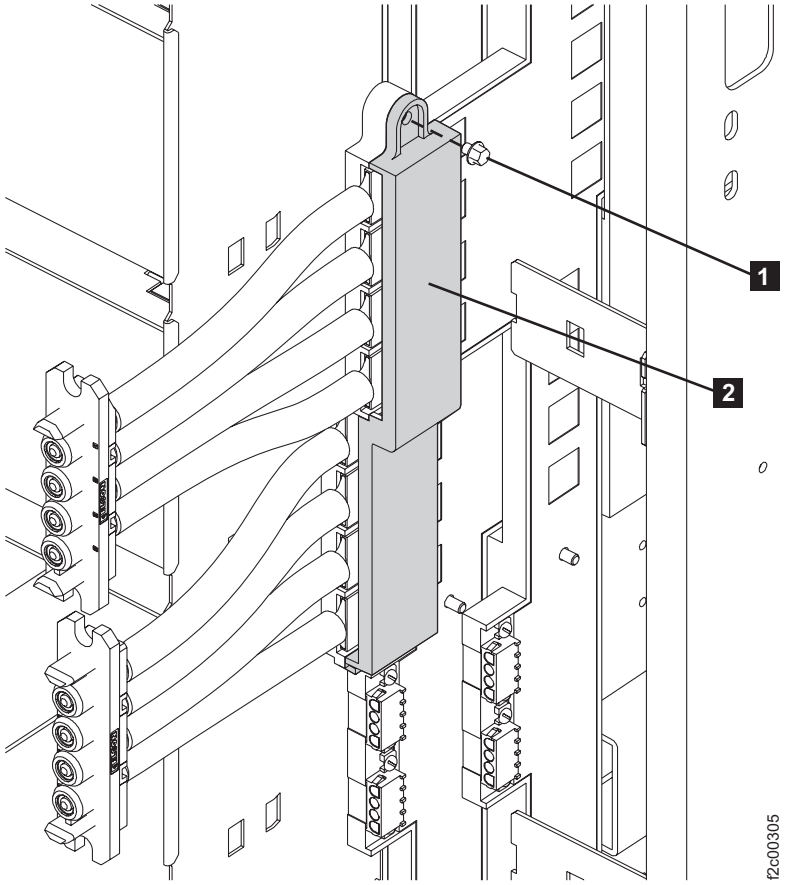


Figure 717. 5/12V bus bar cable cover screw

c. Remove the 5/12V power cables from the bus bar being replaced. Remove the bolt **(1)** securing each cable.

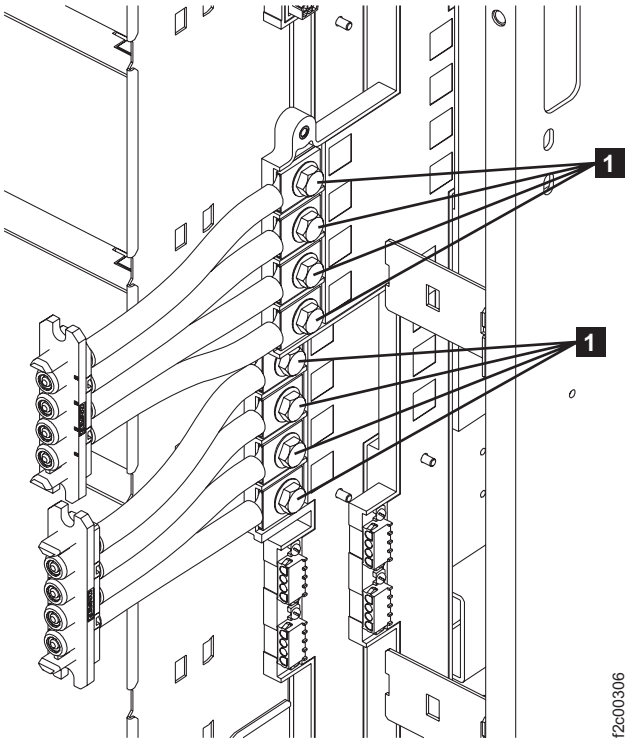


Figure 718. 5/12V bus bar cable bolts

14. Remove the primary to secondary tie bars:
    a. Move PPS 1 (upper PPS) to service position 2 (fully extended on rails).
    b. At the front of the rack, remove the two screws **(2)** securing the PPS to the sheet metal tray.

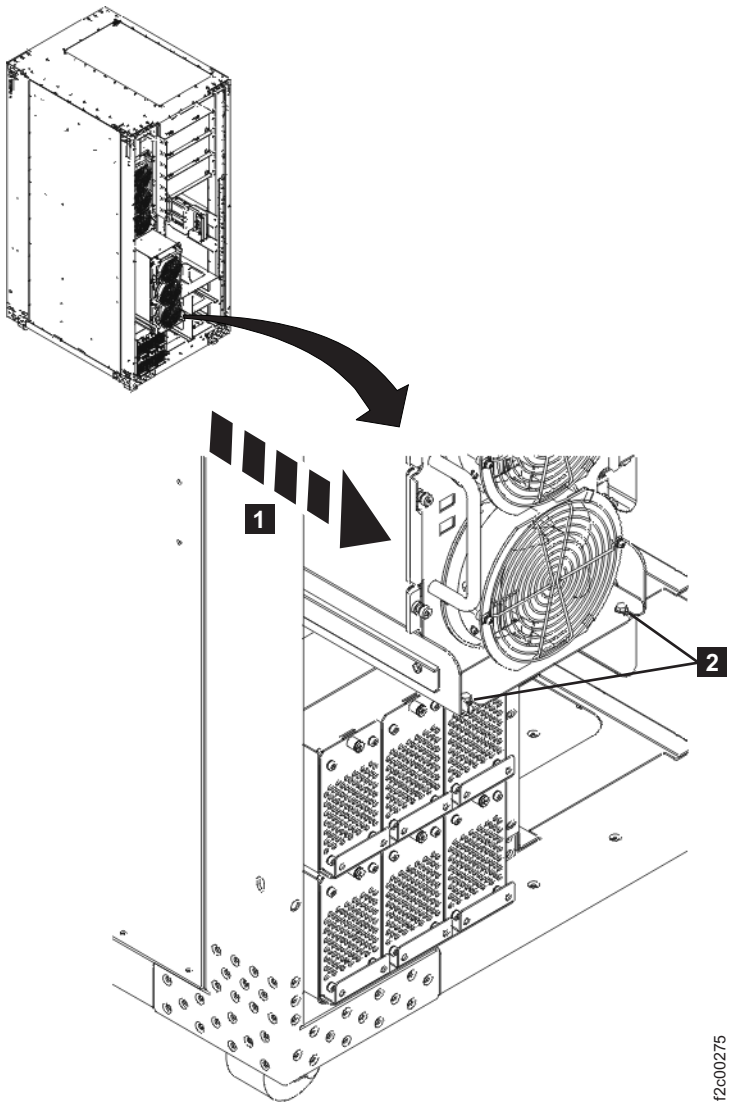


Figure 719. PPS sheet metal screws

c. Pull the PPS out **(1)** about 5 cm (2 inches) further on the sheet metal tray as shown. (This will give more clearance at the back of the PPC for the next step.)

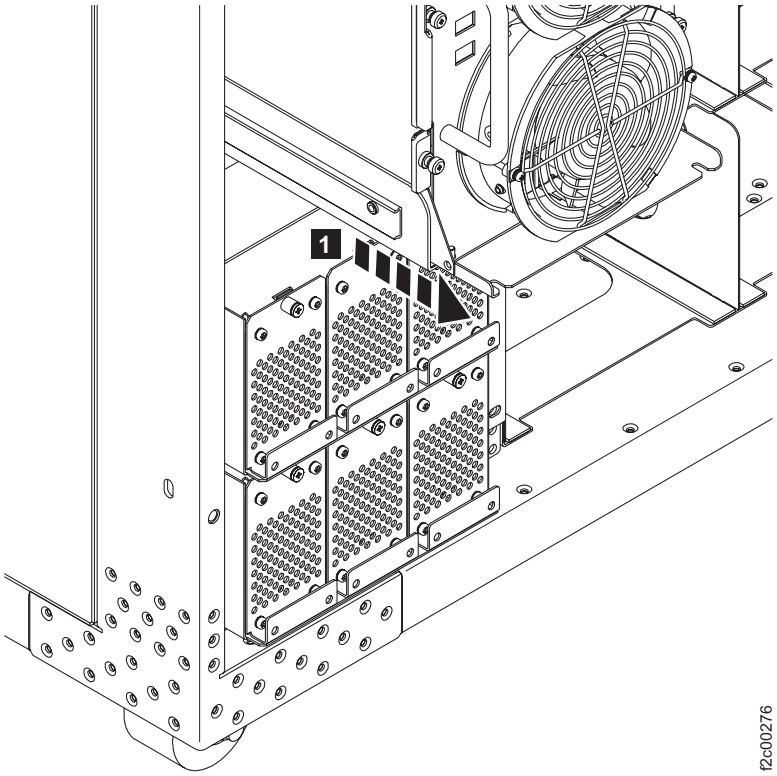


Figure 720. Sliding PPS out on sheet metal tray

d. At the rear of the rack, remove the primary to secondary tie bar plastic cover. Loosen but do not remove the two screws **(1)**. The plastic cover has keyhole slots. The cover has tabs that slide behind the upper and low tie bar. Slide the cover up **(2)**, and then remove it.

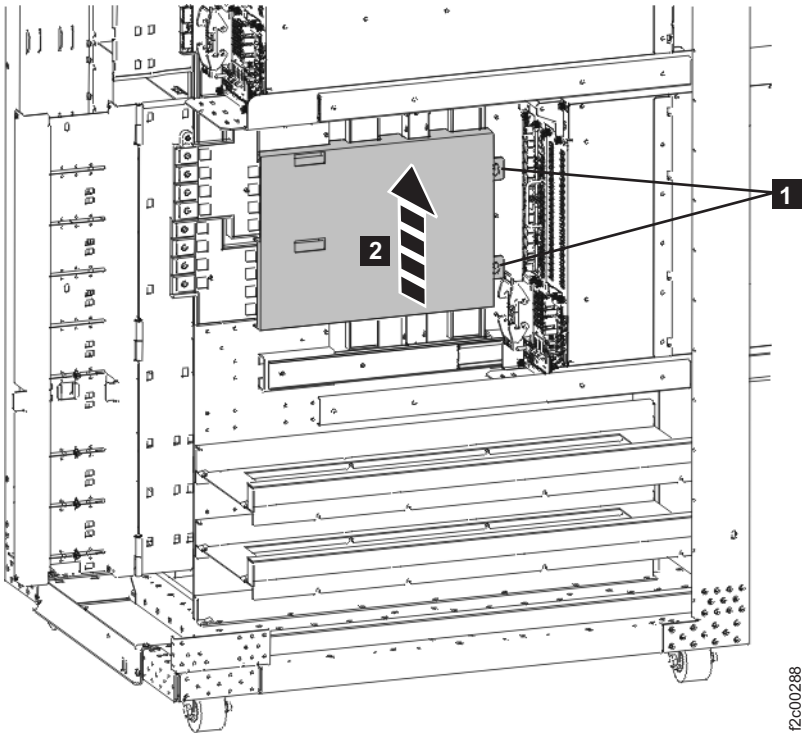


Figure 721. Bus bar cover

e. Remove the bolt **(1)** securing each end of each tie bar and remove the tie bars **(2)**.

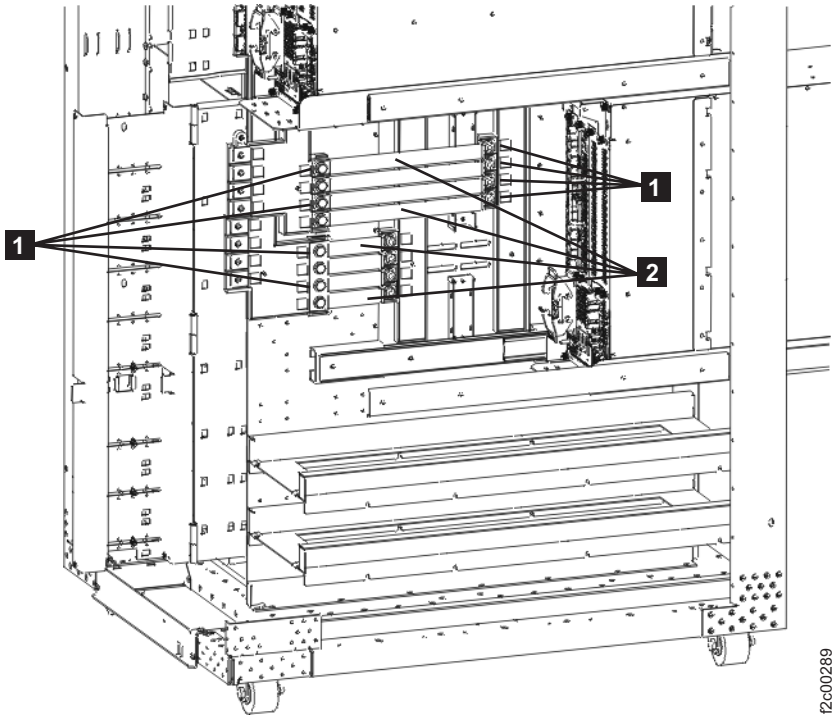


Figure 722. Lower tie bars

15. Remove the primary bus bar:

a. Remove the nuts and washers **(1)** securing the bus bar to the frame, and then remove one or both bus bars as needed.

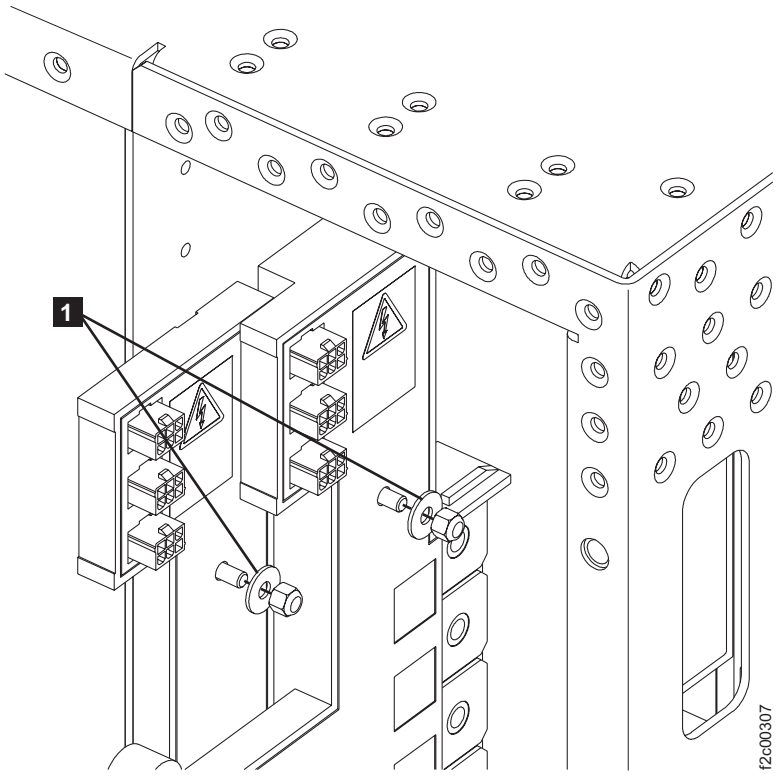


Figure 723. 5/12V bus bar frame nuts and washers

Install the primary 5/12V bus bar

1. Install the 5/12V primary bus bars on the mounting studs. Install the washers and nuts.
2. Install the primary to secondary tie bars.

   Note: The bolts must be torqued to 8 to 11 newton meters (6 to 8 foot pounds) to make proper contact. It is recommended that you use a torque wrench if one is available. DO NOT OVERTIGHTEN or the threads in the copper bus bars may strip.
3. Install the tie bar plastic cover.
   a. There are tabs on the inside of the cover that must slide down behind the tie bars.
   b. The keyhole slots in the cover must slide over the two screws near the PPS.
   c. Tighten the two screws.
4. Install the each 5/12V power cables to the bus bar using a bolt **(1)**. See Figure 718 on page 1240.

   Note: The bolts must be torqued to 8 to 11 newton meters (6 to 8 foot pounds) to make proper contact. It is recommended that you use a torque wrench if one is available. DO NOT OVERTIGHTEN, or the threads in the copper bus bars may strip.

5. Install the bus bar cable cover **(2)** and secure it with the screws **(1)**. See Figure 721 on page 1243.
6. Connect the cables **(1 through 4)** to the top and middle connectors on both bus bars. See Figure 716 on page 1238.
7. At the front of the rack, push each PPS fully in sheet metal tray and install the two screws. See Figure 719 on page 1241.
8. Put both PPSs back to the normal position.

   Note: To allow the PPS to be pushed back in, you must pull the PPS out to service position 2 (fully extended), release both slide detents **(1)** and then push the PPS chassis in fully.
9. Install the eight black hex head screws **(1)** that fasten each PPS chassis to the rack. See Figure 714 on page 1236.
10. At the front of the rack:
    a. Close the rack operator panel **(2)** and install the two screws **(1)**. See Figure 712 on page 1235.
    b. Install the door latch bracket **(2)** with two screws **(1)**. See Figure 713 on page 1235.
11. At both PPSs, connect the rear cables:
    a. At the rear of both PPSs, connect all the cables.
    b. Install the ″hook and loop″ fastener cable straps at both PPSs.
    c. Install the green/yellow ground wire on both PPSs. Ensure the serrated washer is between the wire and the PPS or frame.
12. Connect power:
    a. Connect the mainline power cable to the PPS and ensure both latches are secure.
    b. Secure the mainline power cable from PPS 1 (upper PPS) to the PPS 2 mainline power cable bracket with the ″hook and loop″ fastener.
    c. Set the PPS AC input power module CB00 switch to On (up).
    d. Instruct the customer to switch on the mainline circuit breaker that supplies mainline ac voltage to the power receptacle for the primary power supply you are replacing.
13. 208VDC bus bar gate to normal position 1:
    a. Pivot the 208VDC bus bar gate closed being careful that both mainline power cables lay in the space between the two 208VDC bus bars. Fasten the gate shut with the two screws.

       Note: If this is an expansion rack and the sheet metal baffle to the left of the gate was removed, reinstall it now with the two screws.
14. Power on the rack:
    a. Set the local/remote switch card white switch **(1)** to Remote (up). See Figure 707 on page 1230.
    b. Use the management console to power on the storage facility subsystem.
15. Return to the procedure that sent you here.

Exchange the bus bar, 5/12V secondary lower


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Note: This procedure is disruptive and requires you to power off the storage facility.

Decide if you are going to remove the upper or the lower bus bars and select the condition that applies:

- You are here to replace a bus bar in the lower half of an expansion rack, go to step 1.
- You are here to replace a bus bar in a base rack, go to "**Exchange the bus bar, 5/12V secondary upper**" on page 1260.
- You are here to replace a bus bar in the lower half of an expansion rack, go to "**Exchange the bus bar, 5/12V secondary upper**" on page 1260.

Remove the bus bar, 5/12V secondary lower

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, see "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, see "MAP1245 Finding FRUs using location codes" on page 514.
2. Use the management console to power off the storage facility.
3. Set the local/remote switch card white switch **(1)** to Local (down). This will prevent the rack from being unexpectedly powered up by the management console (or remote power control if the feature is installed). See Figure 724 on page 1247.

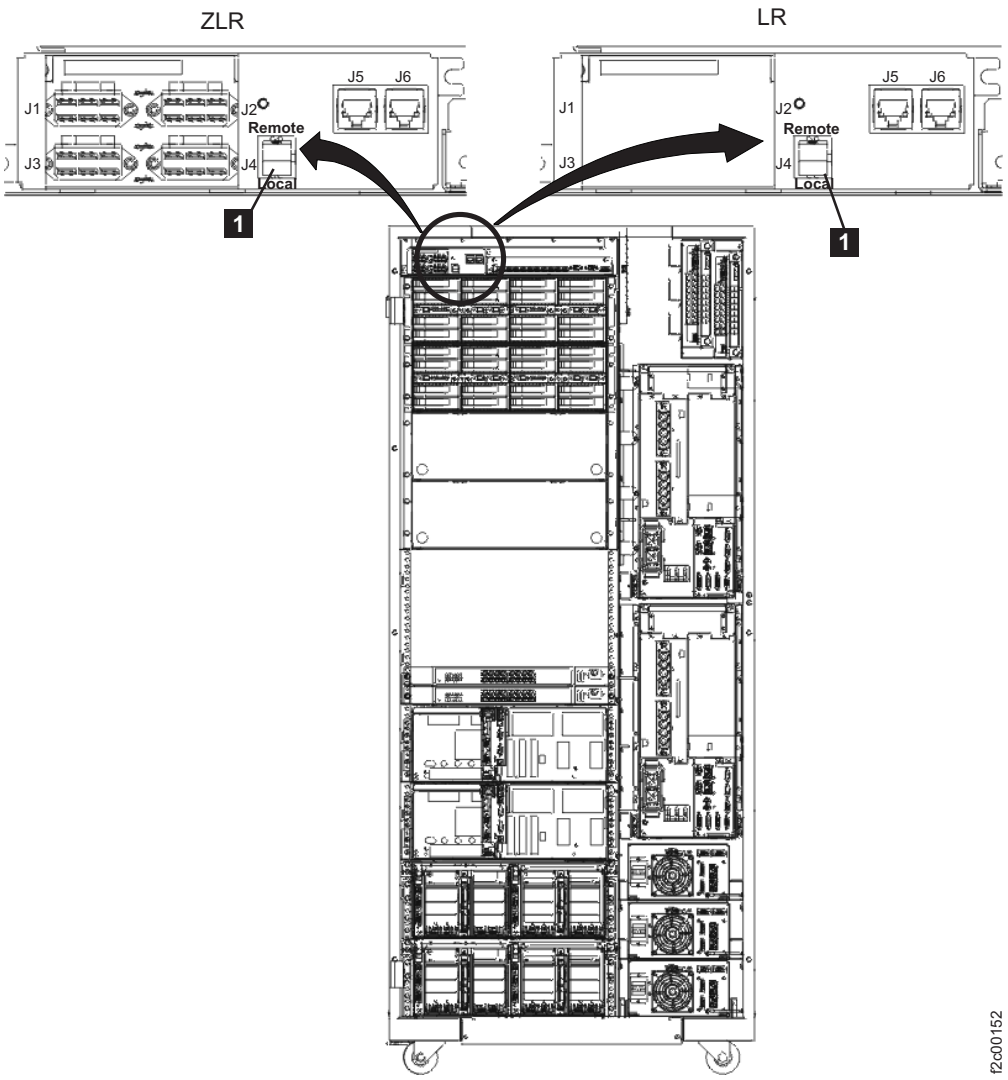


Figure 724. Location of the local remote switch card and the zSeries local remote switch card

4. Does the rack you are repairing contain an integrated management console? See Figure 725 on page 1248.

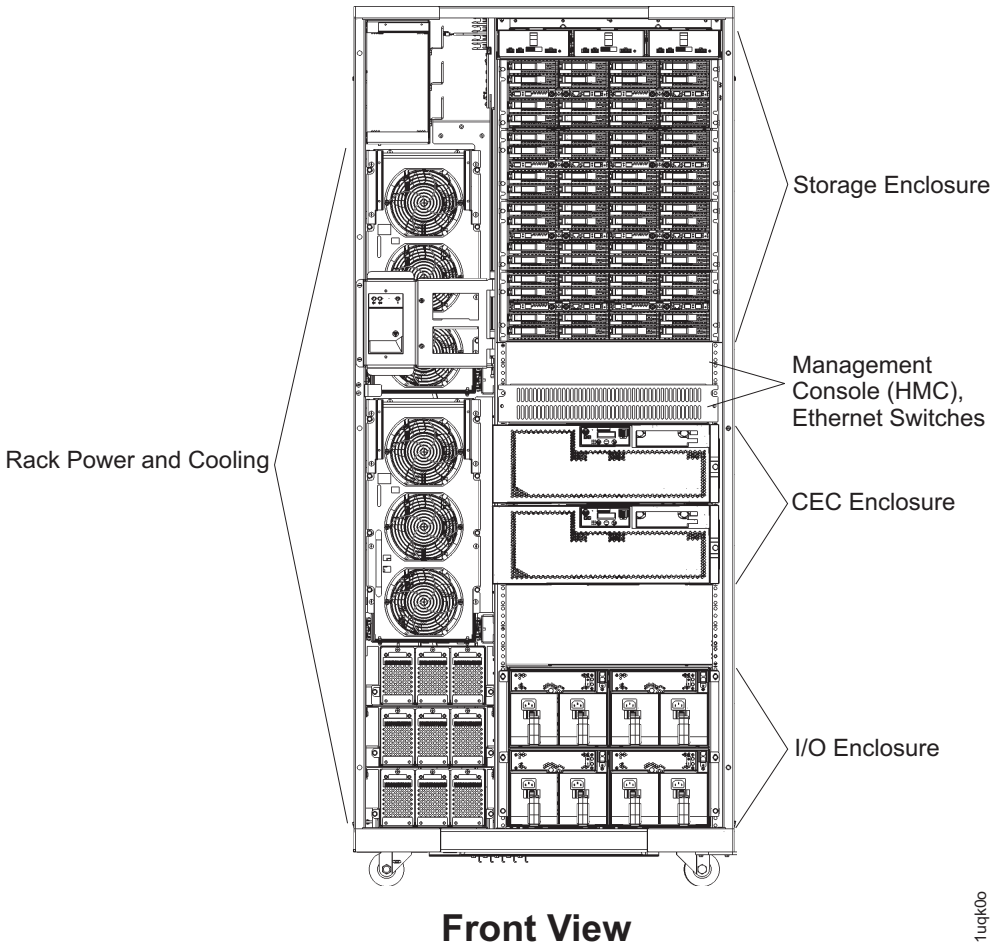


Figure 725. Visual index of Rack-1 (front)

- Yes, go to the next step.
- No, go to the 208VDC bus bar gate to service position instructions in step 8 on page 1249.

5. Is this management console being used to guide this repair?
   - Yes, you will need to use the DS8000 Information Center software to guide this FRU replacement. Bring up the Information Center CD on a PC platform. In the navigation area, select the *Removing and Replacing Parts* Chapter 39, "Rack Power and Cooling," on page 1197 section and select this FRU procedure. Go to the next step.
   - No, go to the next step.
6. Shutdown the management console. See Figure 726 on page 1249.
   a. At the Hardware Management Console GUI window click **Console** to open the drop down menu.
   b. Click **Exit**.
   c. At the Exiting Hardware Management Console pop up, click **Exit Now**.
   d. From the listed exit options, select **Shutdown Console**.
   e. Wait for the management console to display: `The system will be halted immediately. Master Resource Control: renlevel 0 has been reached`

Note: The management console Power LED in the lower right corner of the management console server will stay lit. In this state, when the rack power is restored, the server will automatically power on.

7. Power off the management console display.
8. Open the 208VDC bus bar gate to service position. See Figure 726.
   a. Remove the two screws **(1)** and open the 208VDC bus bar gate **(2)** to the service position.

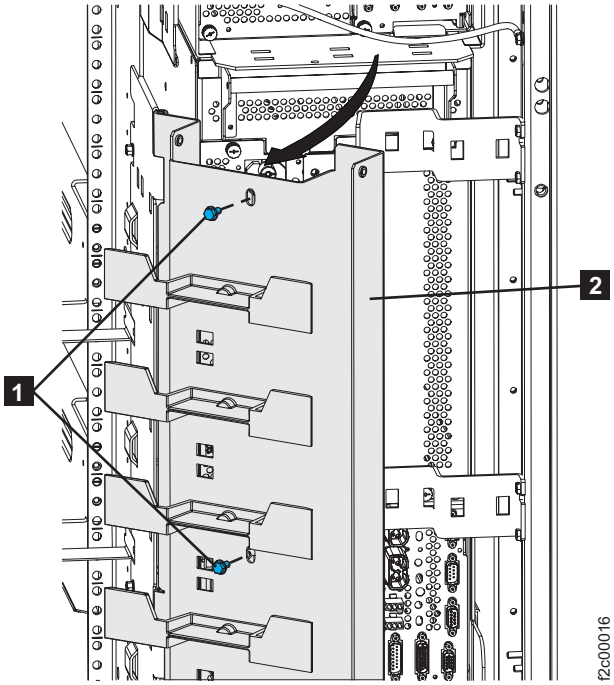


Figure 726. 208VDC bus bar gate service position

9. Remove power from the storage facility (see Figure 727 on page 1250):
   a. Instruct the customer to switch off the circuit breakers that supply mainline AC voltage to both power receptacles for the main line power cables to the rack that will have the bus bar FRU replaced.

      Note: Attach a "Do Not Operate" tag, S229-0237, and the safety lockout padlock to the customer's AC voltage circuit breaker. Refer to the *Electrical Safety for IBM Customer Engineers* book.

   b. At both PPS, set the PPS AC input power module CB00 switch **(1)** to Off (down).
   c. At both PPS, disconnect the mainline power cord from the PPS AC input power module. Push the two release levers **(2)**.

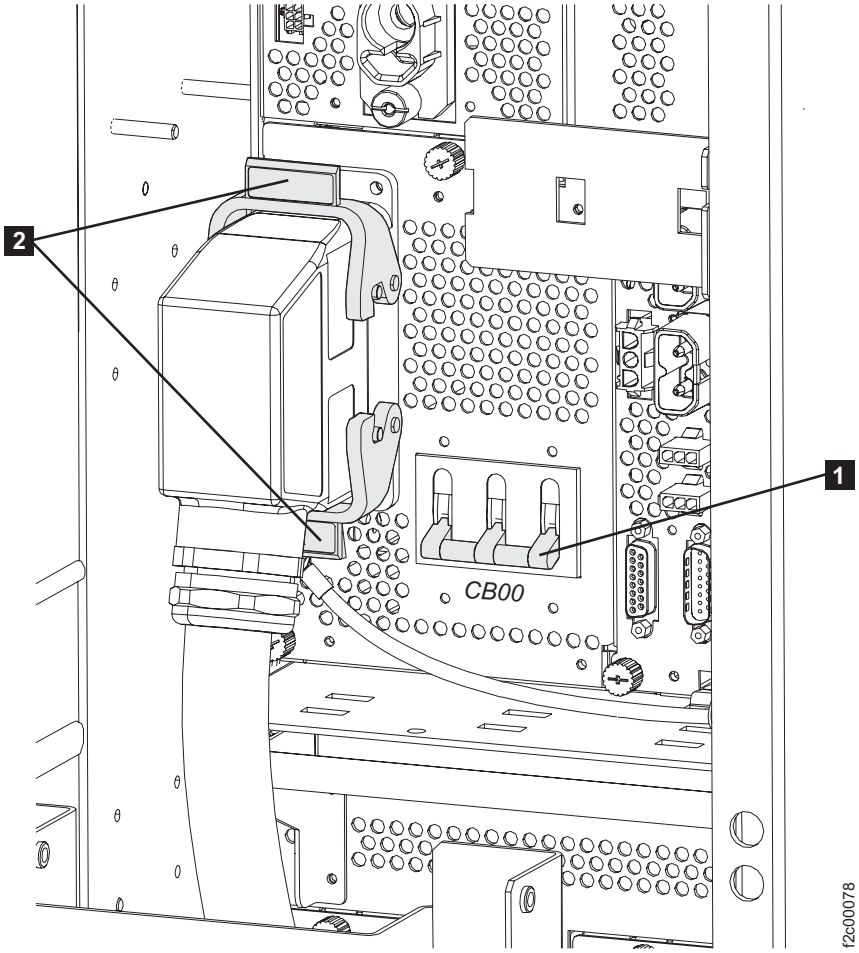


Figure 727. Power supply main line CB00 switch

d. Remove the ″hook and loop″ **(1)** fastener securing the mainline power cable to PPS 2 (lower PPS). See Figure 728 on page 1251.

e. Remove the screw and mainline power cable bracket **(2)**. See Figure 728 on page 1251.

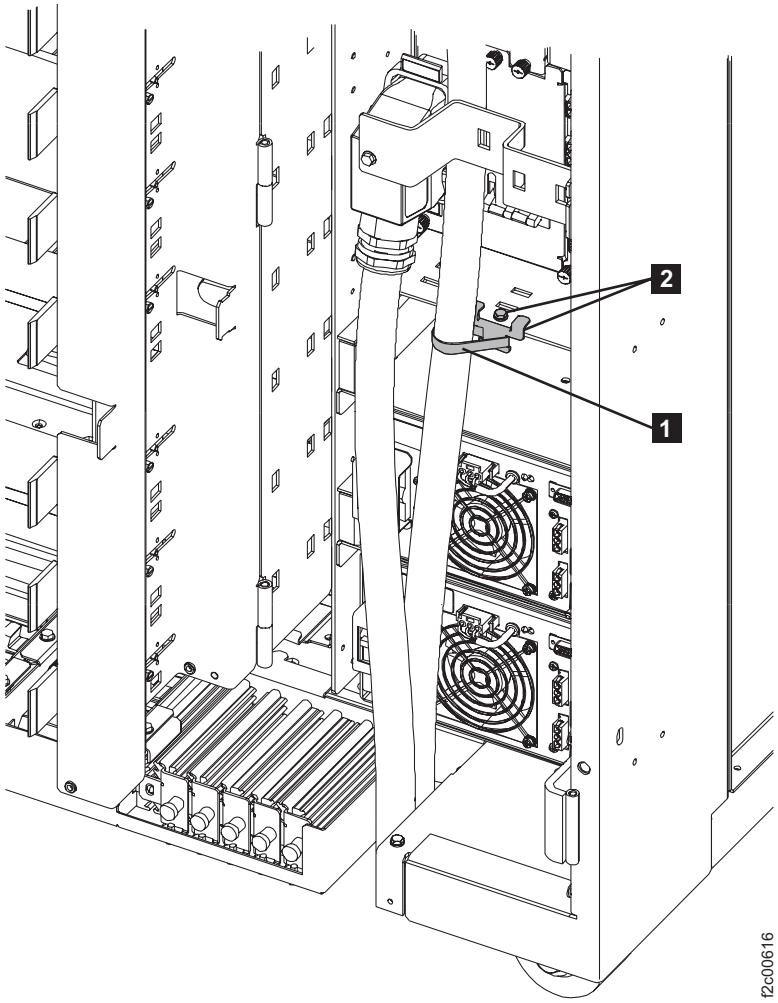


Figure 728. Power supply main line

10. Disconnect the rear cables:
    a. At the rear of both PPS 2 (lower), disconnect all the cables.
    b. Remove the ″hook and loop″ fastener cable straps.
    c. Remove the green/yellow ground wire from the both PPS. Keep the serrated washers.
11. Put PPS 2 (lower) in service position 2.
    a. At the front of the rack, remove the eight black hex head screws **(1)** that fasten the PPS 1 chassis to the rack. See Figure 729 on page 1252.

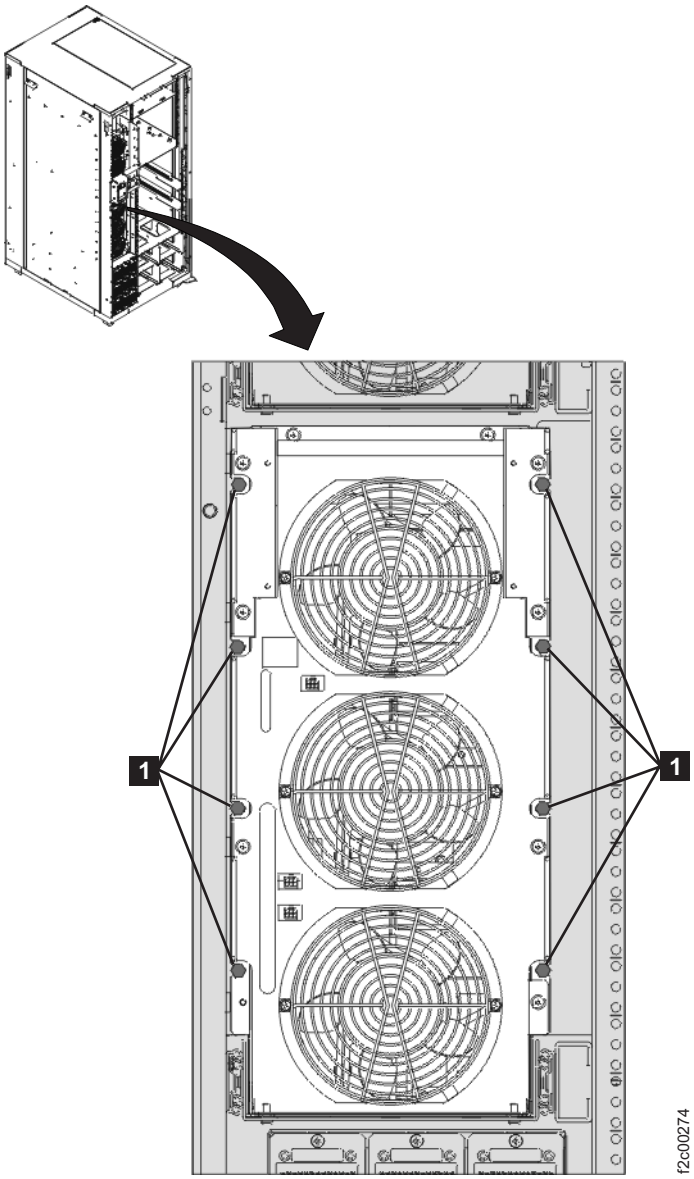


Figure 729. PPS chassis remove

b. Slide PPS 2 out to service position 2. The PPS rail detents will click at service position 1 and then will prevent the PPS from being pushed back in to the normal position. See Figure 730 on page 1253.

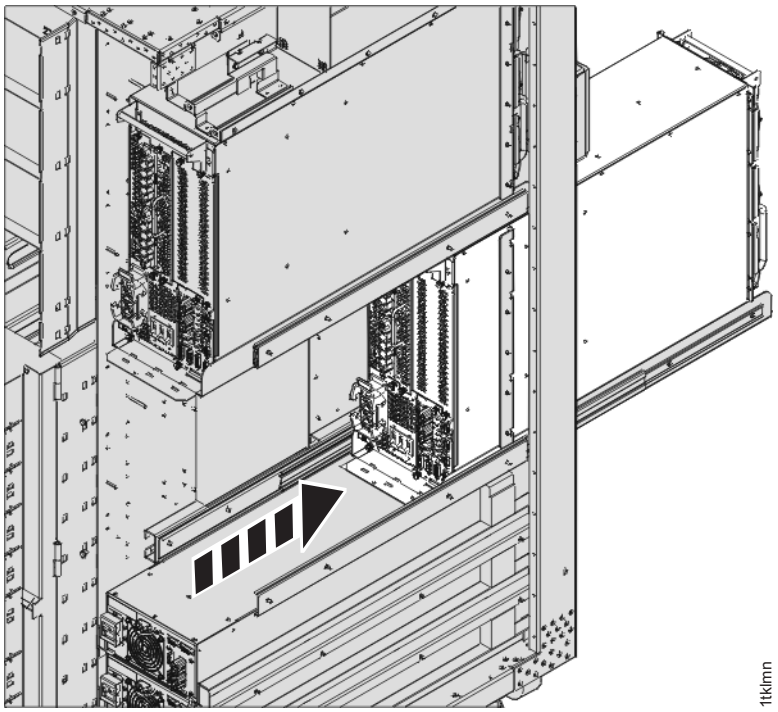


Figure 730. PPS service position

Note: To allow the PPS to be pushed back in, you must pull the PPS out to service position 2 (fully extended), release both slide detents **(1)** and then push the PPS chassis in fully.

12. At the front of the rack, remove the two screws **(1)** securing the PPS to the sheet metal tray **(2)**. See Figure 731 on page 1254.

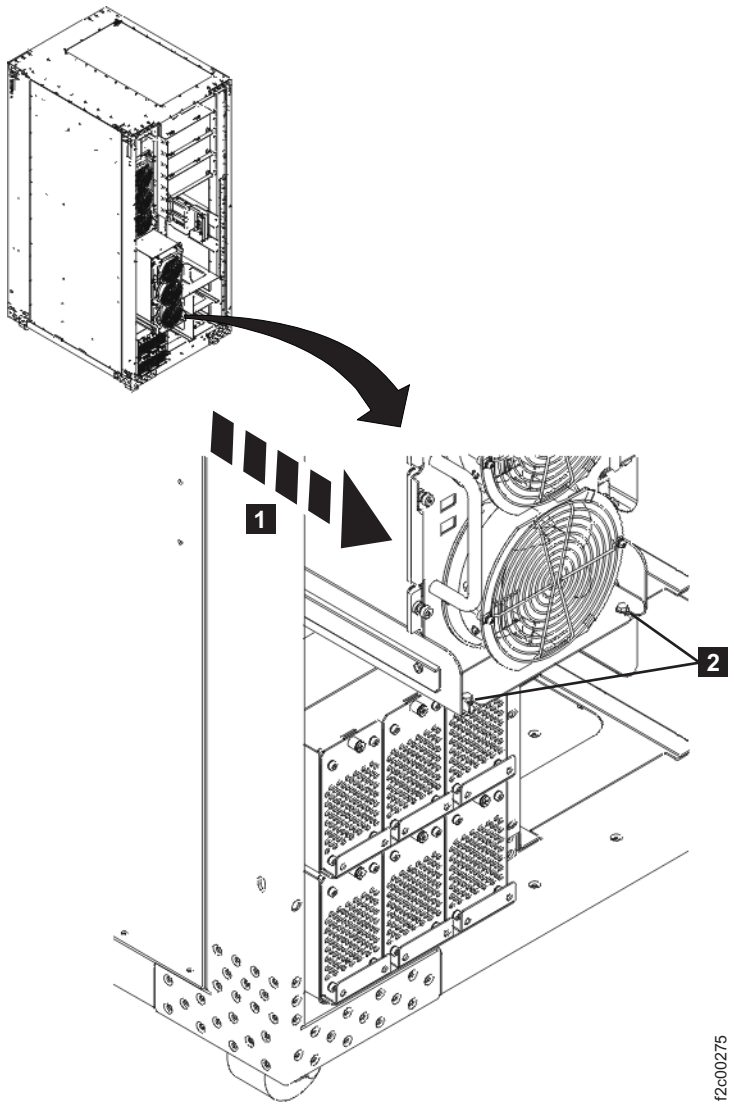


Figure 731. PPS sheet metal screws

13. Pull the PPS out **(1)** about 5 cm (2 inches) further on the sheet metal tray as shown. (This will give more clearance at the back of the PPC for the next step.) See Figure 732 on page 1255.

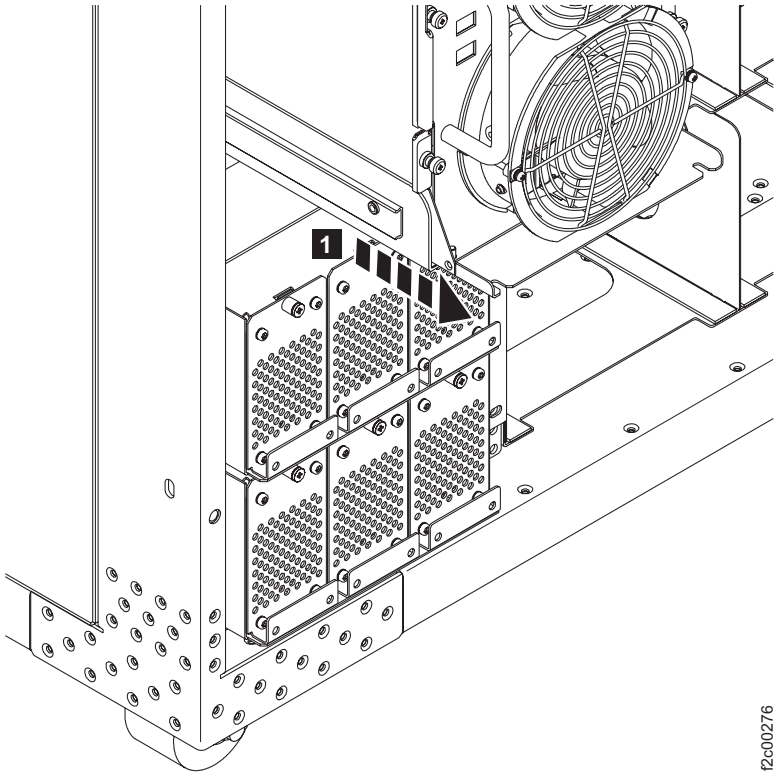


Figure 732. Sliding PPS out on sheet metal tray

14. Remove the primary to secondary tie bars. See Figure 733 on page 1256.
    a. At the rear of the rack, remove the lower primary to secondary tie bar plastic cover. Loosen but do not remove the two screws **(1)**.
    b. The plastic cover has keyhole slots. The cover has tabs that slide behind the lower and low tie bar. Slide the cover up **(2)**, and then remove it.

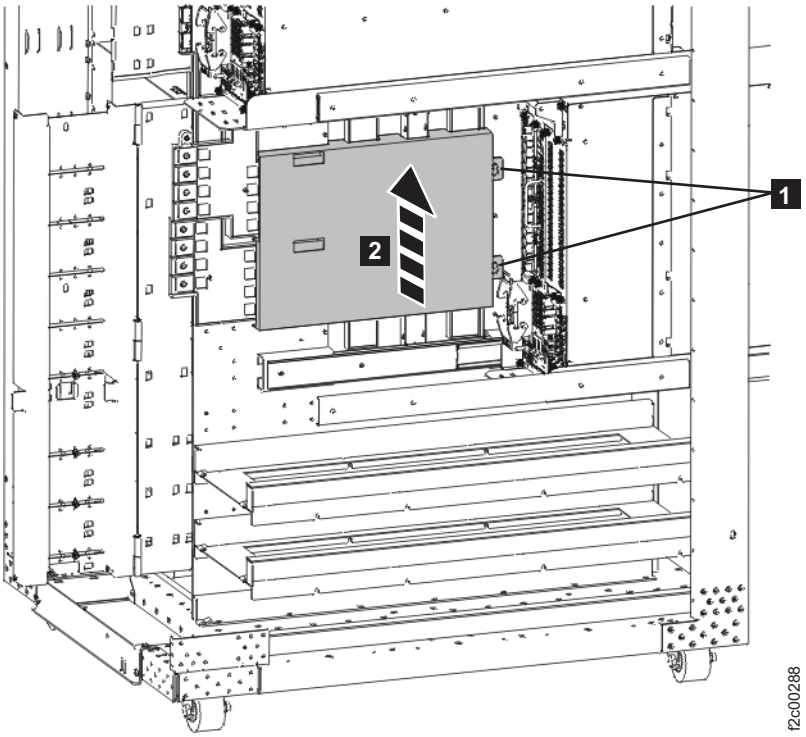


Figure 733. Bus bar cover

c. Remove the bolt **(1)** securing each end of each lower tie bar and remove the tie bars **(2)**. See Figure 734.

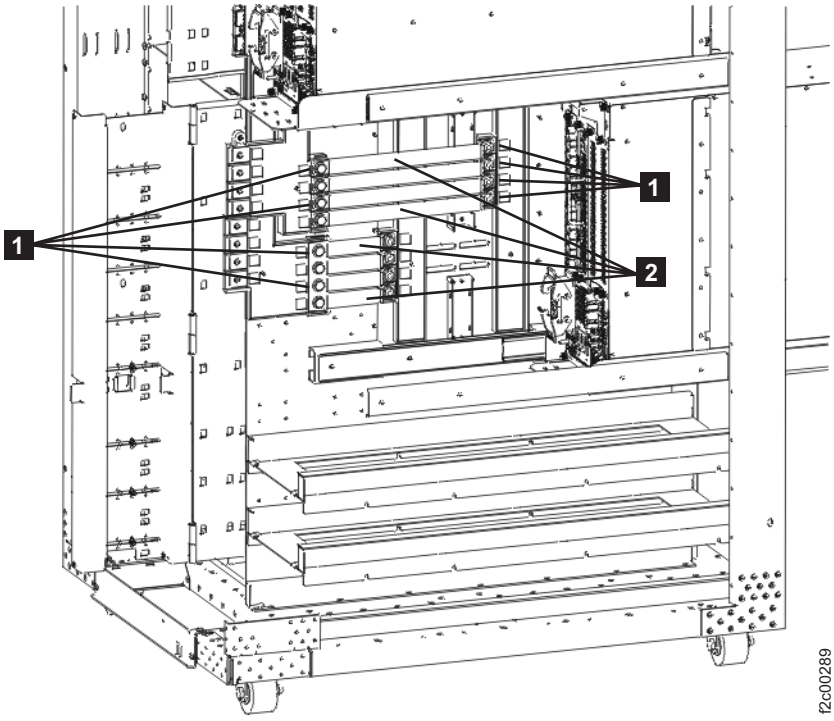


Figure 734. Lower tie bars

15. Remove two storage enclosures (if installed).

a. At the rear of the rack, remove the middle two storage enclosures **(1)** (if installed) in the lower half of the rack. See Figure 735.

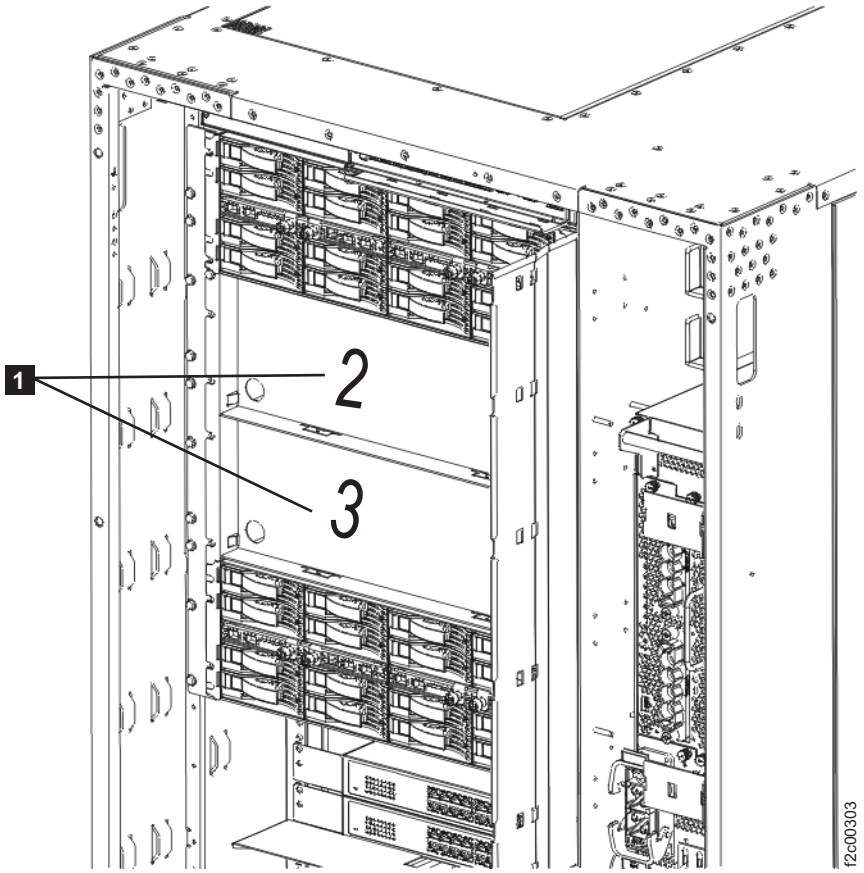


Figure 735. Middle storage enclosures

b. Each storage enclosure, disk drive module (DDM) **(1)**, fiber channel interface card **(2)** and FC-AL cable **(3)** must be in the exact same position when reinstalled in later steps. See Figure 736 on page 1258

c. Observe the cable labeling to ensure you will be able to replug the cables correctly. Disconnect the FC-AL cables **(3)** from the two fiber channel interface cards (FCIC) **(2)**. Squeeze the top of the FC-AL cable connector to release it from the FCIC card.

   Note: There will be four FC-AL cables if this is the last storage enclosure in this group. There will be eight FC-AL cables if this is not the last storage enclosure in this group.

d. Remove the four screws **(4)** fastening the storage enclosure to the rack mount rails.

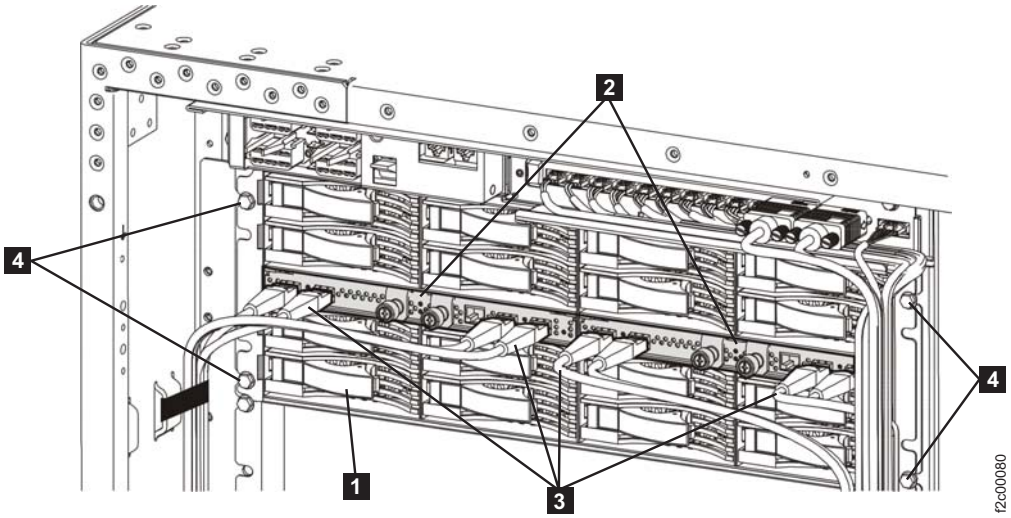


Figure 736. DDM Fibre Channel cable

e. Remove each DDM and FCIC card from the storage enclosure and set them in a safe place. You must ensure each one will be plugged in the same position in the new storage enclosure. It is recommended that you write down the serial number and position of each part before you remove them.

16. Remove the 5/12V secondary bus bar. See Figure 737 on page 1259.
    a. Disconnect the four storage enclosure power cables from the secondary bus bar. Squeeze the top and bottom release levers on the cable connector and then pull to release. The front storage enclosure cables **(1)** connect to the front 5/12V secondary bus bar A. The rear storage enclosure cables **(2)** connect to the front 5/12V secondary bus bar B.
    b. Remove the nuts **(3)** and washers **(4)** fastening the bus bar to the rack and then remove the bus bar.

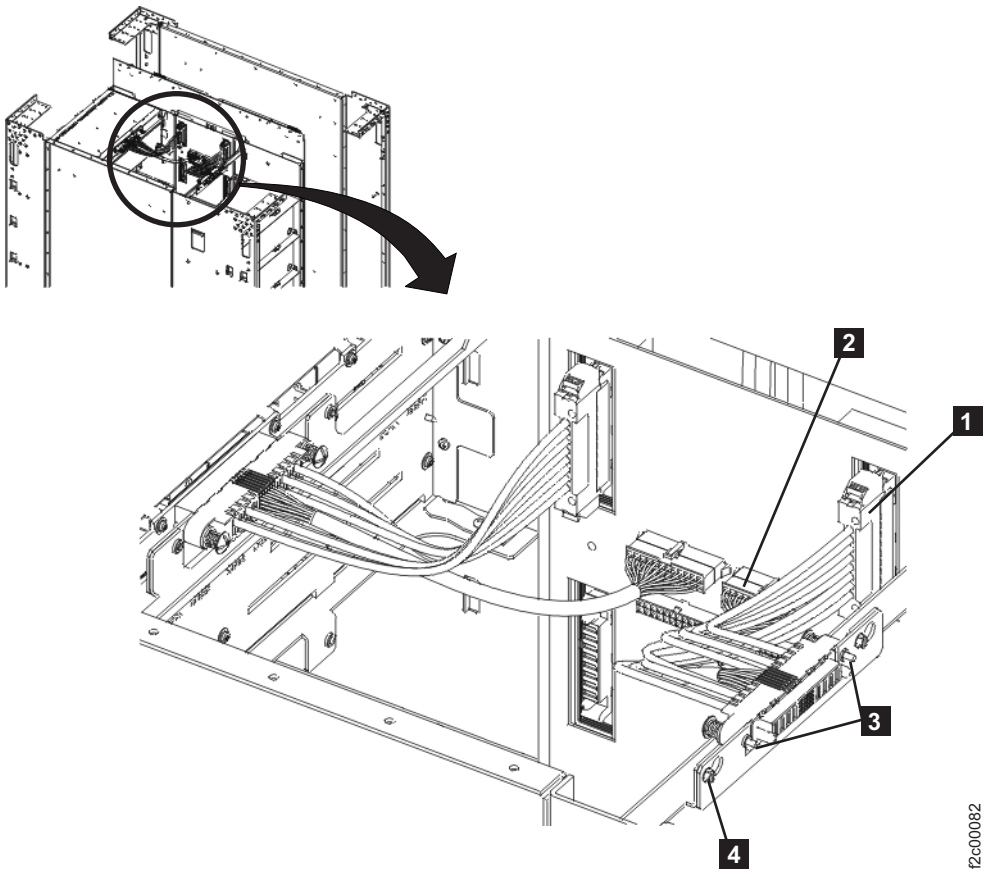


Figure 737. Storage enclosure cables to bus bar

Install the bus bar, 5/12V secondary lower

1. Install the bus bar and connect the cables.
   a. Install the 5/12V secondary bus bar on the mounting studs. Install the washers and nuts.
   b. Install the primary to secondary tie bars. The bolts must be torqued to 8 to 11 newton meters (6 to 8 foot pounds) to make proper contact. It is recommended that you use a torque wrench if one is available. DO NOT OVERTIGHTEN, or the threads in the copper bus bars might strip.
   c. Install the tie bar plastic cover.
      - There are tabs on the inside of the cover that must slide down behind the tie bars.
      - The keyhole slots in the cover must slide over the two screws near the PPS.
      - Tighten the two screws.
   d. Connect the four storage enclosure power cables to the bus bar.
2. Install any storage enclosures that were removed:
   a. Install the storage enclosure in the original position in the rack and fasten it with the four screws.
   b. Install each disk drive module (DDM) and fibre channel interface card in the exact same position as it was in the old storage enclosure.
   c. Install each FC-AL cable in the exact same position as it was in the old storage enclosure.

3. Place PPS 2 in the normal position:
   a. At the front of the rack, push PPS 1 fully in on the sheet metal tray and install the two screws **(1)**. See Figure 731 on page 1254.
4. Put PPS back to the normal position:

   Note: To allow the PPS to be pushed back in, you must pull the PPS out to service position 2 (fully extended), release both slide detents **(1)** and then push the PPS chassis in fully.
5. Install the eight black hex head screws that fasten each PPS chassis to the rack. See Figure 729 on page 1252.
6. At PPS 1 connect the rear cables:
   a. At the rear of PPS 1, connect all the cables.
   b. Install the "hook and loop" fastener cable straps.
   c. Install the green/yellow ground wire. Ensure the serrated washer is between the wire and the PPS or frame.
7. Connect power:
   a. Connect the mainline power cable to the PPS and ensure both latches are secure.
   b. Set the PPS AC input power module CB00 switch to On (up).
   c. Instruct the customer to switch on the mainline circuit breaker that supplies mainline ac voltage to the power receptacle for PPS 1.
   d. At the front of the rack, observe the PPS AC INPUT GOOD LED. Is the LED off on both PPS?
      - Yes, go to the next step.
      - No, return to step 6.
8. 208VDC bus bar gate to normal position:
   a. Pivot the 208VDC bus bar gate closed being careful that both mainline power cables lay in the space between the two 208VDC bus bars. Fasten the gate shut with the two screws.

      Note: If this is an expansion rack and the sheet metal baffle to the left of the gate was removed, reinstall it now with the two screws.
9. Power on the rack:
   a. Set the local/remote switch card white switch **(2)** to Remote (up). See Figure 724 on page 1247.
   b. Use the management console to power on the storage facility subsystem.
10. Return to the procedure that sent you here.

Exchange the bus bar, 5/12V secondary upper


Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Note: This procedure is disruptive and requires the storage facility to be powered off.

Decide if you are going to remove the upper or the lower bus bars and select the condition that applies:

- You are here to replace a bus bar in the lower half of a base rack, go to step 1.

- You are here to replace a bus bar in the upper half of an expansion rack, go to step 1.
- You are here to replace a bus bar in the lower half of an expansion rack, go to "**Exchange the bus bar, 5/12V secondary lower**" on page 1245.

Remove the bus bar, 5/12V secondary upper

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. Use the management console to power off the storage facility subsystem.
3. Set the local/remote switch card white switch **(1)** to Local (down). This will prevent the rack from being unexpectedly powered up by the management console (or remote power control if the feature is installed). See Figure 738.

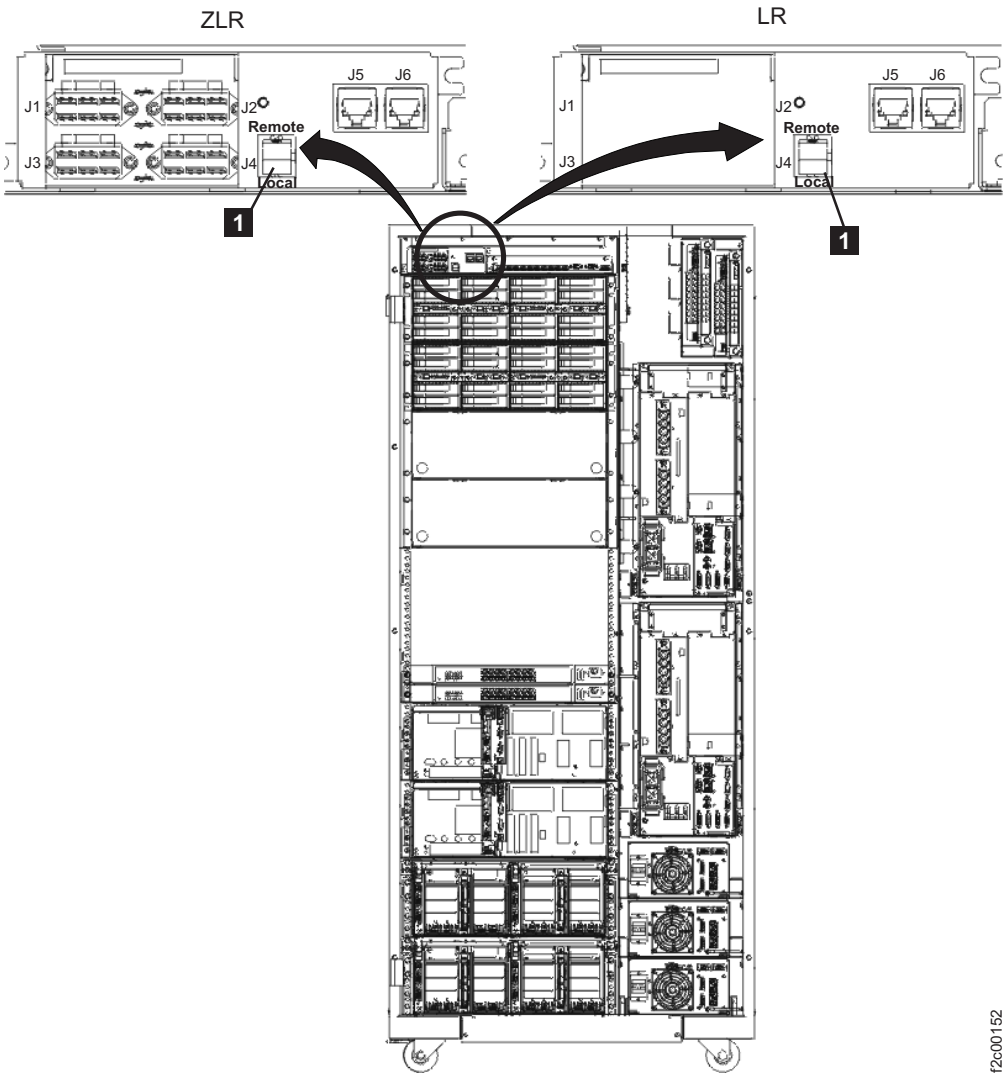


Figure 738. Location of the local remote switch card and the zSeries local remote switch card

4. Does the rack you are repairing contain an integrated management console? See Figure 739.

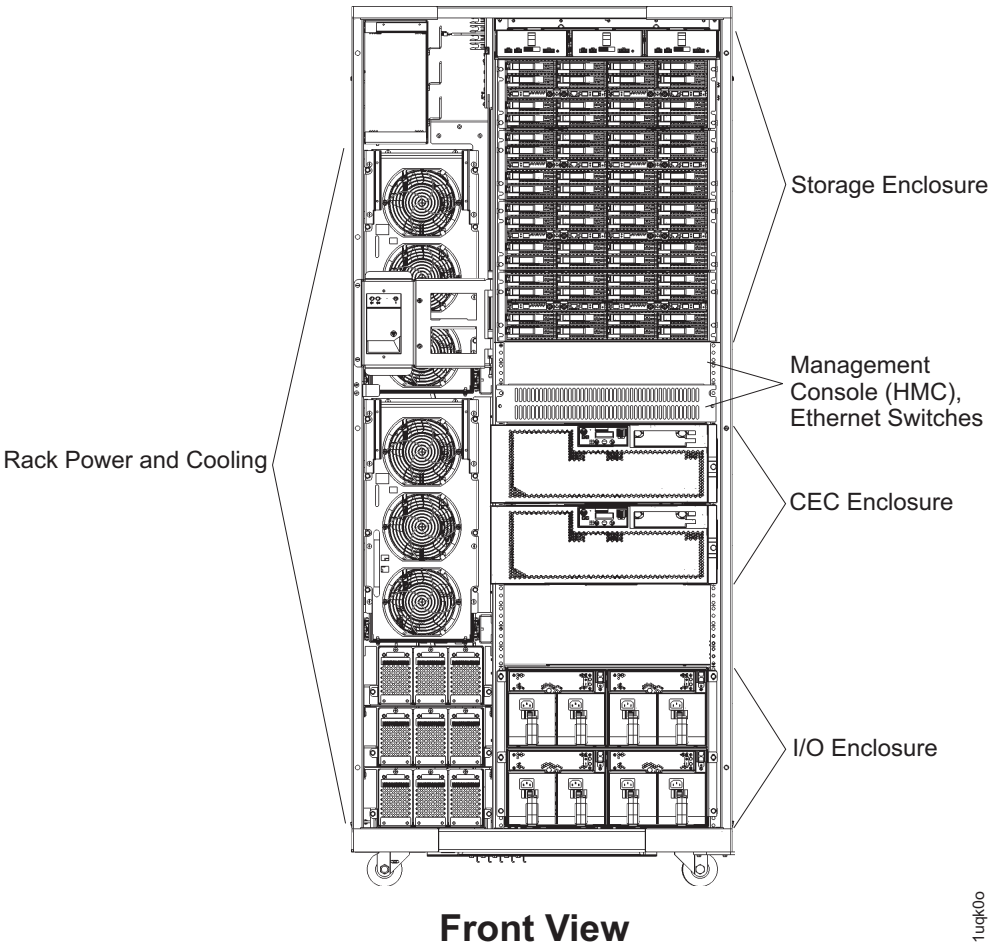


Figure 739. Visual index of Rack-1 (front)

   - Yes, go to the next step.
   - No, go to the 208VDC bus bar gate to service position instructions in step 9 on page 1263.
5. Is this management console being used to guide this repair?
   - Yes, you will need to use the DS8000 Information Center software to guide this FRU replacement. Bring up the Information Center CD in a PC platform. In the navigation area, select the *Exchanging Parts* Chapter 39, "Rack Power and Cooling," on page 1197 section and select this FRU procedure. Then go to the next step.
   - No, go to the next step.
6. Shutdown the management console. See Figure 741 on page 1264.
   a. At the Hardware Management Console GUI window click **Console** to open the drop down menu.
   b. Click **Exit**.
   c. At the Exiting Hardware Management Console pop up, click **Exit Now**
   d. From the listed exit options, select **Shutdown Console**

e. Wait for the management console to display: `The system will be halted immediately. Master Resource Control: renlevel 0 has been reached`

Note: The management console Power LED in the lower right corner of the management console server will stay lit. In this state, when the rack power is restored, the server will automatically power on.

7. Power off the management console display.
8. If this is an expansion rack and it has old level sheetmetal, the sheetmetal baffle **(2)** to the left of the gate and at the bottom of the storage enclosure chassis might need to be removed to allow the gate to swing open. Remove the two screws **(1)** that fasten the baffle to the 19″ rack mount vertical rails. If the baffle is the new level sheetmetal, it has a flexible plastic cutout that bends out of way when the gate is swung open.

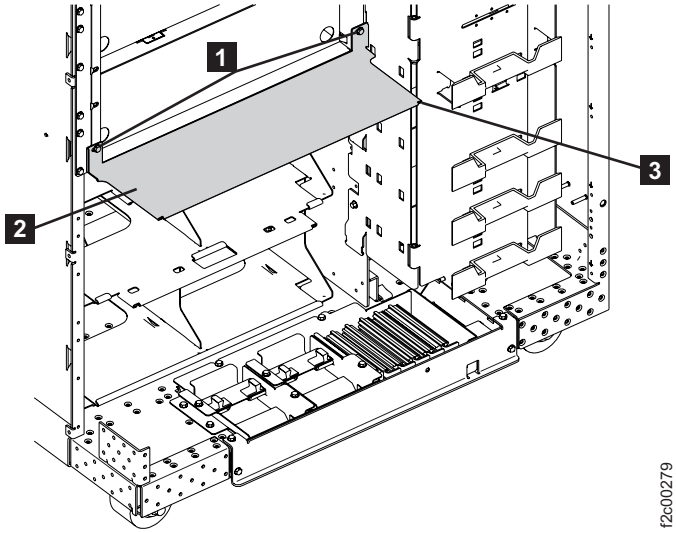


Figure 740. Air baffle

9. Remove the two screws **(1)** and open the 208VDC bus bar gate to the service position **(2)**.

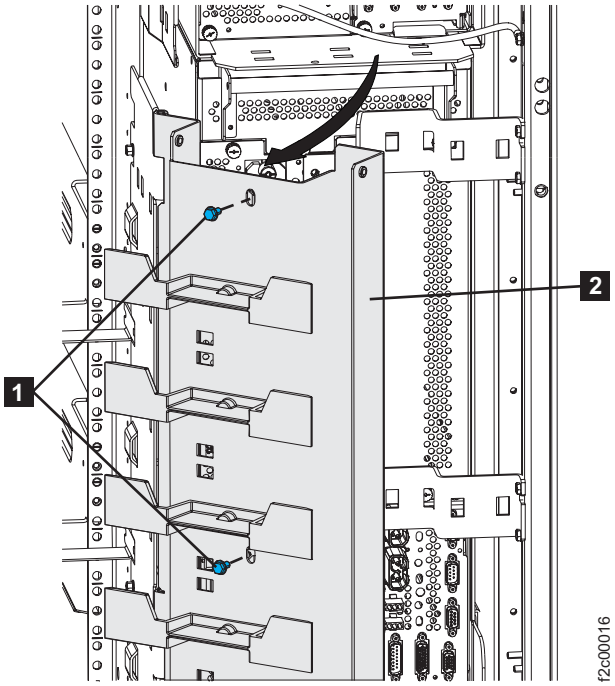


Figure 741. 208VDC bus bar gate service position

10. Remove power from the storage facility:
    a. Instruct the customer to switch off the circuit breakers that supply mainline AC voltage to both power receptacles for the main line power cables to the rack that will have the bus bar FRU replaced.

       Note: Attach a "Do Not Operate" tag, S229-0237, and the safety lockout padlock to the customer's AC voltage circuit breaker. Refer to the *Electrical Safety for IBM Customer Engineers* book.

    b. At both PPS, set the PPS AC input power module CB00 switch**(1)** to Off (down). See Figure 742 on page 1265.
    c. At both PPS, disconnect the mainline power cord from the PPS AC input power module. Push the two release levers **(2)**.See Figure 742 on page 1265.

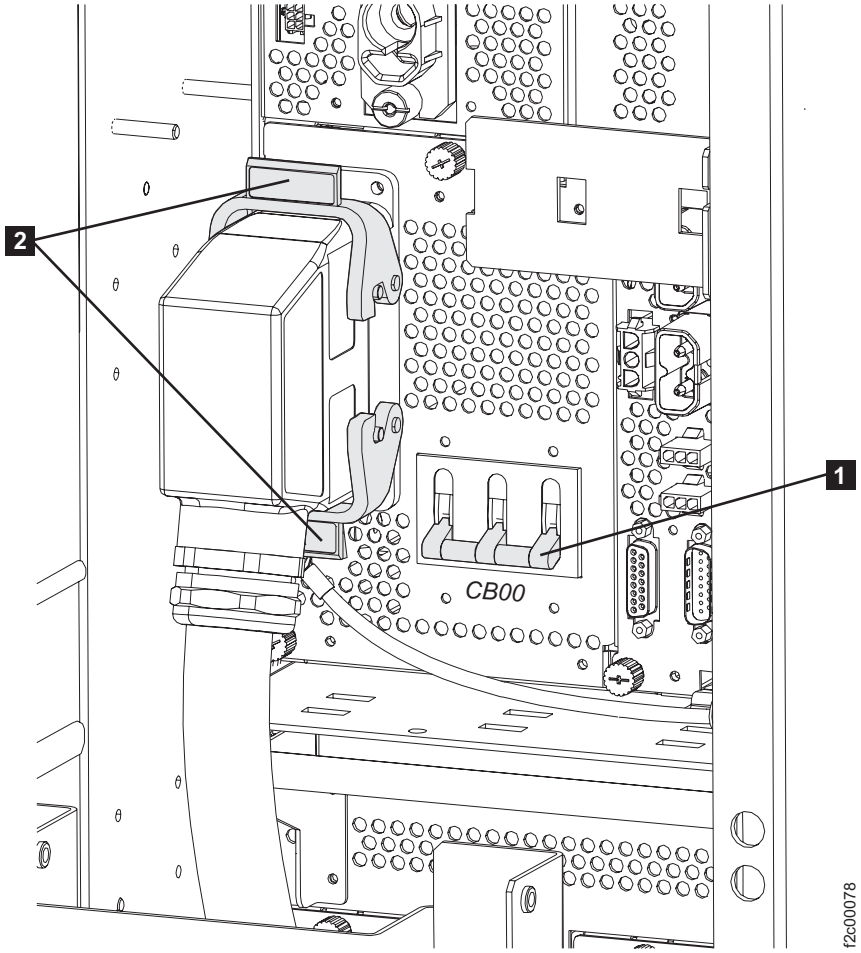


Figure 742. Power supply main line CB00 switch

d. Remove the ″hook and loop″ **(1)** fastener securing the mainline power cable to PPS 2 (lower PPS). See Figure 743 on page 1266.

e. Remove the screw and mainline power cable bracket **(2)**. See Figure 743 on page 1266.

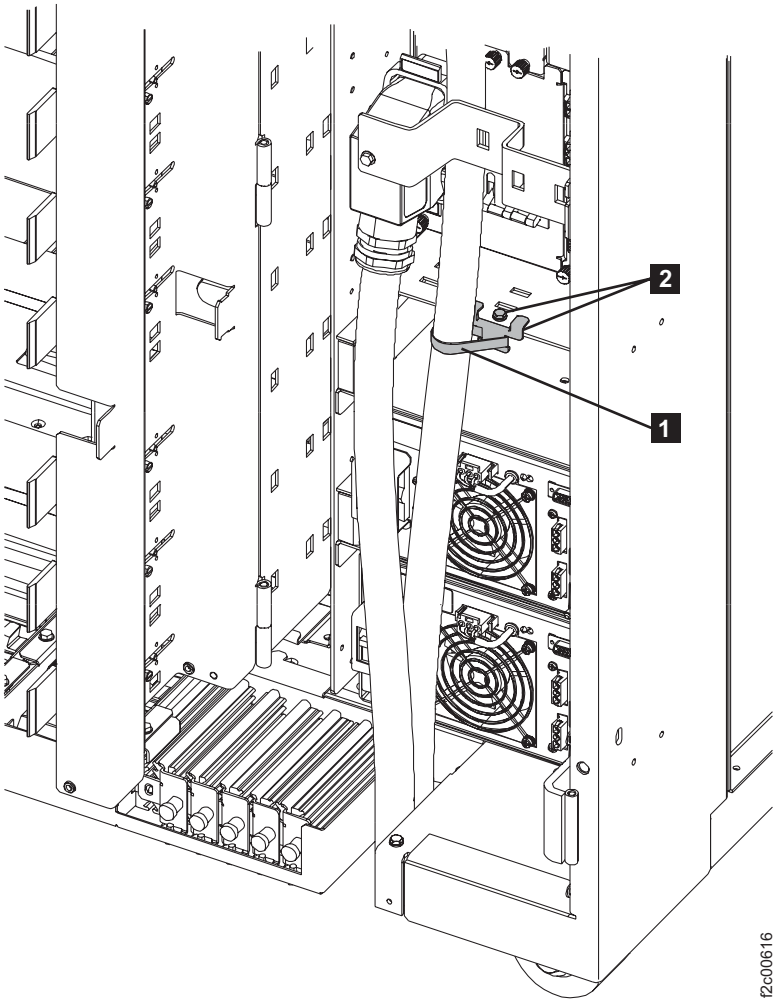


Figure 743. Power supply main line

11. At both PPS, disconnect the rear cables:
    a. At the rear of both PPS, disconnect all the cables.
    b. Remove the ″hook and loop″ fastener cable straps at both PPS.
    c. Remove the green/yellow ground wire from the both PPS. Keep the serrated washers.
    d. At the front of the rack, remove the 2 screws **(1)** and swing open the rack operator panel **(2)**. See Figure 744 on page 1267.
    e. At the front of the rack, remove the two screws **(3)** and remove the door latch bracket **(4)**. See Figure 744 on page 1267.

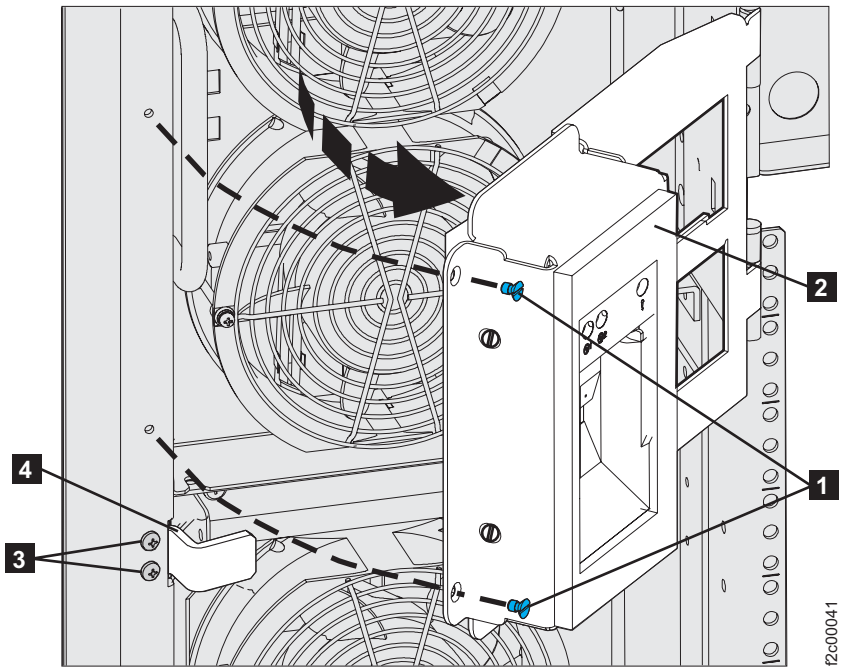


Figure 744. Rack and power operator panel UEPO open

12. Put PPS 1 (upper) in service position 2:
    a. At the front of the rack, remove the eight black hex head screws **(1)** that fasten the PPS 1 chassis to the rack. See Figure 745 on page 1268.

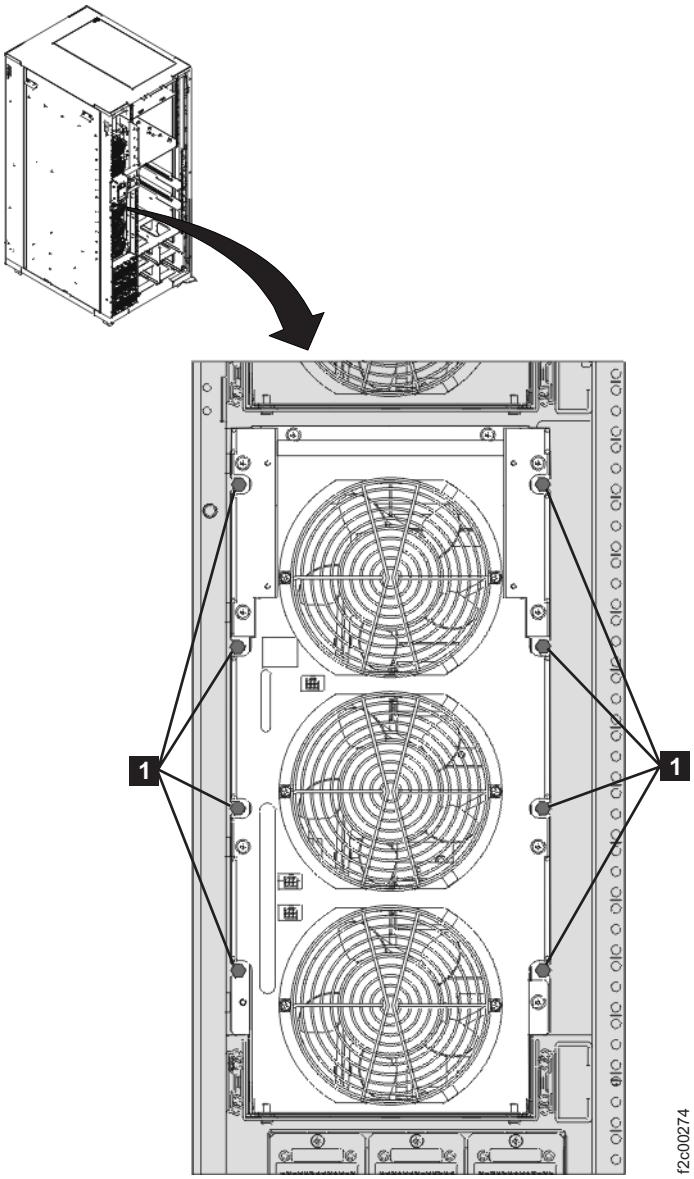
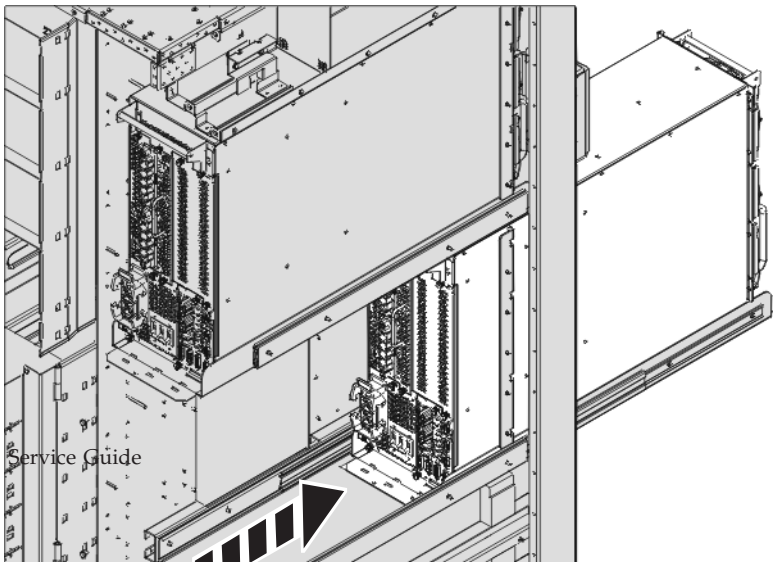


Figure 745. PPS chassis remove

b. Slide PPS 1 out to service position 2. The PPS rail detents will click at service position 1 and then will prevent the PPS from being pushed back in to the normal position. See Figure 746.

Figure 746. PPS service position



Note: To allow the PPS to be pushed back in, you must pull the PPS out to service position 2 (fully extended), release both slide detents **(1)** and then push the PPS chassis in fully. See Figure 747.

13. At the front of the rack, remove the two screws **(2)** securing the PPS to the sheet metal tray. See Figure 747.

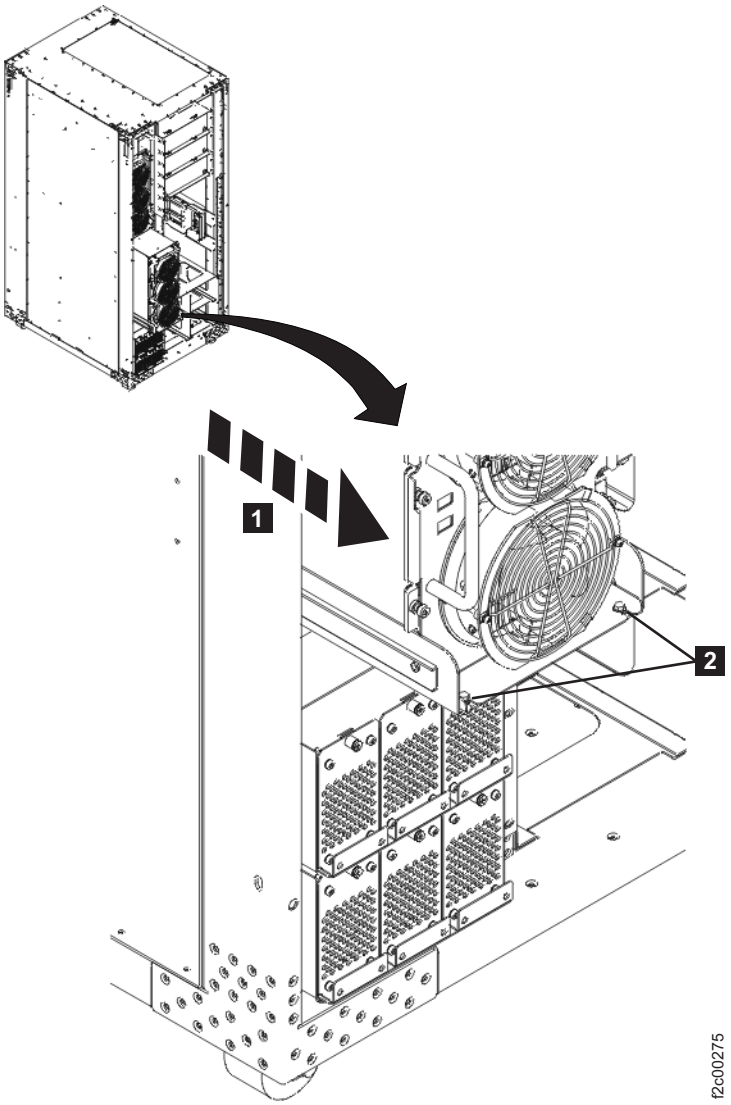


Figure 747. PPS sheet metal screws

14. Pull the PPS out **(1)** about 5 cm (2 inches) further on the sheet metal tray as shown. (This will give more clearance at the back of the PPC for the next step.) See Figure 748 on page 1270.

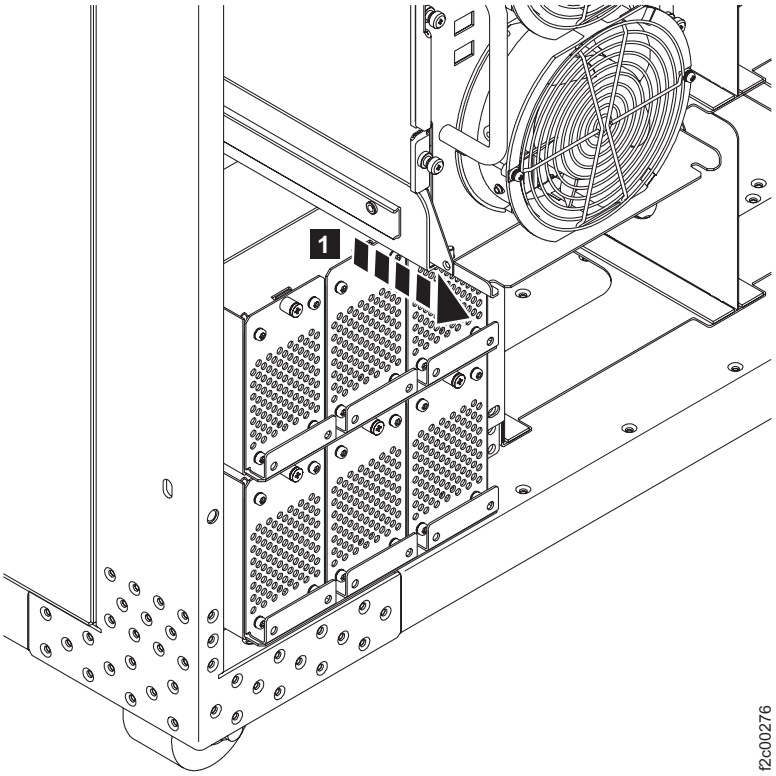


Figure 748. Sliding PPS out on sheet metal tray

15. Remove the primary to secondary tie bars:
    a. At the rear of the rack, remove the lower primary to secondary tie bar plastic cover. Loosen, but do not remove the two screws **(1)**. See Figure 749 on page 1271.
    b. The plastic cover has keyhole slots. The cover has tabs that slide behind the lower and low tie bar. Slide the cover up **(2)**, and then remove it. See Figure 749 on page 1271.

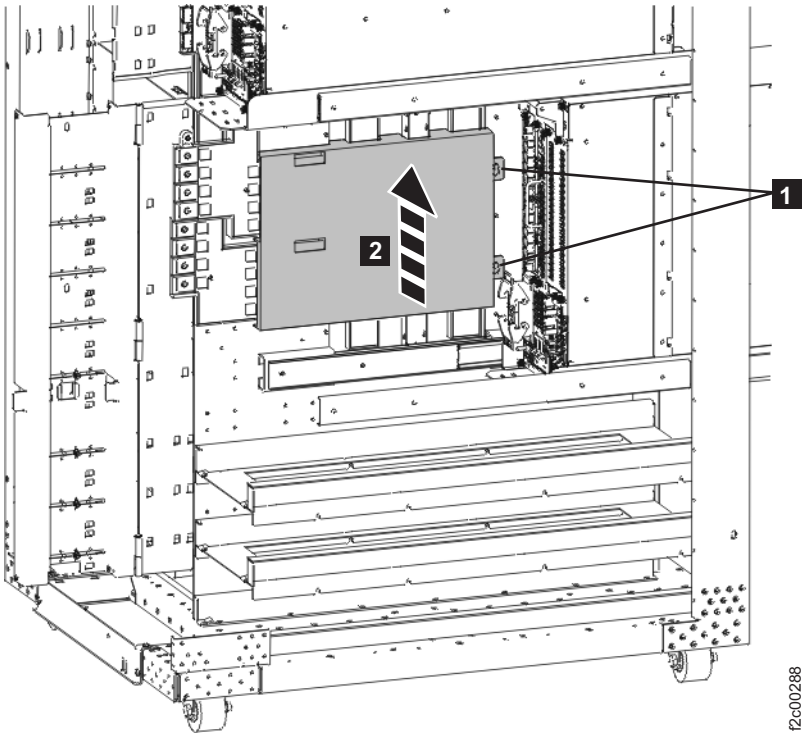


Figure 749. Bus bar cover

c. Remove the bolt **(1)** securing each end of each lower tie bar and remove the tie bars **(2)**. See Figure 750.

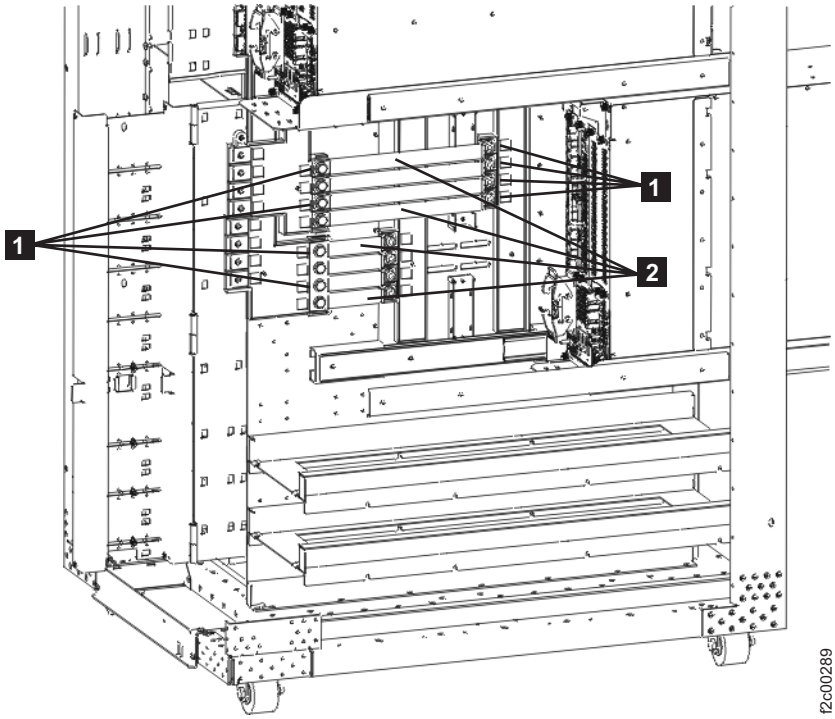


Figure 750. Lower tie bars

16. Remove two storage enclosures (if installed).

a. At the rear of the rack, remove the middle two storage enclosures **(1)** (if installed) in the lower half of the rack. See Figure 751.

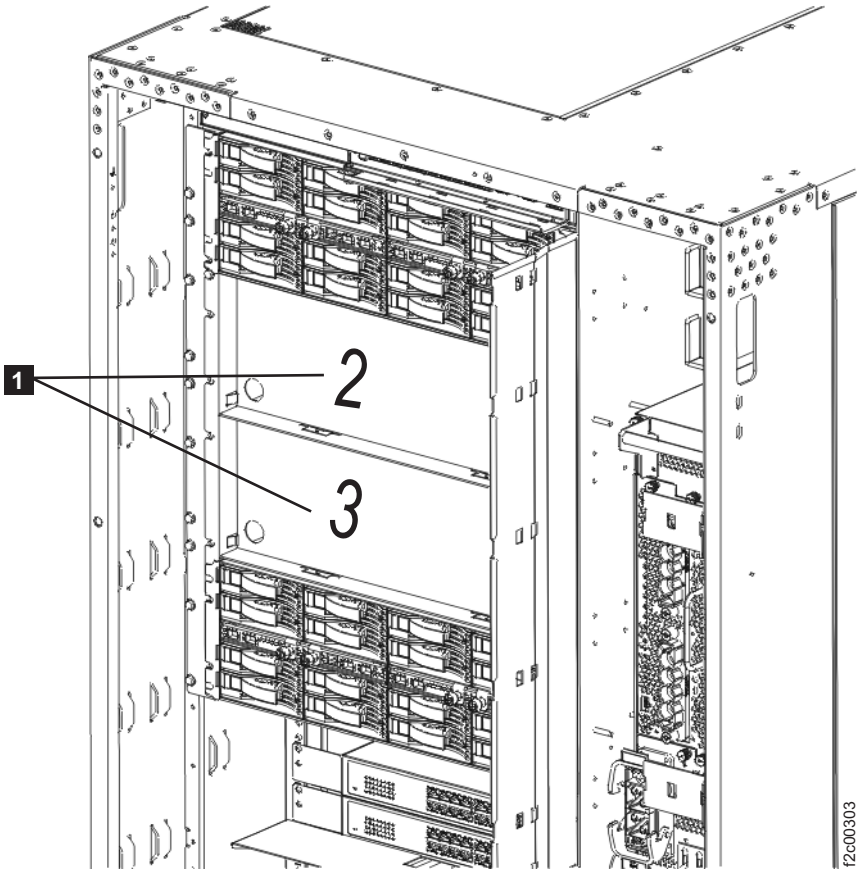


Figure 751. Middle storage enclosures

b. Each storage enclosure, disk drive module (DDM) **(1)**, fiber channel interface card **(2)** and FC-AL cable **(3)** must be in the exact same position when reinstalled in later steps. See Figure 752 on page 1273.

c. Observe the cable labeling to ensure you will be able to replug the cables correctly. Disconnect the FC-AL cables **(3)** from the two fiber channel interface cards (FCIC) **(2)**. Squeeze the top of the FC-AL cable connector to release it from the FCIC card. See Figure 752 on page 1273.

   Note: There will be four FC-AL cables if this is the last storage enclosure in this group. There will be eight FC-AL cables if this is not the last storage enclosure in this group.

d. Remove the four screws **(4)** fastening the storage enclosure to the rack mount rails. See Figure 752 on page 1273.

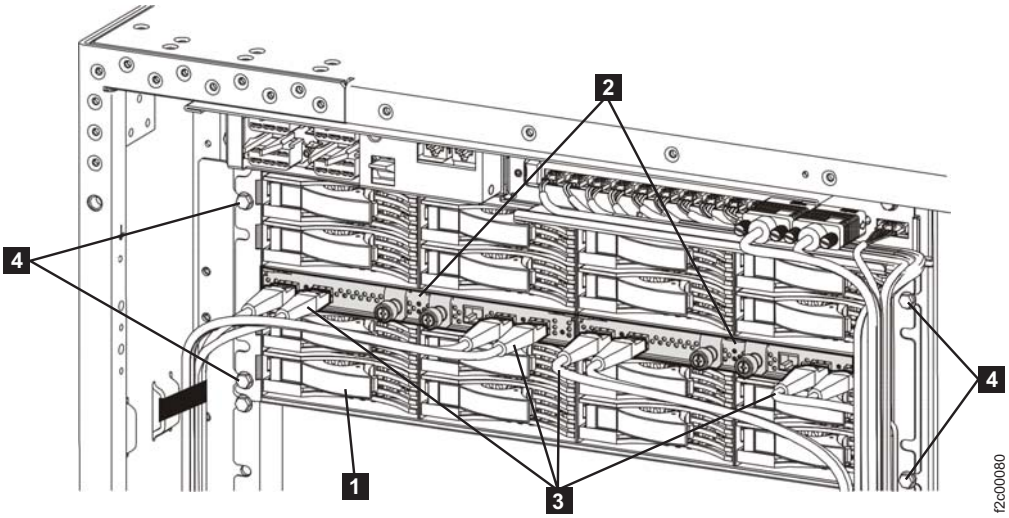


Figure 752. DDM Fibre Channel cable

e. Remove each DDM and FCIC card from the storage enclosure and set in a safe place. You must ensure each one will be plugged in the same position in the new storage enclosure. It is recommended you write down the serial number and position of each part prior to removing them.

17. Remove the 5/12V secondary bus bar (see Figure 753 on page 1274):
    a. Disconnect the four storage enclosure power cables from the secondary bus bar. Squeeze the top and bottom release levers on the cable connector and then pull to release. The front storage enclosure cables **(1)** connect to the front 5/12V secondary bus bar A. The rear storage enclosure cables **(2)** connect to the front 5/12V secondary bus bar B.
    b. Remove the nuts and washers fastening the bus bar to the rack and then remove the bus bar.

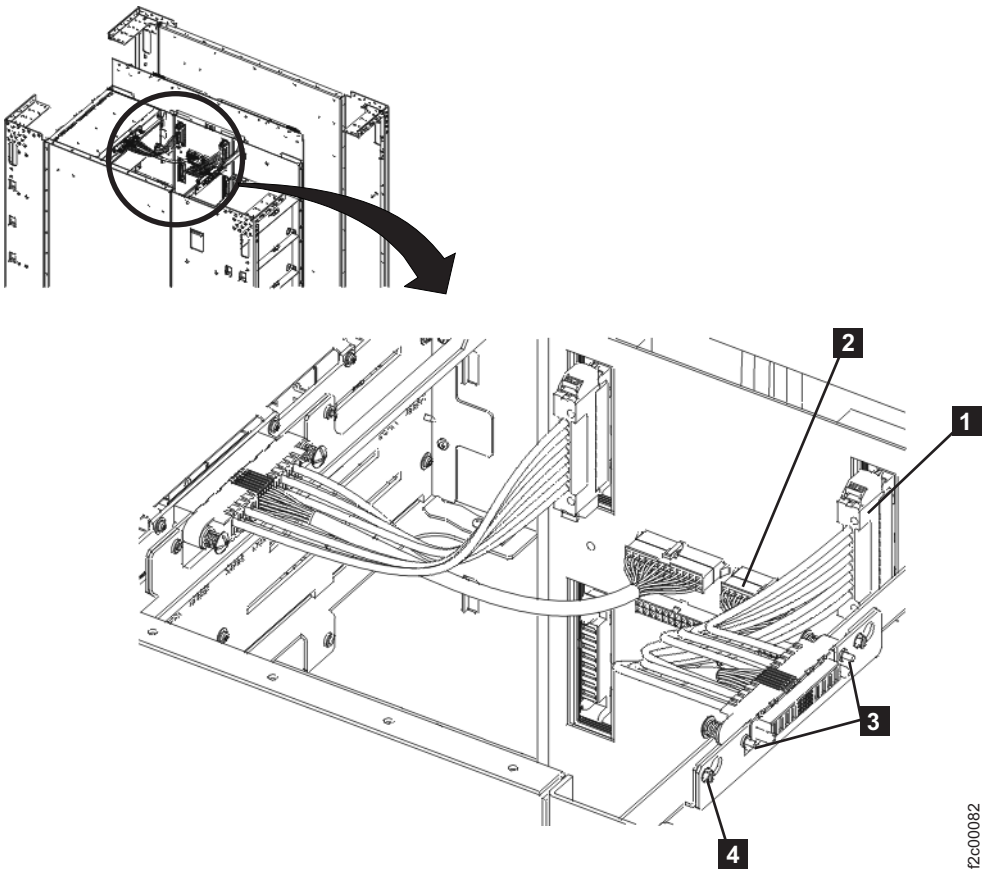


Figure 753. Storage enclosure cables to bus bar

Install the bus bar, 5/12V secondary upper

1. Install the bus bar and connect the cables.
   a. Install the 5/12V secondary bus bar on the mounting studs. Install the washers and nuts.
   b. Install the primary to secondary tie bars.

      Note: The bolts must be torqued to 8 to 11 newton meters (6 to 8 foot pounds) to make proper contact. It is recommended that you use a torque wrench if one is available. DO NOT OVERTIGHTEN, or the threads in the copper bus bars may strip.

   c. Install the tie bar plastic cover.
      - There are tabs on the inside of the cover that must slide down behind the tie bars.
      - The keyhole slots in the cover must slide over the two screws near the PPS.
      - Tighten the two screws.
   d. Connect the four storage enclosure power cables to the bus bar.
2. Install any storage enclosures that were removed:
   a. Install the storage enclosure in the original position in the rack and fasten it with the four screws.
   b. Install each disk drive module (DDM) and fibre channel interface card in the exact same position as it was in the old storage enclosure.

c. Install each FC-AL cable in the exact same position as it was in the old storage enclosure.

3. Place PPS 1 in the normal position:
   a. At the front of the rack, push PPS 1 fully in on the sheet metal tray and install the two screws.
4. Install the eight black hex head screws that fasten each PPS chassis to the rack.
5. At the front of the rack:
   a. Close the rack operator panel and install the two screws.
   b. Install the door latch bracket with two screws.
6. At PPS 1 connect the rear cables:
   a. At the rear of both PPS 1, connect all the cables.
   b. Install the "hook and loop" fastener cable straps.
   c. Install the green/yellow ground wire. Ensure the serrated washer is between the wire and the PPS or frame.
7. Connect power:
   a. Connect the mainline power cable to the PPS and ensure both latches are secure.
   b. Set the PPS AC input power module CB00 switch to On (up).
   c. Instruct the customer to switch on the mainline circuit breaker that supplies mainline ac voltage to the power receptacle for PPS 1.
   d. At the front of the rack, observe the PPS AC INPUT GOOD LED. Is the LED off on both PPS?
      - Yes, go to the next step.
      - No, return to step 4.
8. 208VDC bus bar gate to normal position:
   a. Pivot the 208VDC bus bar gate closed being careful that both mainline power cables lay in the space between the two 208VDC bus bars. Fasten the gate shut with the two screws.

      Note: If this is an expansion rack and the sheet metal baffle to the left of the gate was removed, reinstall it now with the two screws.
9. Power on the rack:
   a. Set the local/remote switch card white switch to Remote (up).
   b. Use the management console to power on the storage facility subsystem.
10. Return to the procedure that sent you here.

Exchange the DASD fan tray assembly


Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

DANGER

Hazardous voltage, current, or energy levels are present inside of a component to which this label is attached. (L001)



Remove the DASD fan tray assembly

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. Remove the cables from the front of the fan tray.
3. Press down on the clasp to unlock the fan tray.

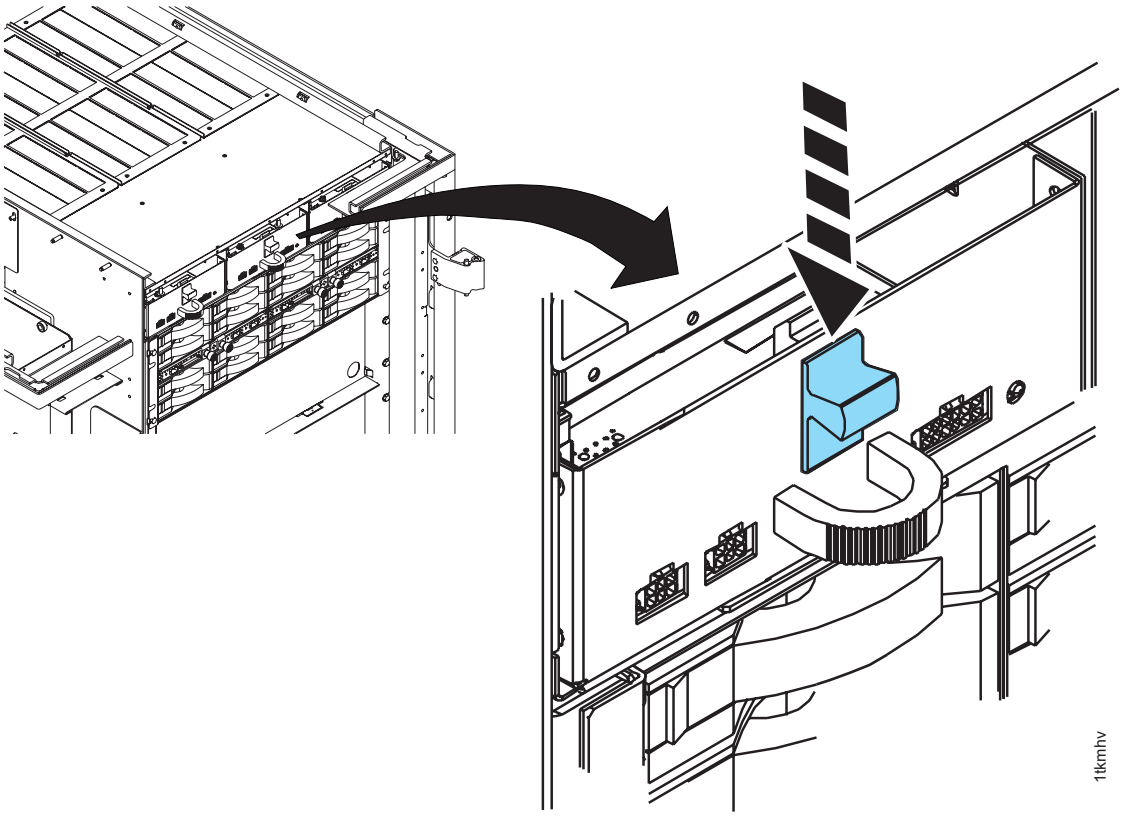


Figure 754. Unlocking the fan tray

4. Gently slide the fan tray out of its slot.

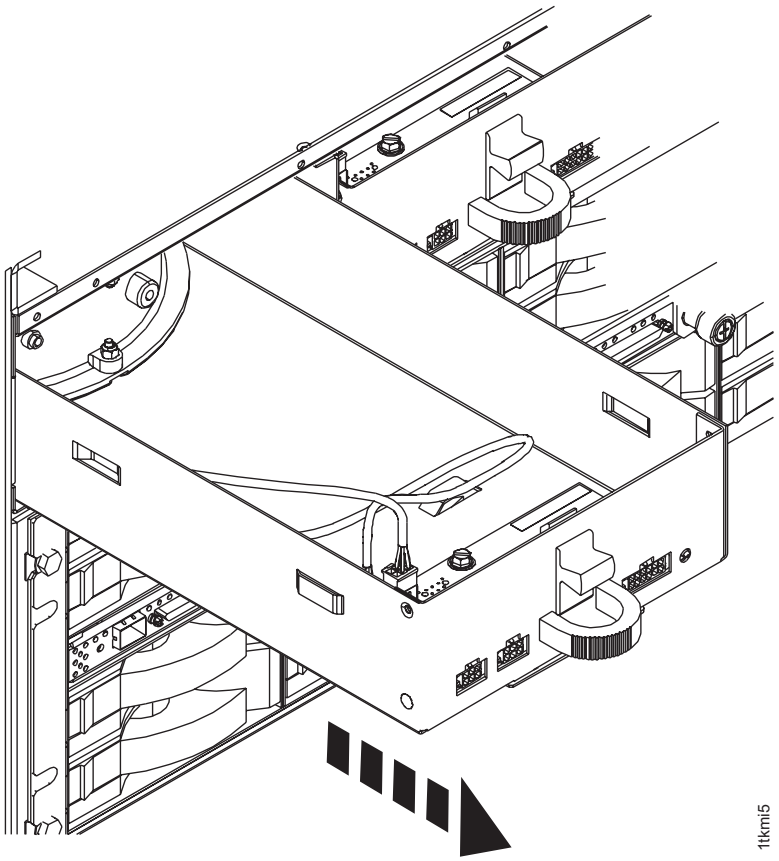


Figure 755. Removing the fan tray

Install the DASD fan tray assembly

1. Slide the DASD fan tray assembly into its slot until the clasp snaps into place.
2. Connect the three cables.
3. Return to the procedure that sent you here.

Remove the fan sense card

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. Disconnect all cables from the fan sense card.
3. Loosen, but do not remove, the screw at the bottom of the fan sense card **(1)**.

4. At the top of the fan sense card are two ″keyhole″ mounting holes **(2)**. Slide the card toward the rear of the rack until all three mounting points release and then remove the card from the rack.

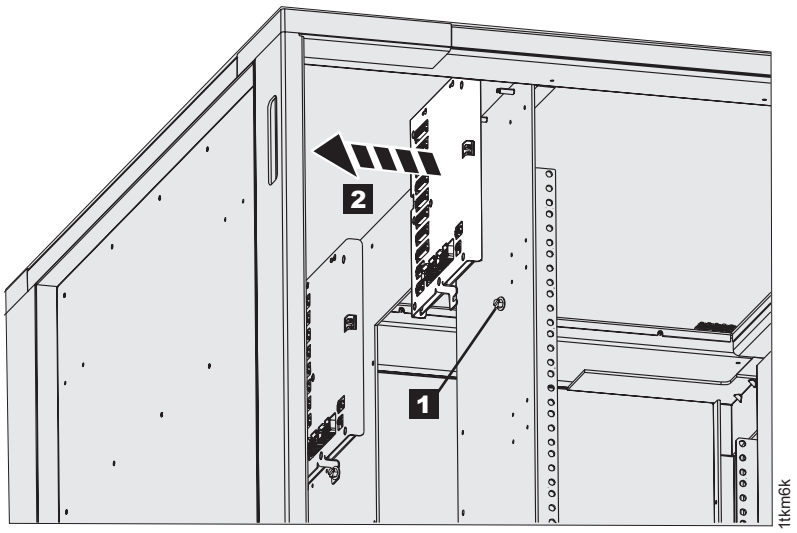


Figure 756. Mounting holes

Installing the fan sense card

1. Install the new fan sense card on the three mounting points **(1)**. Tighten the bottom screw **(2)**.
2. Connect all the cables. Ensure the cables are connected to the proper connector.
3. Return to the procedure that sent you here.

Exchange the local remote or zSeries local remote switch card

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the local remote switch card

Note: This procedure is for the Local Remote Switch Card and the zSeries Local Remote Switch Card. The zSeries Local Remote Switch Card has four additional connectors to the left of the Local/Remote switch which can connect up to four customer remote power control cables.

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.

- Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.

2. Put the white Local/Remote switch to the Local position (down).
3. Remove the cables from the switch card.
4. Remove screw **(1)** and loosen screw **(2)**.

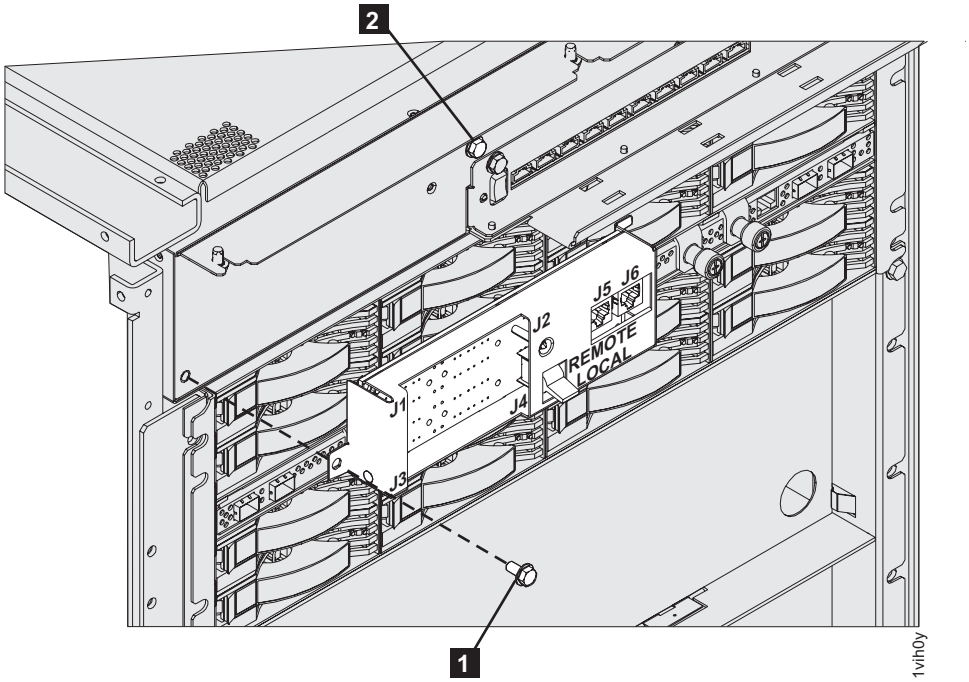


Figure 757. Removing the local remote switch card

5. Slide the card a little to the left and then remove it.

Install the local remote switch card

1. Ensure the Local/Remote switch on the card being installed is in the Local position (down).
2. Gently slide the card under the screw **(2)**, install screw **(1)** and tighten both.
3. Connect the cables.
4. Put the Local/Remote switch to the Remote position (up).
5. Return to the procedure that sent you here.

Exchange the PPS fan

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

DANGER

Hazardous voltage, current, or energy levels are present inside of a component to which this label is attached. (L001)



Remove the PPS fan

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. At the front of the rack, unplug the PPS fan cable **(1)**.
3. Wait for the fan to stop spinning and then unscrew the two screws **(2)** and remove the fan.

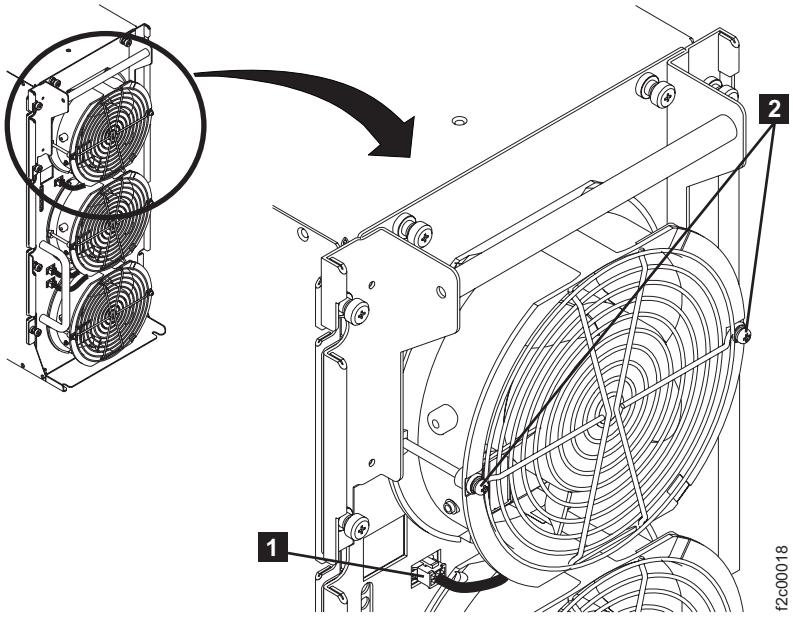


Figure 758. Remove the PPS Fan

Install the PPS fan

1. Install the new PPS fan and wire finger guard from the old PPS fan using the two screws **(2)**.
2. Connect the PPS fan cable to the PPS connector **(1)**. See Figure 758.
3. Return to the procedure that sent you here.

Exchange the primary power supply (PPS)

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

DANGER

Hazardous voltage, current, or energy levels are present inside of a component to which this label is attached. (L001)



Remove the primary power supply (PPS)

The base primary power supply (PPS) FRU is made up of five modules. Two modules are at the front of the rack, and three modules are at the rear. The PPS chassis is sheet metal only and is never replaced unless it is damaged. Additional optional modules may be present in the rear, but those are not replaced.

Note: It is normal for various PPS LED indicators to stay lit until the mainline input CB is switched off and the J3 PPS-to-PPS communication cable is disconnected. The communication cable supplies signals and logic voltages so the PPS control circuitry can stay active in the event of loss of input power to one PPS.

1. If this rack is a machine type 2107 (not 242x), then see MAP2512 to ensure the 5/12V DDM power module’s heavy black power cables are properly crimped into the cable connectors before continuing.
2. Two CEs are needed for step 1d.
   a. The PPS FRU only requires the five base PPS modules be replaced as stated later in this procedure.
   b. The PPS sheet metal enclosure and front fan assembly will not be replaced.
   c. IBM ships an entire pretested PPS on a pallet which ensures all 5 base modules are working.
   d. To remove and replace the modules in the FRU PPS on the pallet, one end of the PPS enclosure at a time will need to be temporarily lifted and set upon the packing materials as shown.

CAUTION:
Lifting one end of the PPS exceeds the single CE weight limit, so two CEs are required.



Figure 759. PPS FRU packaging

3. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
4. If this is an expansion rack and it has old level sheet metal, the sheet metal baffle **2** to the left of the gate and at the bottom of the storage enclosure chassis might need to be removed to allow the gate to swing open. Remove the two screws **1** that fasten the baffle to the 19" rack mount vertical rails. If the baffle is the new level sheet metal, it has a flexible plastic cutout that bends out of way when the gate is swung open.

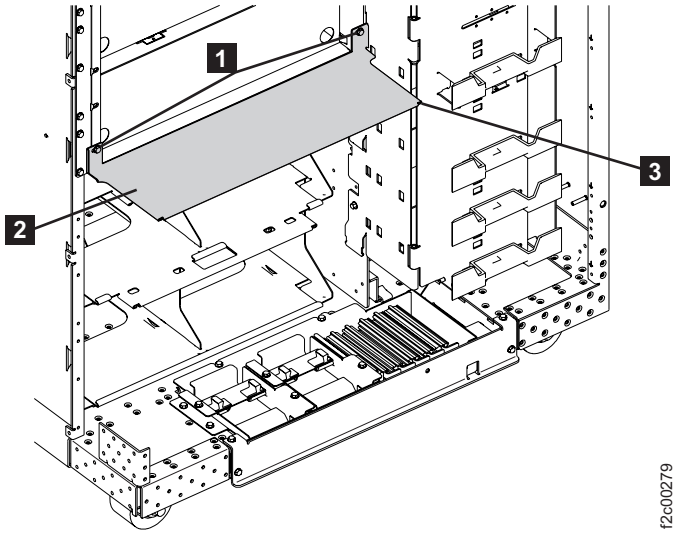


Figure 760. Air baffle

5. Remove the two screws **1** and open the 208VDC bus bar gate **2** to the service position. See Figure 761.

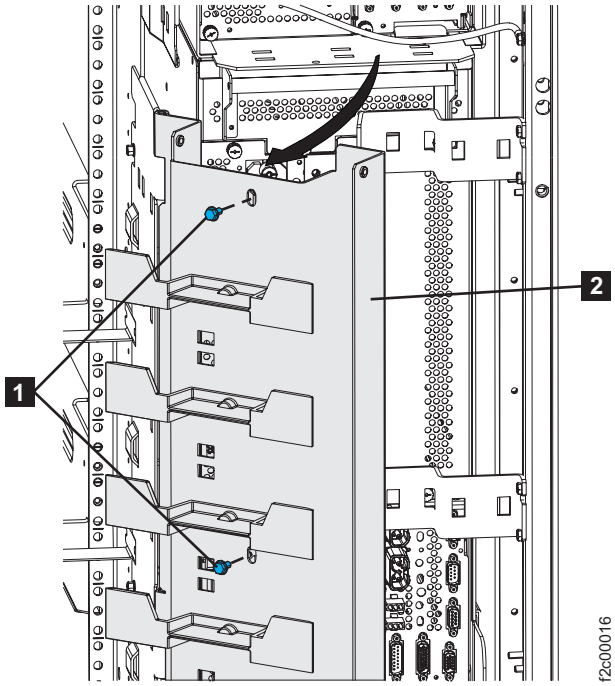


Figure 761. 208VDC bus bar gate service position

6. Remove power. See Figure 762 on page 1284.
   a. Instruct the customer to switch off the circuit breaker that supplies mainline AC voltage to the power receptacle for the primary power supply (PPS) you are repairing.

      Attention: Attach a "Do Not Operate" tag, *S229-0237*, and the safety lockout padlock to the customer's AC voltage circuit breaker. Refer to the *Electrical Safety for IBM Customer Engineers* book.
   b. Set the PPS AC input power module CB00 switch to Off (down) **1**.

c. Disconnect the mainline power cord from the PPS AC input power module. Push the two release levers **2** .

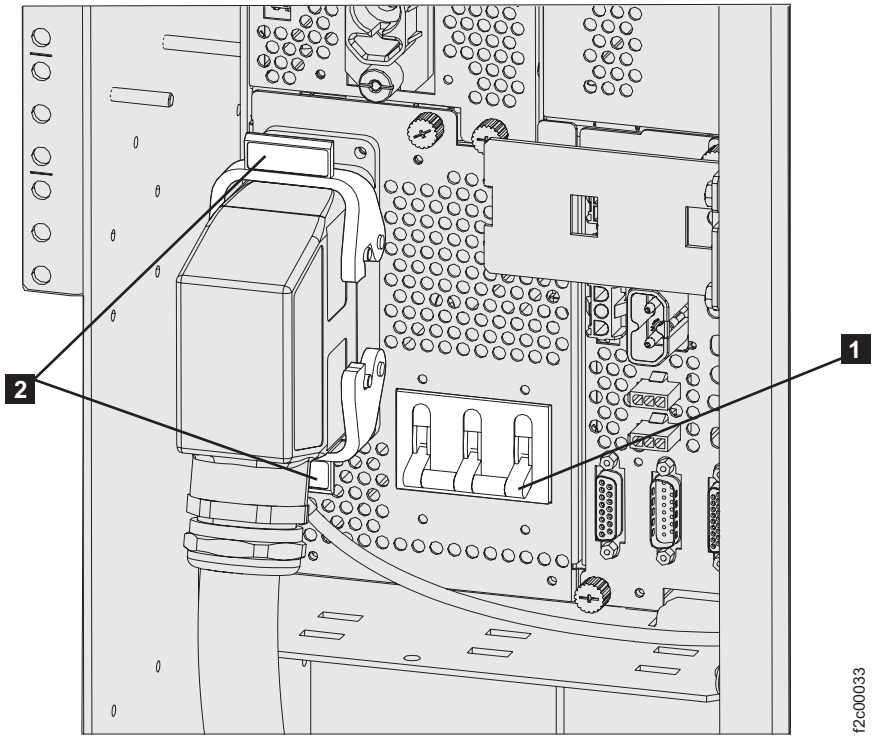


Figure 762. Removing the AC mainline power cord

d. If repairing PPS2 (the lower PPS), remove the hook-and-loop fasteners **1** securing the mainline power cable to PPS2 (lower PPS). Remove the screw securing the mainline power cable bracket, and then remove the mainline power cable bracket **2** . See Figure 763 on page 1285.

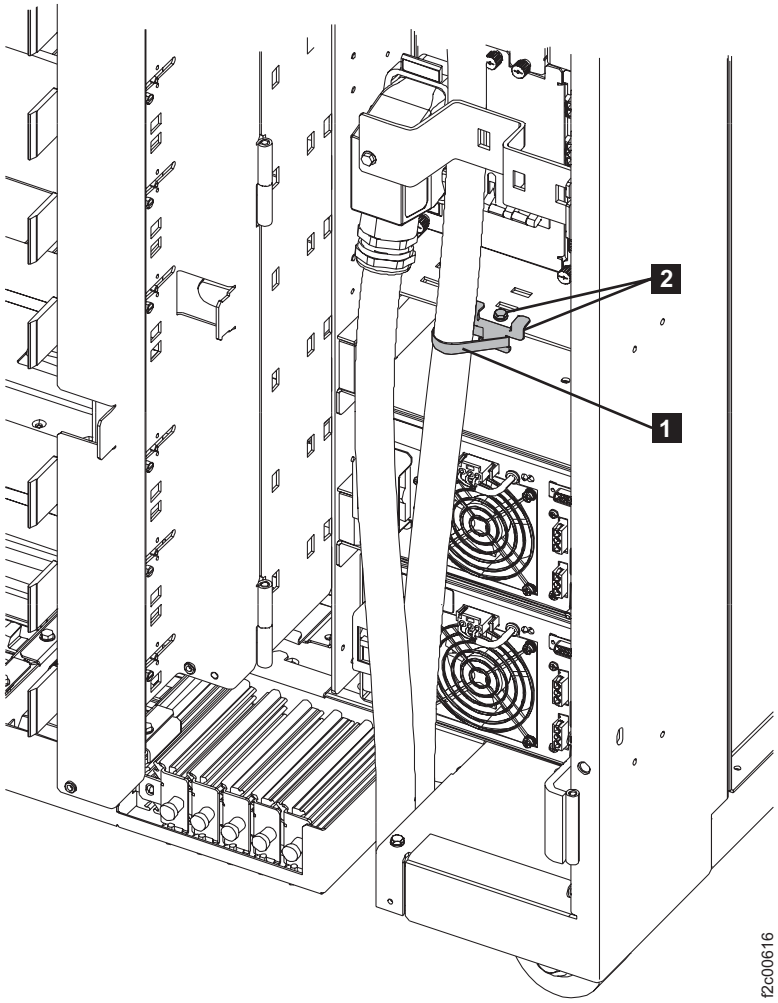


Figure 763. Power supply main line

7. At the rear of the **PPS REMAINING IN USE** by the customer, disconnect the **J3** PPS-to-PPS communication cable at the bottom right of the PPS sequencer module (see Figure 764 on page 1286).

   Notes:

   a. Disconnecting the cable from the working PPS will protect the working PPS. Then, when the other end of the cable is disconnected from the PPS being repaired, no pins inside that connector will be able to touch ground and shut down the working PPS that remains in use.

   b. This removes the remaining logic power from the PPS being repaired; all PPS LEDs should now be off.

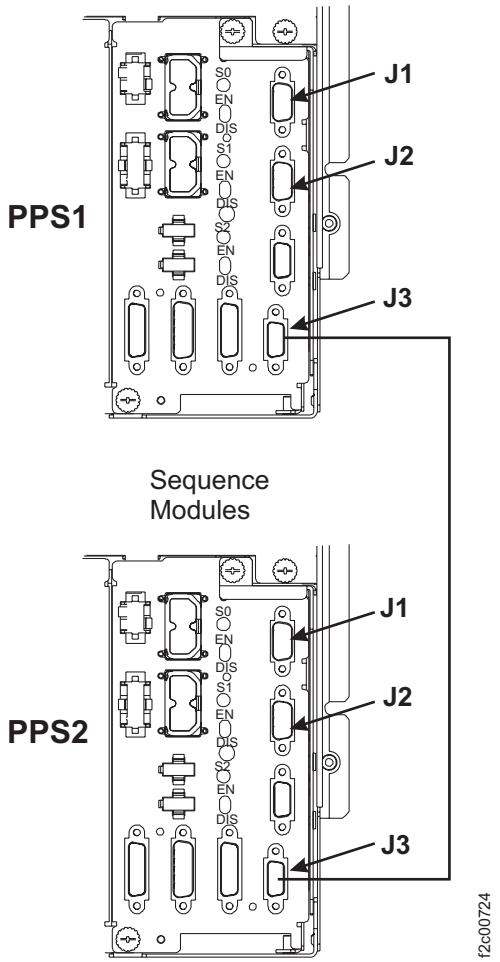


Figure 764. PPS rear view, lower right: PPS-to-PPS communication cable connection

8. At the rear of the **PPS BEING REPAIRED**, disconnect the **J3** PPS-to-PPS communication cable at the bottom right of the PPS sequencer module.
9. Disconnect the remaining cables from the rear of the PPS.
   a. At the rear of the PPS, disconnect all the cables.
   b. Remove the hook-and-loop fastener cable straps.
   c. Remove the green/yellow ground wire from the PPS.
10. Unscrew the two silver thumbscrews securing each PPS rear module. Do not remove the modules at this time.
11. If replacing the PPS 1 (upper PPS), at the front of the rack (see Figure 765 on page 1287):
    - Remove the two screws **1** and swing open the rack operator panel **2**.
    - Remove the door latch bracket **3**.

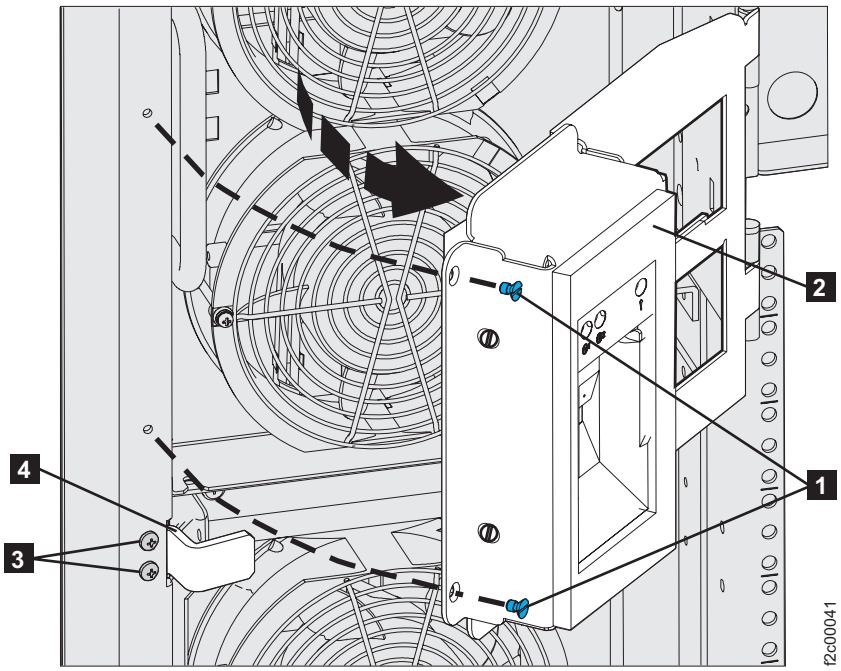


Figure 765. Rack operator panel LED assembly

12. Remove fans and front modules.
    a. At the front of the rack, unplug the three fan cables **1** . See Figure 766 on page 1288.
    b. Unscrew the eight silver thumbscrews securing the PPS fan assembly **2** . Then, lift the fan assembly up off the two bottom positioning studs and remove it from the rack. One or more of the PPS LEDs may now be lit.

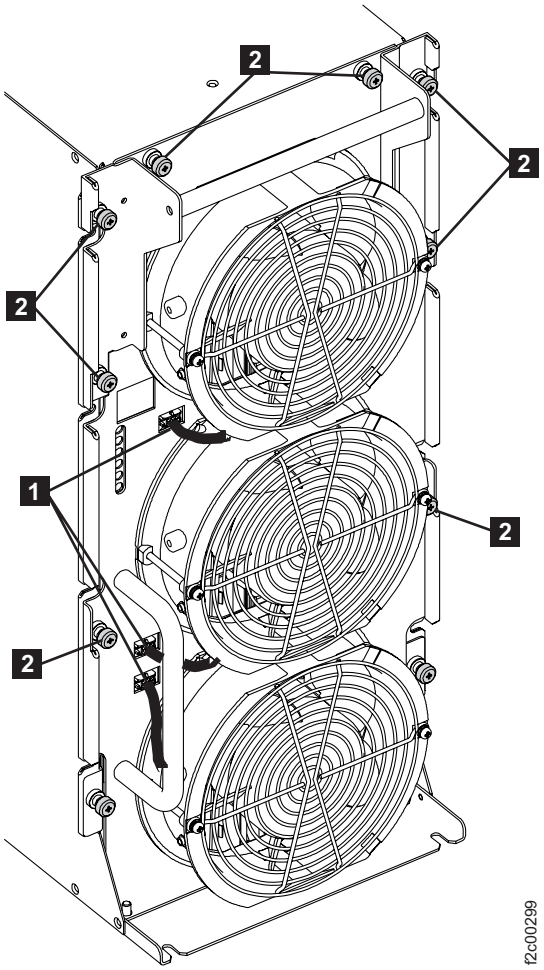


Figure 766. Remove fan cables and fan assembly screws

c. Remove the 208VDC base module **3** and the PFC module **4**. See Figure 767 on page 1289.
   - Unplug the three cables **2** from the PFC module.
   - Unscrew the two silver thumbscrews **1** securing the modules.
   - Use the swing up handles to remove each module.

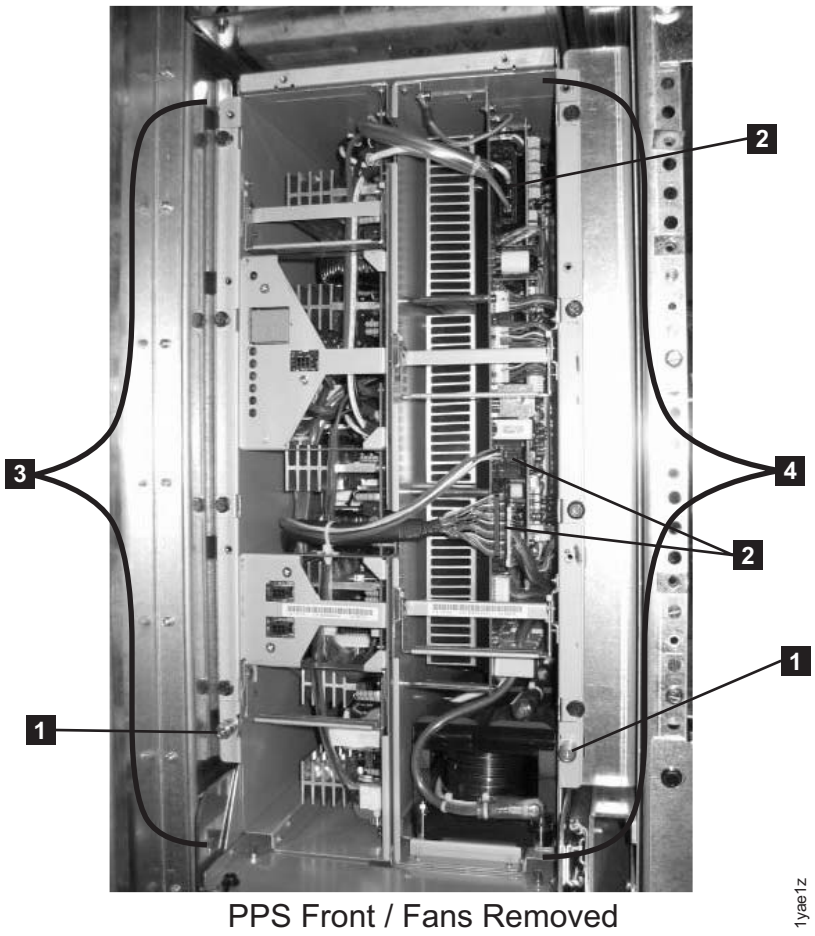


Figure 767. 208VDC base module and PFC module

13. Put the PPS in the service position.
    a. At the front of the rack, remove the eight hex head screws that fasten the PPS chassis to the rack **1** . See Figure 768 on page 1290.

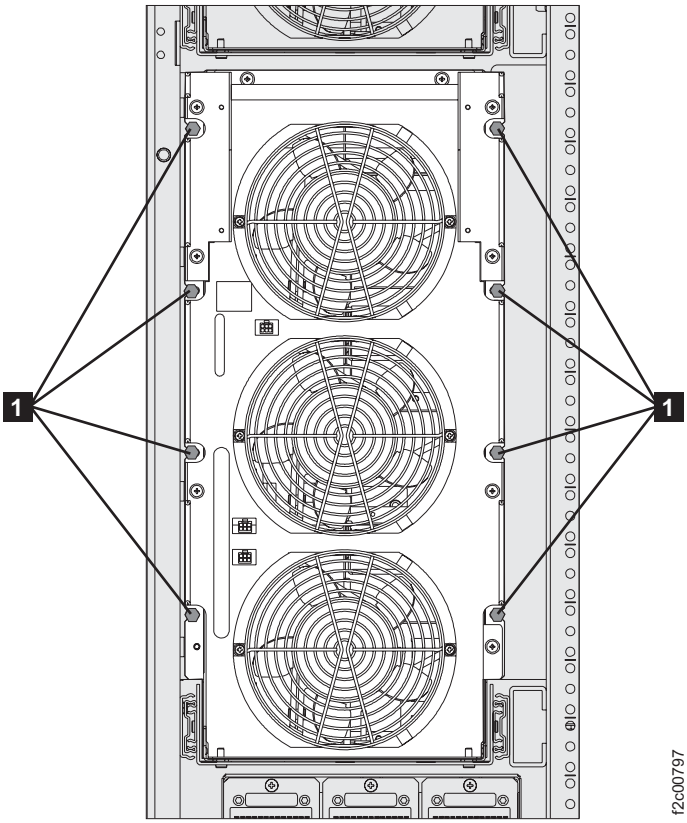


Figure 768. 5/12V DDM module

b. Slide the PPS out to the service position. See Figure 769.

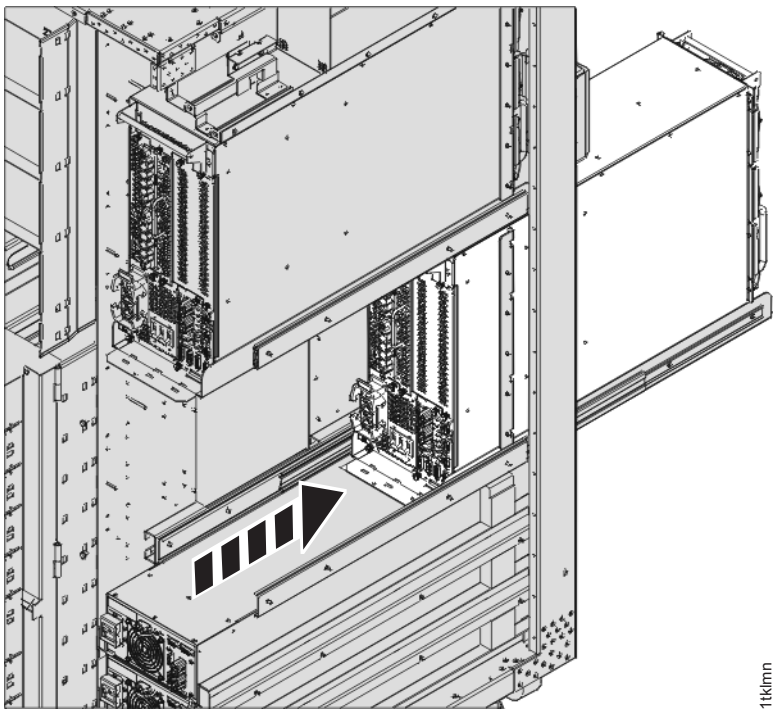


Figure 769. PPS service position

14. Remove rear modules.
    a. The next steps may require you to remove one or more frame cable routing brackets from the rear of the frame so that there is clearance to remove the PPS modules. Each bracket is held by two screws that only need to be loosened, not removed, for the bracket to be moved. See Figure 770.

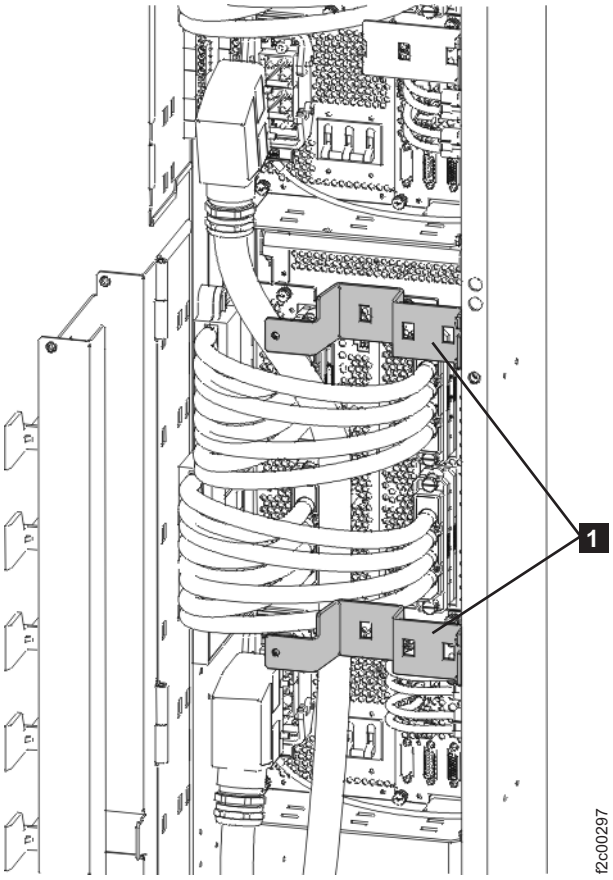
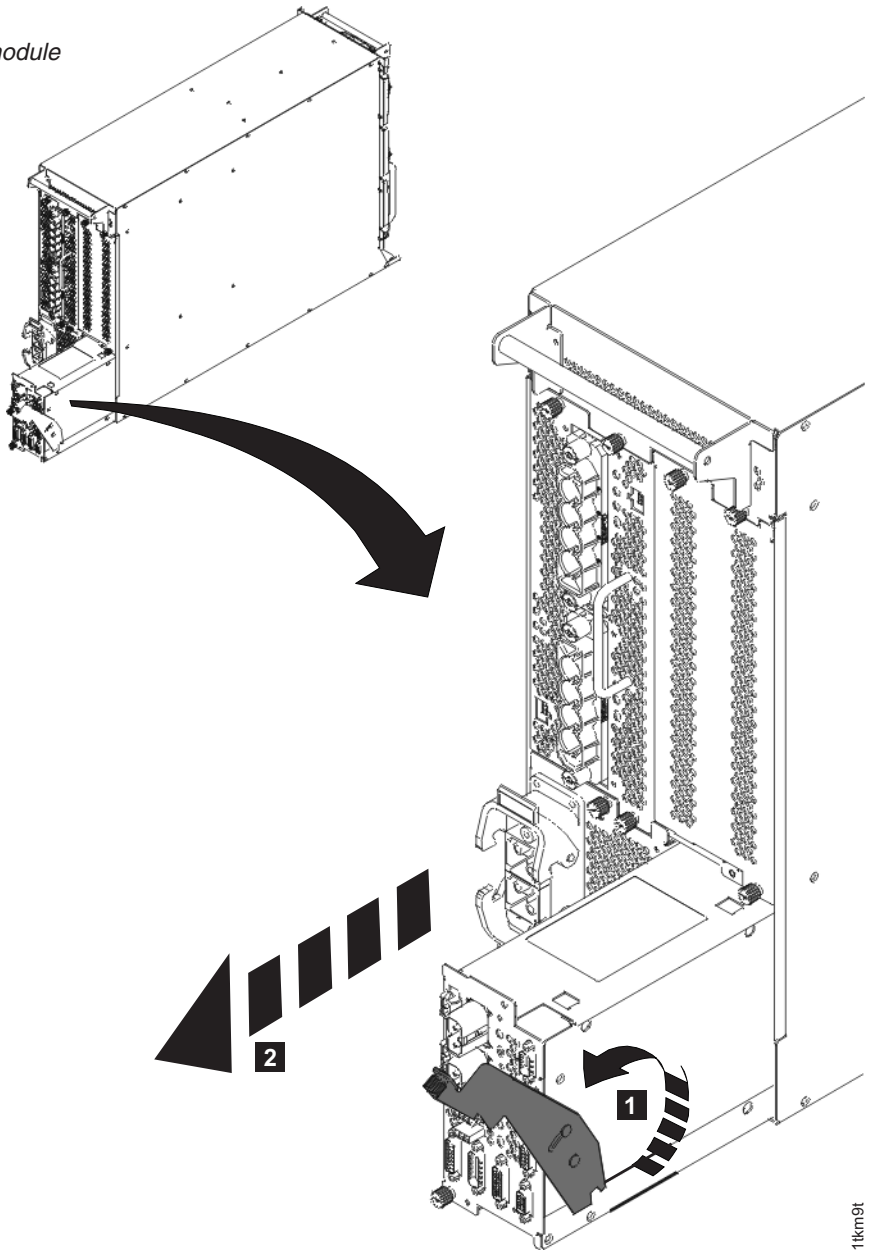


Figure 770. Cable routing brackets

b. At the rear of the rack, remove the sequencer module **1** . Move the release lever (Primary Power Supply [PPS]) down and then slide **2** the module out. See Figure 771.

Figure 771. Remove sequencer module



c. Remove the AC input power module. See Figure 772 on page 1293.

Note: Do not remove the optional modules or filler plates in locations **Ex-E2** and **Ex-E3**.

d. Remove the 5/12V DDM power module in location **Ex-E1**. See Figure 772 on page 1293.

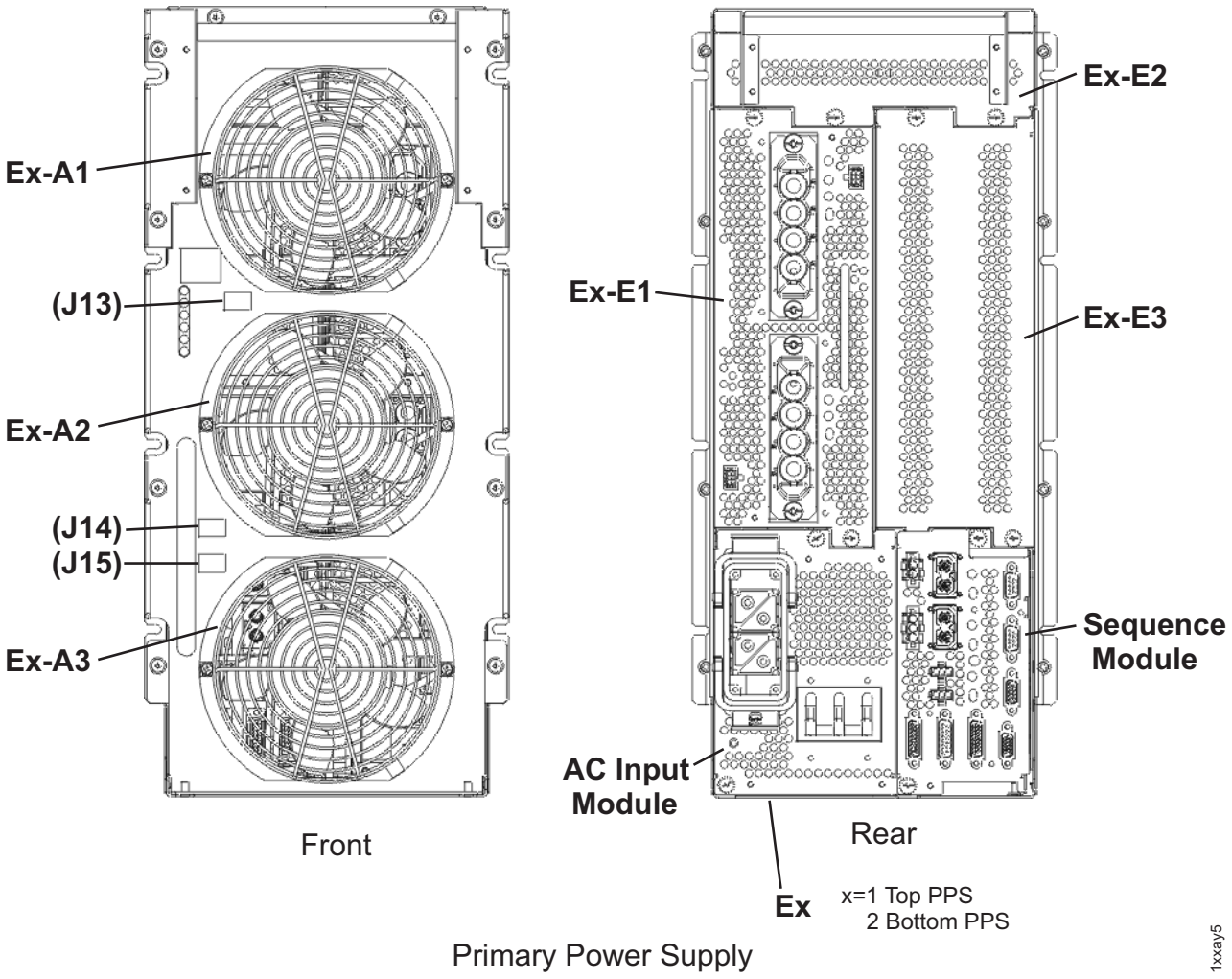


Figure 772. PPS locations (rear)

Install the primary power supply (PPS)

1. Install rear modules. DO NOT CONNECT rear cables.
   a. At the rear of the rack, install the 5/12V DDM power module in location **Ex-E1**. See Figure 772.
   b. At the rear of the rack, install the AC input power module. Fasten the silver thumbscrews securing the modules. See Figure 772.
2. Install the sequencer module. See Figure 773 on page 1294
   a. Ensure the CB00 switch is off (down).
   b. Start with the release lever in the down position as you slide the module into the PPS.
   c. Move the release lever up to fully seat the module.

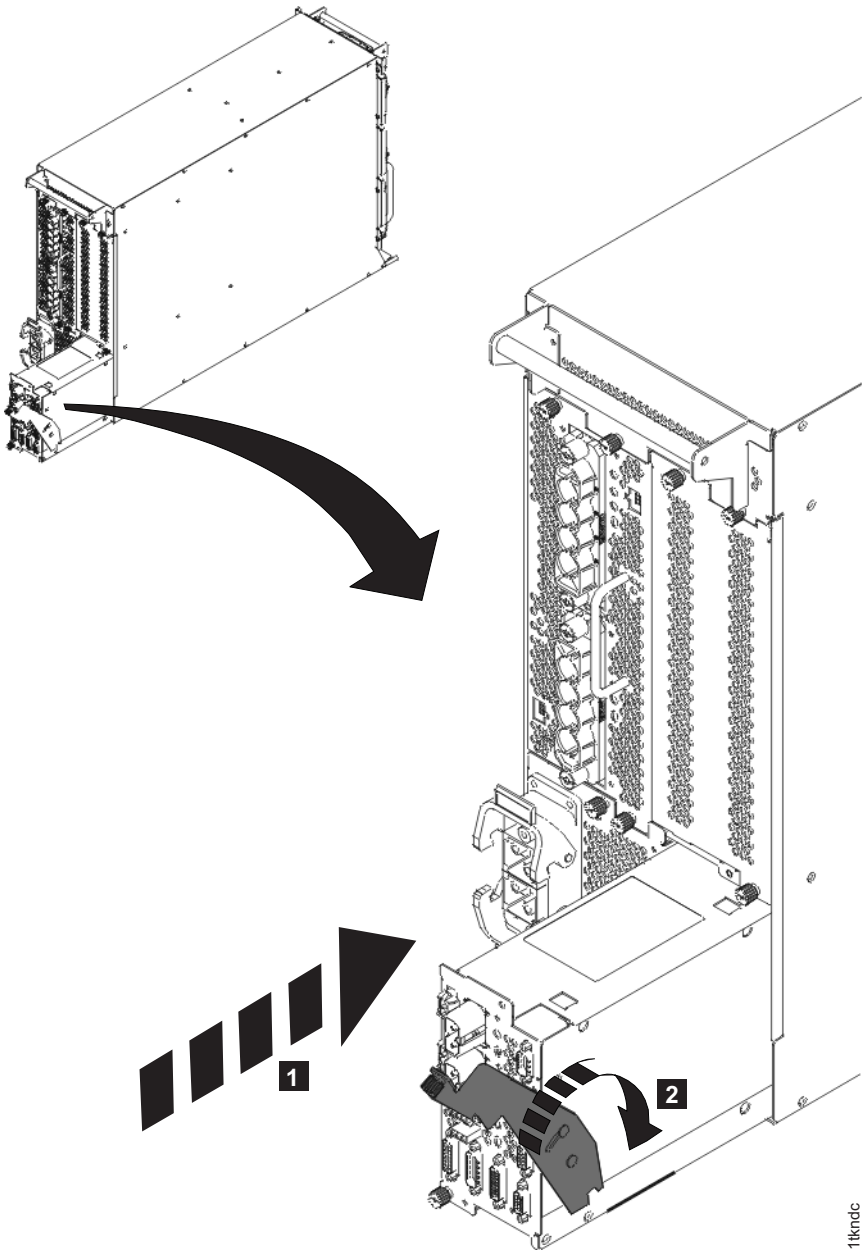


Figure 773. Install the sequencer module

3. Install the PPS chassis.

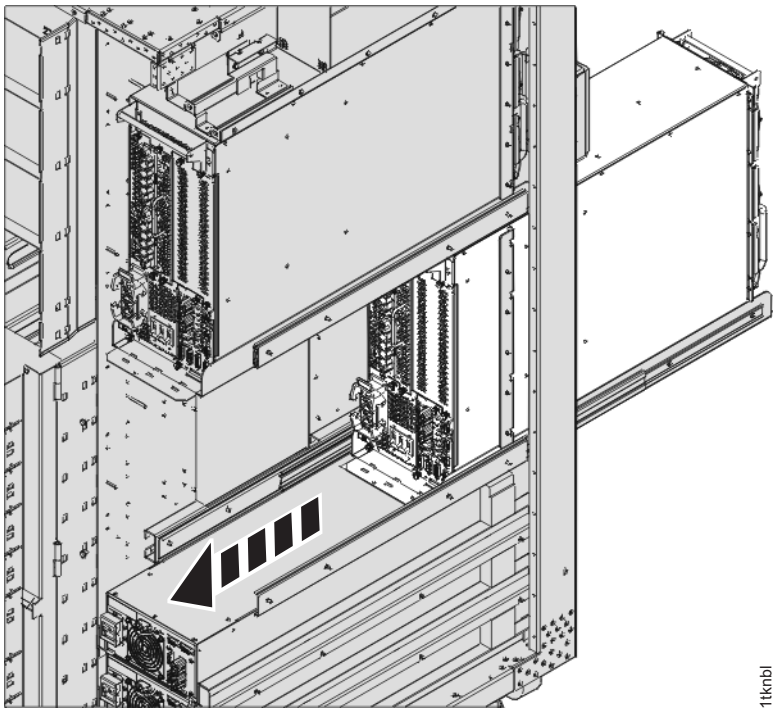


Figure 774. Reset PPS service position

a. At the front of the rack, press the slide release levers and then slide the PPS chassis fully into the rack. See Figure 774.
b. Install the eight hex head screws that fasten the PPS chassis to the rack **2** . See Figure 768 on page 1290.
c. If you are repairing PPS2 (lower PPS) FRUs at the rear of the rack, install the PPS2 bracket (if present).

4. Install front modules and fans. See Figure 767 on page 1289.
   a. Install the 208VDC base module **3** and the PFC module **4** . See Figure 767 on page 1289.
      1) Screw in the two silver thumbscrews securing the modules.
      2) Connect the three cables **2** from the PFC module.
   b. Place the PPS fan assembly on the two vertical guide pins at the bottom of the PPS and then tighten the eight silver thumbscrews **2** .
   c. Connect the three fan cables **1** . See Figure 766 on page 1288.
   d. If replacing PPS1 (upper PPS):
      1) Pivot the rack operator panel in the normal position and secure it with two screws.
      2) Install the door latch bracket with two screws.
5. At the rear of the PPS, fasten the two silver thumbscrews securing each PPS module.
6. Ensure the enable/disable switches on the rear modules are in the On position (up).
7. At the rear of the PPS, connect the **J1** and **J2** cables to the sequence module.

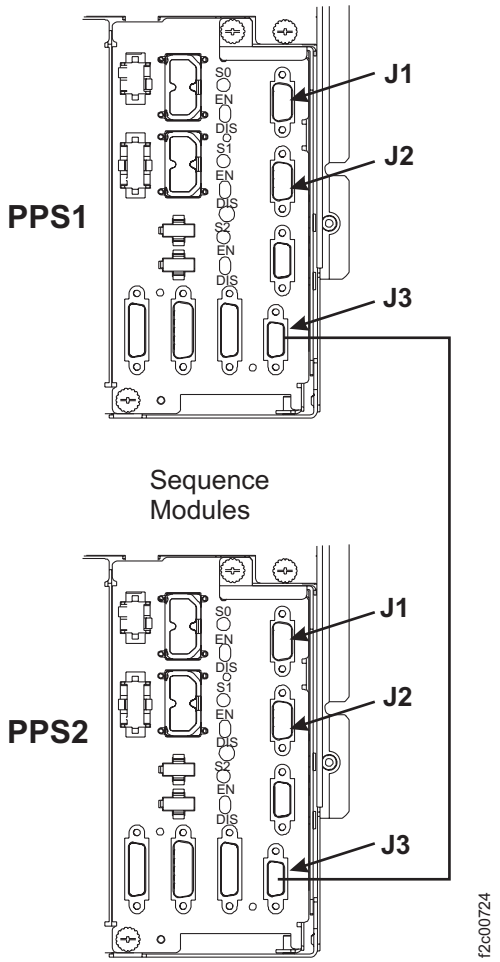


Figure 775. PPS rear view, lower right: PPS-to-PPS communication cable connection

8. Connect all rear cables except the **J3** PPS-to-PPS communication cable and the mainline power cord.

   Note: Install the green/yellow ground wire, ensuring all the contact washers are in place.
9. Reinstall any frame cable routing bracket that was removed.
10. At the rear of the **PPS BEING REPAIRED**, connect the **J3** PPS-to-PPS communication cable at the bottom right of the PPS sequencer module.
11. At the rear of the **PPS REMAINING IN USE** by the customer, connect the **J3** PPS-to-PPS communication cable at the bottom right of the PPS sequencer module.

    Note: One or more of the PPS LEDs may now be lit on the PPS being repaired.
12. Connect power.
    a. Connect the mainline power cable to the PPS and ensure both latches are secure.
    b. Secure the mainline power cable from PPS1 (upper PPS) to the PPS 2 mainline power cable bracket with the hook-and-loop fasteners.
    c. Set the PPS AC input power module CB00 switch to On (up).

d. Instruct the customer to switch on the mainline circuit breaker that supplies mainline AC voltage to the power receptacle for the primary power supply you are repairing.

13. Pivot the 208VDC bus bar gate closed being careful that both mainline power cables lay in the space between the two 208VDC bus bars. Fasten the gate shut with the two screws.

    Note: If this is an expansion rack and the sheet metal baffle to the left of the gate was removed, reinstall it now with the two screws.

14. Return to the procedure that sent you here.

Remove the rack identity card

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. Remove the cables from the rack identity card.
3. Remove the screws **(1)** from the rack identity card.
4. Gently slide the rack identity card out of its slot.

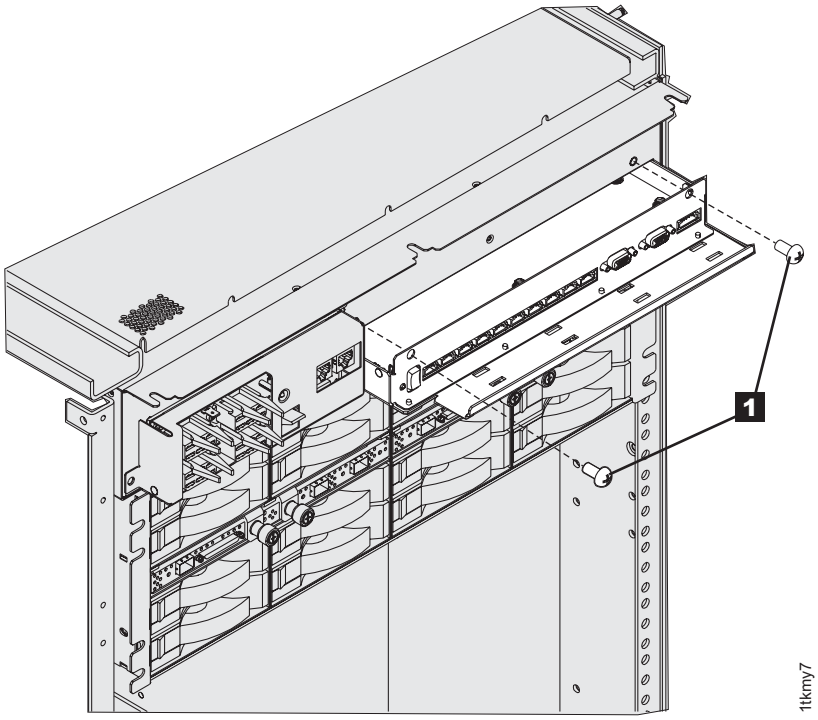


Figure 776. Rack identity card

Install the rack identity card

1. Gently slide the rack identity card in to its slot.
2. Secure the rack identity card in place by reattaching the screws **(1)**.
3. Connect the cables to the rack identity card. See Figure 776 on page 1297.

Exchange the rack operator panel LED assembly


Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the rack operator panel LED assembly

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. At the rear of the rack, unplug the rack operator panel LED cable from the J13 connector.
3. At the front of the rack, remove the two screws **(1)** and swing open the rack operator panel.

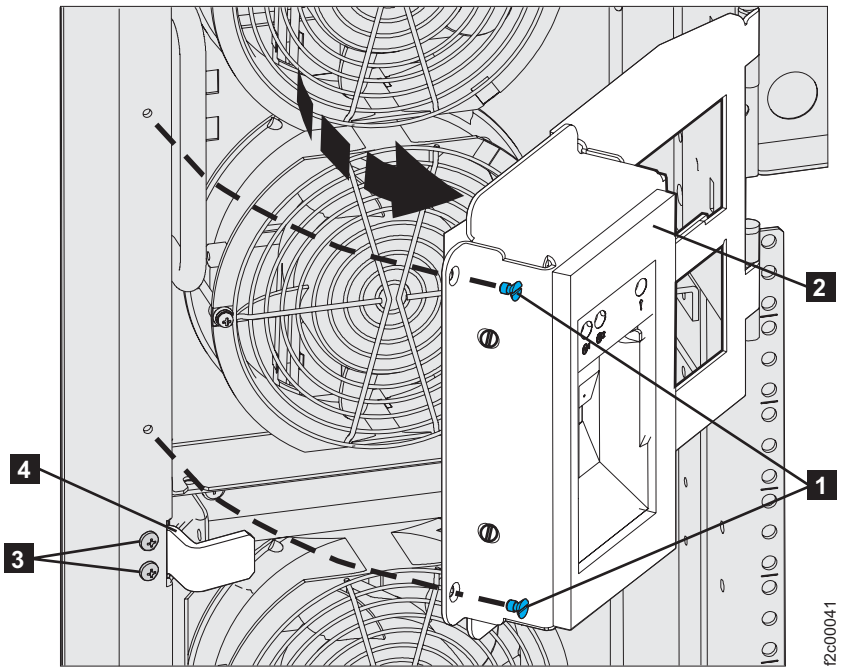


Figure 777. Rack operator panel LED assembly

4. Remove the four screws **(1)** to remove the rear cover plate **(2)**.

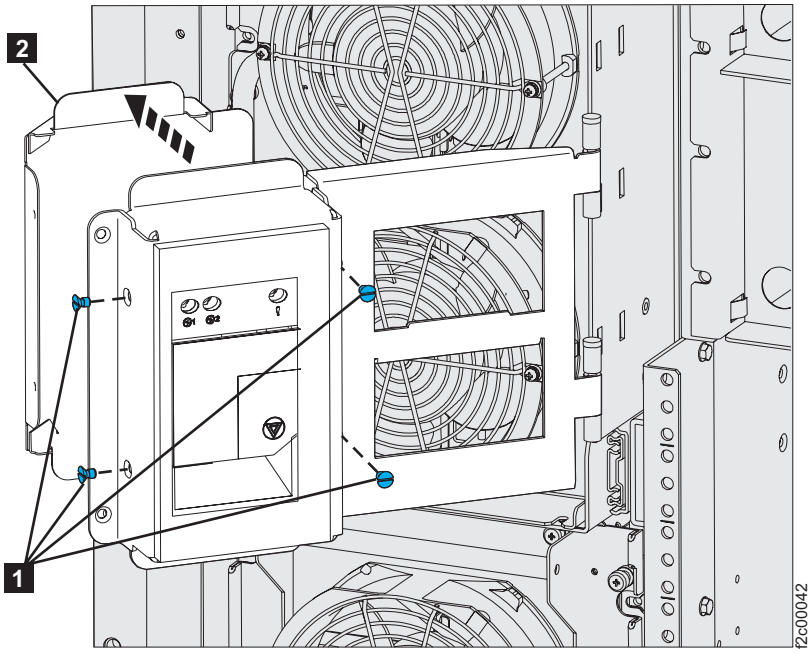


Figure 778. Rack operator panel LED assembly (2)

5. Remove the cable from the rack so it is hanging free from the LED assembly.
6. Remove the two screws holding the LED assembly in place. (Return to the procedure that sent you here.)

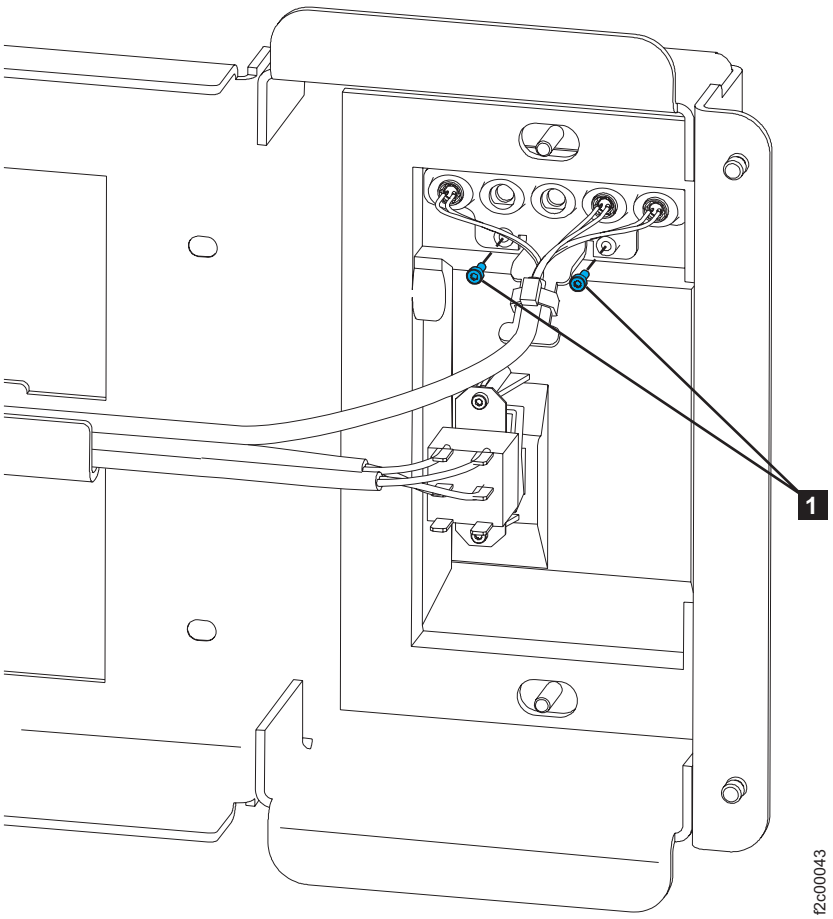


Figure 779. Rack operator panel LED assembly

Install the rack operator panel LED assembly

1. Install the LED assembly in place with the two screws. See Figure 779.
2. Route and secure the cable to the rack identity card connector J13.
3. Return to the procedure that sent you here.

Exchange the RPC card

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the RPC card

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. Remove the cables from the RPC card.
3. Loosen the thumbscrews **1** .
4. Gently slide the RPC card out of its slot **2** . RPC-2 card shown as example. RPC-1 card is to the right.

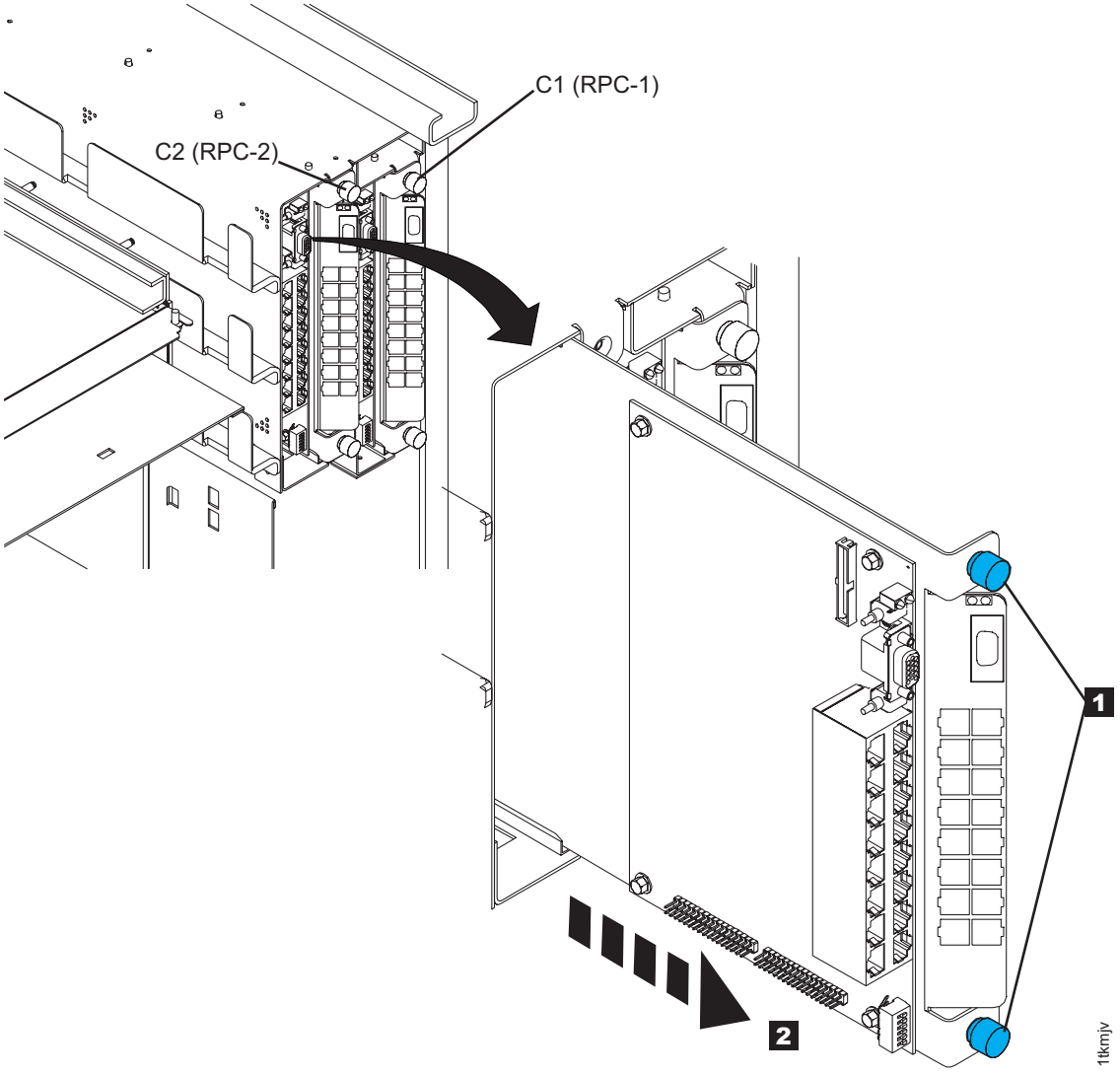


Figure 780. Removing the RPC card

Install the RPC card

1. Ensure the DIP switches at the bottom of the new RPC card are set the same as the RPC card that is not being replaced. For DS8000, the DIP switches on both RPC cards are set the same.
   - Switches 1, 2, 4, 5, 6 are set to off (right)

- Switch 3 is set off (right) when a Local Remote card is present (remote power control feature is not installed)
- Switch 3 is set on (left) when a zSeries Local Remote card is present (remote power control feature installed). The zSeries Local Remote card has four connectors for customer remote power control cables.

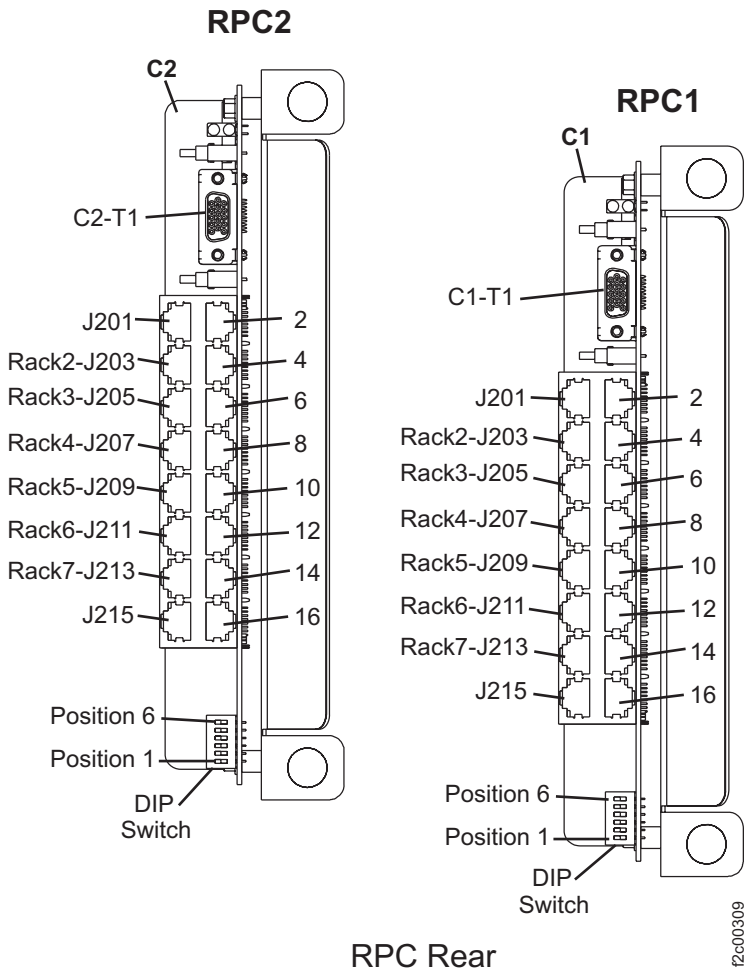


Figure 781. RPC card locations

2. Gently slide the RPC card into its slot **1** .
3. Tighten the thumbscrews **2** .

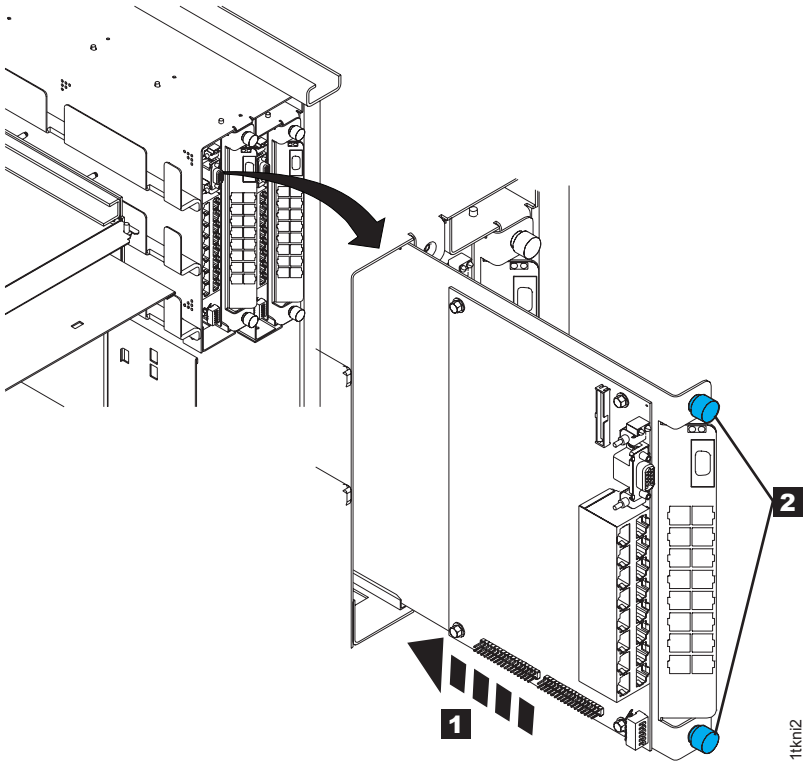


Figure 782. Installing the RPC card

4. Install the cables.
5. Return to the procedure that sent you here.

Unused FRU

Call the next level of support. The FRU replace code has called a FRU resource object for which there is no FRU replace procedure to perform. The FRU resource object may be valid for other repair actions that do not require a FRU replacement.

Chapter 40. Storage Enclosure

Exchange the disk drive dummy module

 Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the disk drive dummy module

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. Press the blue latch **(1)** to release the disk drive dummy module handle.
3. Pull the handle **(2)** out and to your left. This action partly ejects the disk drive dummy module out of its slot.
4. Pull the disk drive dummy module **(3)** toward you and completely out of the slot.

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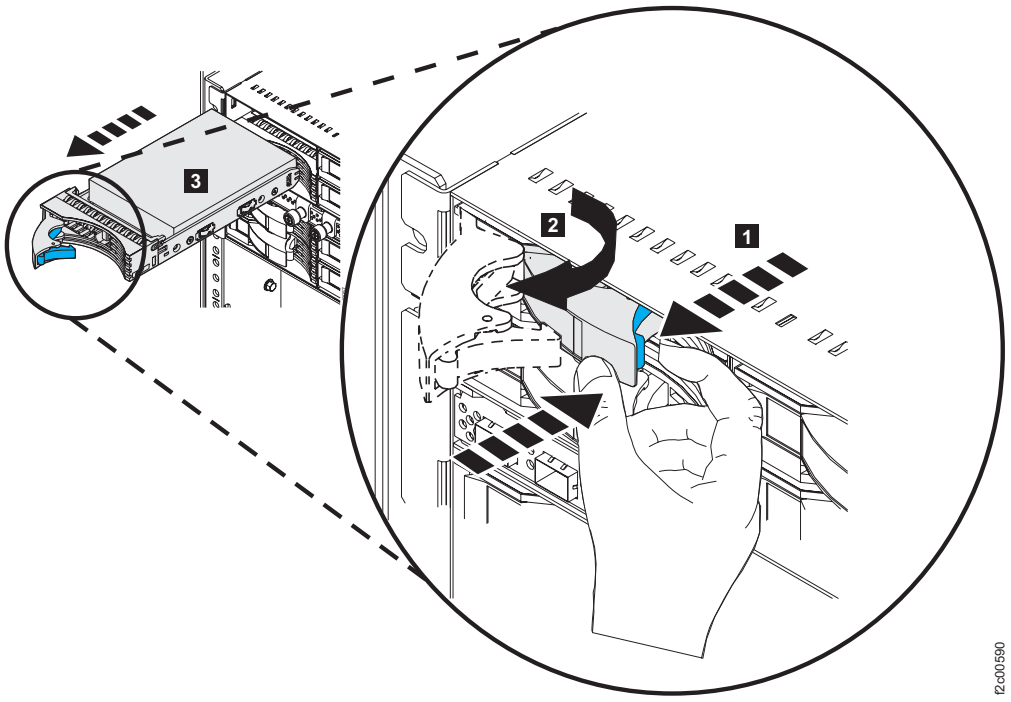


Figure 783. Installing the disk drive module

Install the disk drive dummy module

1. Align the disk drive dummy module and push it into its slot. The disk drive dummy module stops before it is fully seated.
2. Push the disk drive dummy module's handle to the right until it is latched closed.
3. Verify that the front of the new disk drive dummy module is aligned with the other DDMs and disk drive dummy modules in the storage enclosure.

Exchange the disk drive module

Use approved Chapter 54, "ESD procedures," on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the disk drive module

Always handle a defective disk drive module carefully. Damage to defective disk drive modules can have a negative effect on failure analysis test results and warranty recovery.

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. Press the blue latch **(1)** to release the Disk Drive Module (DDM) handle. See Figure 784.
3. Pull the handle **(2)** out and to your left. This action partly ejects the DDM out of its slot. See Figure 784.

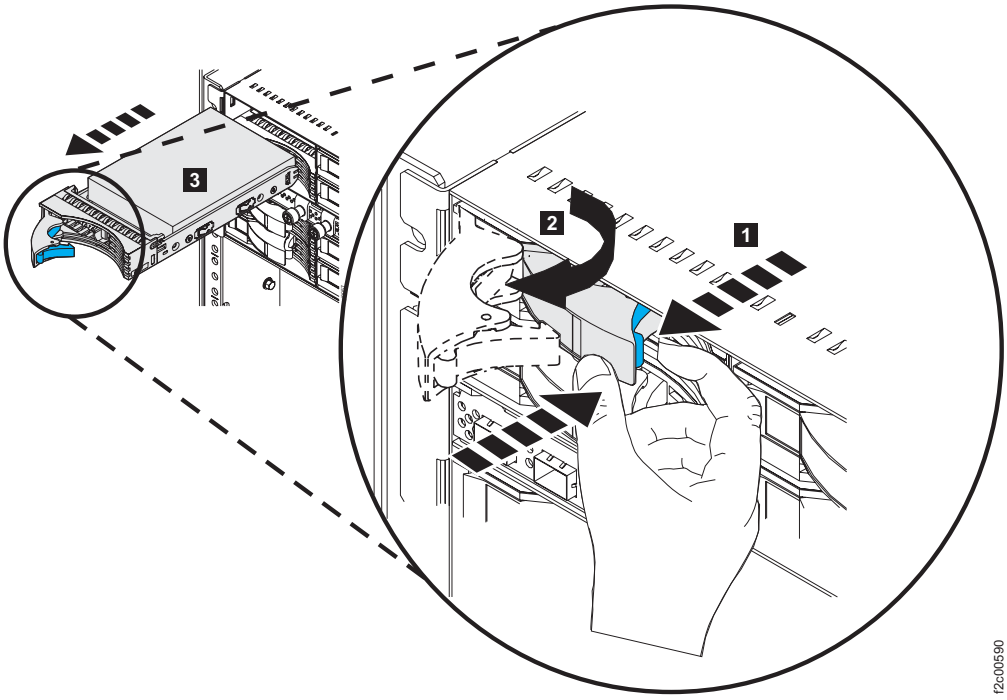


Figure 784. Installing the disk drive module

4. Lift the DDM **(1)** gently up as you pull it out of the slot. This prevents any components on the bottom of the DDM from coming in contact with the DDM or chassis surfaces below it. See Figure 785 on page 1308.

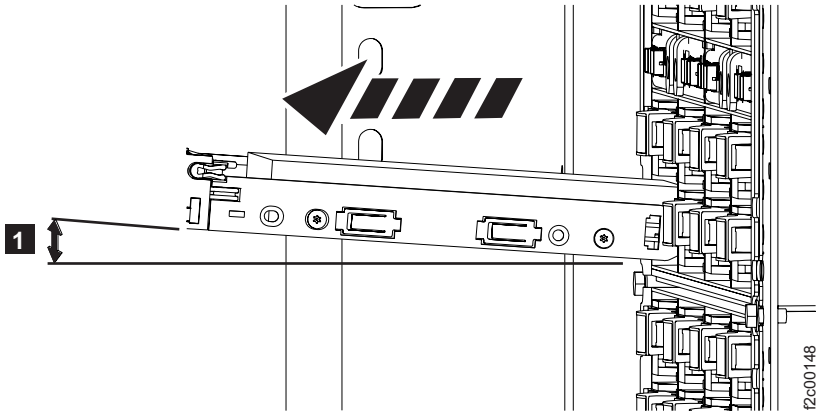


Figure 785. Disk Drive (angle to remove DDM)

Install the disk drive module

Attention: If you bring a disk drive module into the operating environment from an area that is outside the normal operating temperature of 20 - 25 degrees C (66 - 77 degrees F), allow the disk drive module time to acclimate to the operating environment. Remove the disk drive module from any shipping package, leave the disk drive module in the sealed plastic bag (if present) to prevent condensation from forming.

1. Remove the factory-sealed wrapping from the new disk drive module only when you are ready to install it.
2. Before installing the disk drive module, open the disk drive module handle by pressing the blue latch and pulling the handle open. See Figure 784 on page 1307.
3. Hold the DDM at a slight up angle as you place it into the slot in the storage enclosure. Continue keep a gentle upward pressure as you slide it fully into the slot. The drive stops before it is fully seated. See Figure 785.
4. Push the disk drive modules handle to the right until it is latched closed.
5. Verify that the front of the new disk drive module is aligned with the other disk drive modules.

Exchange the fibre channel interface card (FCIC)

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the fibre channel interface card (FCIC)

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference “MAP1240 Locating FRUs using identify indicators” on page 501.
   - Use the location code, reference “MAP1245 Finding FRUs using location codes” on page 514.
2. Unplug the FC-AL cables. See Figure 786.

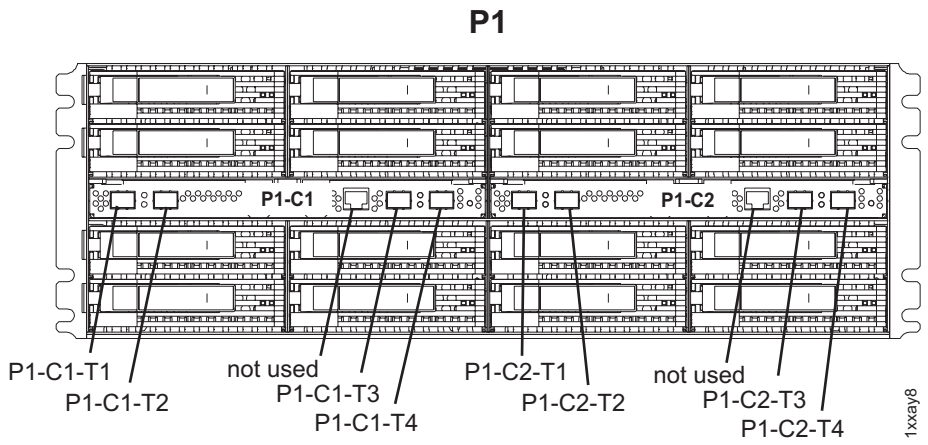


Figure 786. Storage enclosure connections

3. Loosen the thumb screws and pull the card levers away from each other. This will eject the card from its slot. See Figure 787 on page 1310.
4. Gently pull the card from its slot using both hands. See Figure 787 on page 1310.

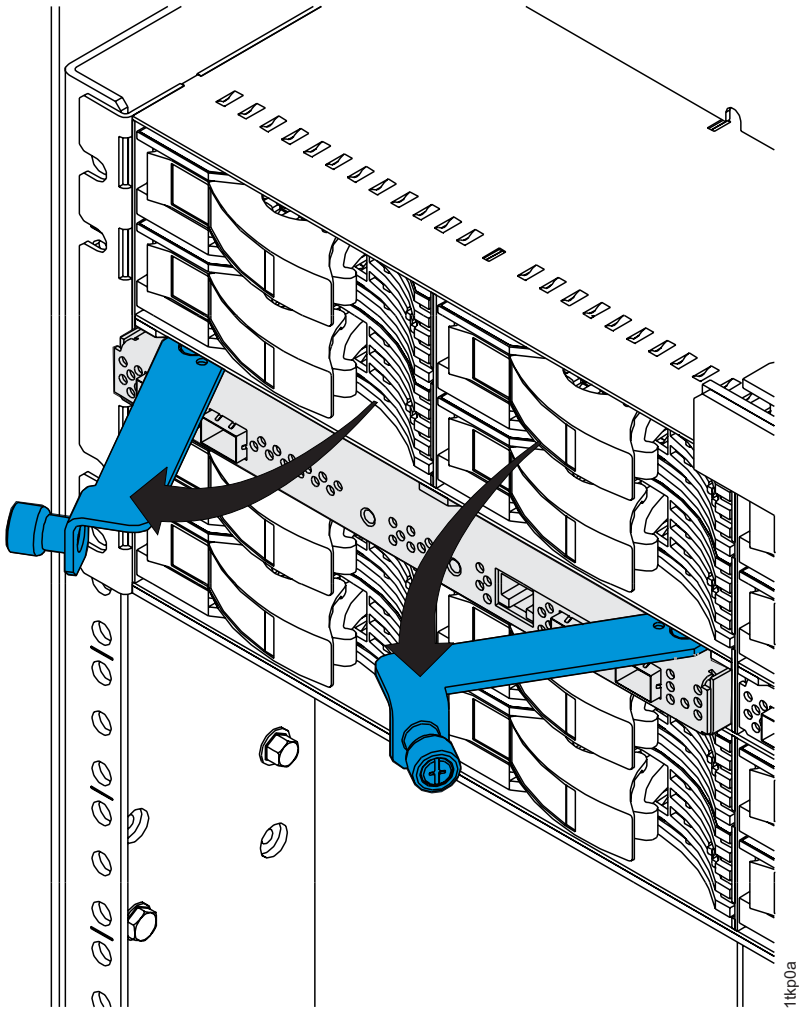


Figure 787. Removing the FCIC card (1 of 2)

Install the fibre channel interface card (FCIC)

1. With the card levers in the out position (away from each other), gently slide the card into its slot.
2. Push the card levers toward each other to seat the card fully in its slot.

   Note: After the FRU is fully seated, several amber LEDs inside the storage enclosure may blink at once as the storage enclosure processes the FC-AL loop resets. This is normal behavior.
3. Tighten the thumb screws to secure the FCIC in place.
4. Do not replug the FC-AL cables until directed to.

Exchange the storage enclosure backplane

Use approved Chapter 54, “ESD procedures,” on page 2133 to prevent damage.

Attention: This is not a stand-alone procedure. Customer disruption and damage to the hardware might occur if microcode and power boundaries are not in the proper conditions for this service action. Ensure you have been directed here by a parts exchange procedure.

Note: All the cables and FRUs to be removed must be uniquely identified so they can be reinstalled correctly.

Remove the storage enclosure backplane

Note: Ensure you have been directed here by a management console guided FRU replacement procedure. The FC-AL fabric for this and the directly associated storage enclosures must be in the proper state to protect the customer from data loss.

1. To locate this FRU, do one of the following and then return here and continue to replace the FRU:
   - Use the FRU identify indicators, reference "MAP1240 Locating FRUs using identify indicators" on page 501.
   - Use the location code, reference "MAP1245 Finding FRUs using location codes" on page 514.
2. Each disk drive module (DDM) **(1)**, fibre channel interface card (FCIC) **(2)**, and FC-AL cable **(3)** must be installed in the exact same position in the new storage enclosure. See Figure 788.
3. Observe the cable labeling to ensure you will be able to reconnect the cables correctly. Disconnect the FC-AL cables **(3)** from the two fibre channel interface (FCIC) cards. Squeeze the top of the FC-AL cable connector to release it from the FCIC card **(2)**. See Figure 788.

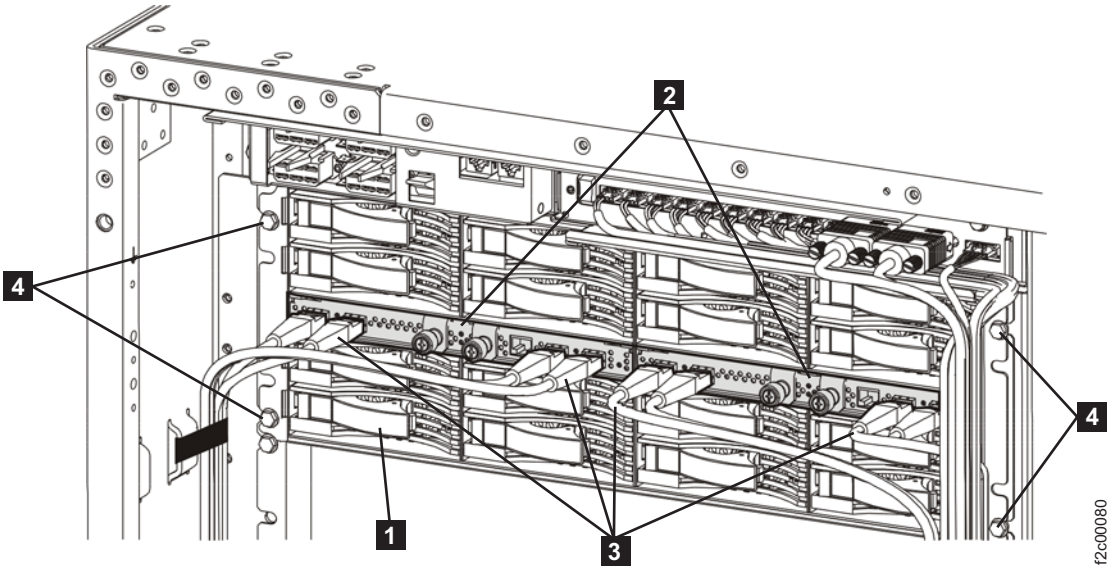


Figure 788. Removing the storage enclosure backplane

Note: There will be four FC-AL cables if this is the last storage enclosure in this group. There will be eight FC-AL cables if this is not the last storage enclosure in this group.

4. Remove each DDM **(1)** and FCIC card **(2)** from the storage enclosure and set in a safe place. You must ensure each one will be plugged in the same position in

the new storage enclosure. It is recommended you write down the serial number and position of each part prior to removing them. See Figure 788 on page 1311.

Note: For help removing the DDM and FCIC card FRUs, reference:

- "Exchange the disk drive module" on page 1306
- "Exchange the fibre channel interface card (FCIC)" on page 1308

5. Remove the four screws **(2)** fastening the storage enclosure backplane to the rack mount rails and then remove the storage enclosure backplane. See Figure 789.
6. In the storage enclosure position that is now empty, pivot the sheet metal baffle **(1)** down into the closed position and ensure it is latched on both sides. This ensures the remaining storage enclosures maintain adequate cooling air flow. See Figure 789.

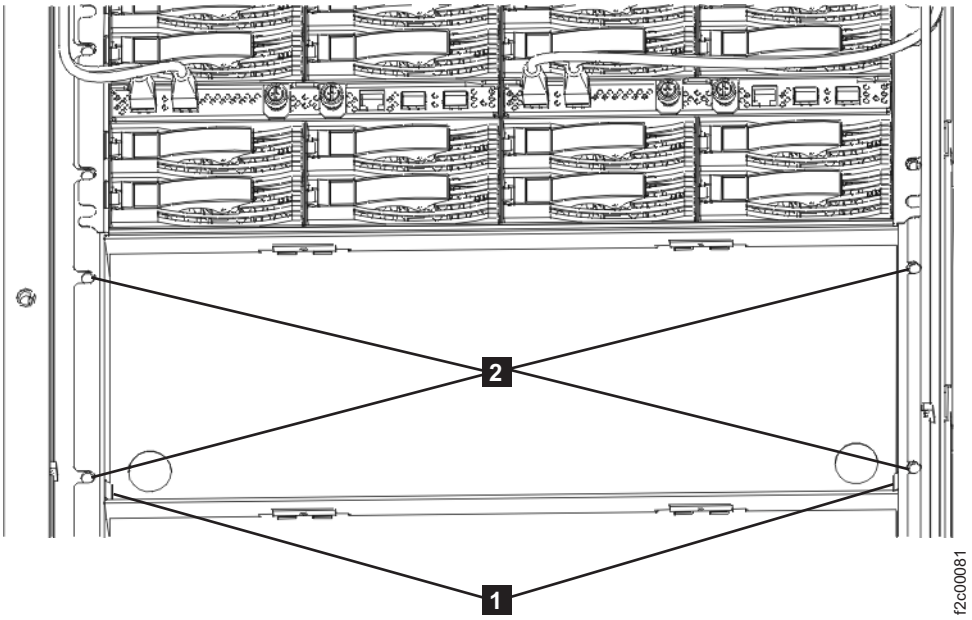


Figure 789. Sheet metal air flap

7. Remove the four T10 Torx screws from the sides of the storage enclosure, and then remove the perforated metal cover. See Figure 790 on page 1313.

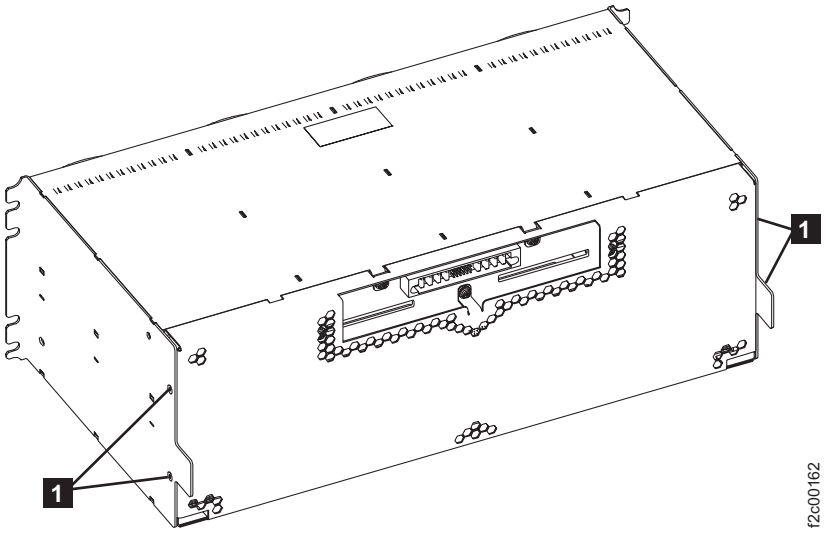


Figure 790. Remove four T10 Torx screws

8. Remove the T10 Torx screws that fasten the backplane to the chassis and then remove the backplane.

Install the storage enclosure backplane

1. Use the two guide pins on the chassis to carefully align the storage enclosure backplane as it is placed on the chassis. Then, install the screws.
2. Install the perforated sheet metal cover with the four screws.
3. Unlatch the sheet metal air flap so it can swing to the up position. Install the new storage enclosure backplane in the rack and fasten it with the four screws.
4. Install each disk drive module (DDM) and fibre channel interface card (FCIC) in the exact same position as it was in the old storage enclosure.
5. Install each FC-AL cable in the exact same position as it was in the old storage enclosure.
6. Return to the procedure that sent you here.

Chapter 41. Part numbers, locations, and LEDs

This section contains three sets of reference material: part numbers, location codes, and light indicators (LEDs).

To detemine which topic contains information about a part, go to *Finding parts using a visual index* and determine which main assembly contains that part. If you know which main assembly contains the part, go to the appropriate topic under *Part numbers* or *Location codes*. To locate an LED and interpret it based upon its condition, go to *Light indicators (LEDs)*.

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Chapter 42. Finding parts and locations using a visual index

To find a part number or location code, determine which section of the machine contains the part. For Rack-1 (a base rack), see Figure 791 on page 1318 and Figure 792 on page 1319. For an expansion rack, see Figure 793 on page 1320 and Figure 794 on page 1321. After you determine which section of the machine contains the part, refer to the appropriate topic in Table 299. To find information about cables, go to the topic that contains information about the part that the cable is connected to.

Table 299. DS8000 Part numbers and location codes

Part numbers	Location codes
"CEC enclosure part numbers" on page 1323	"CEC enclosure location codes" on page 1415
"I/O enclosure part numbers" on page 1343	"I/O enclosure location codes" on page 1420
"Rack power and cooling part numbers" on page 1374	"Rack power and cooling location codes" on page 1425
"Storage enclosure part numbers" on page 1408	"Storage enclosure location codes" on page 1437
"Management console (MC) part numbers" on page 1352	"Management console (MC) server location codes" on page 1424
"Service ship group part numbers" on page 1406	

Visual index of assemblies

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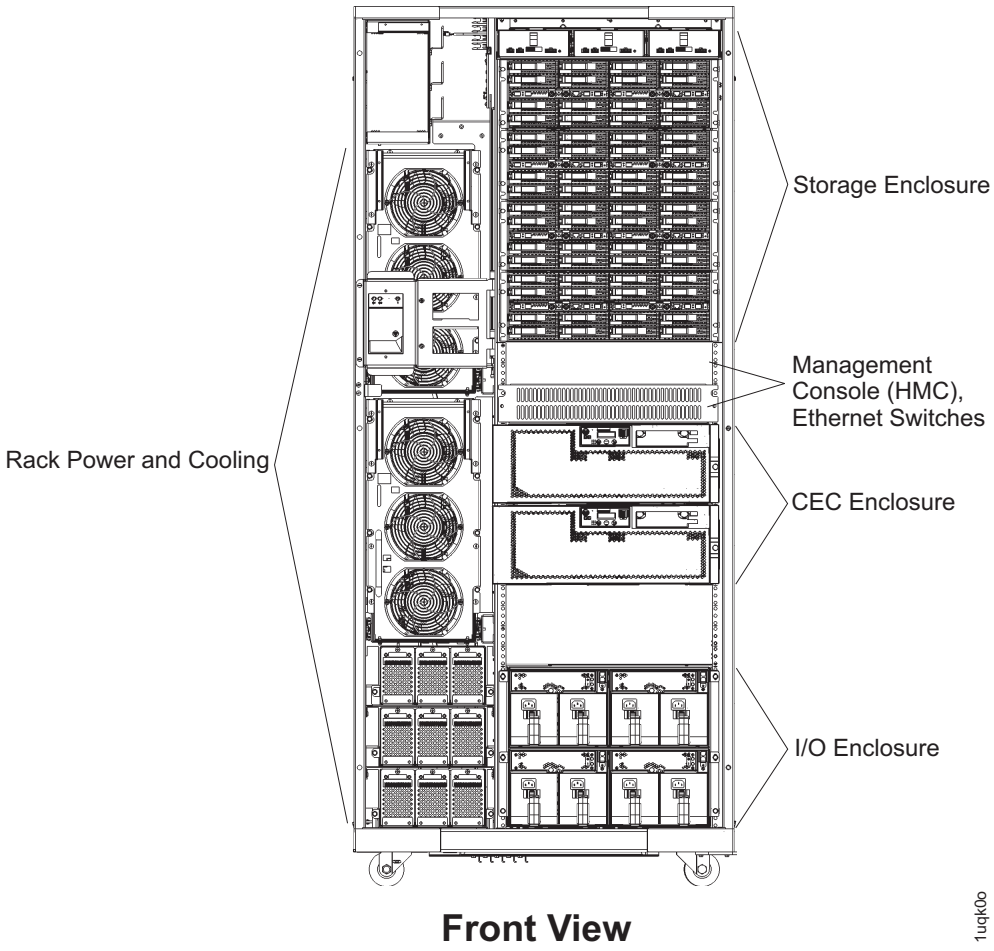


Figure 791. Visual index of Rack-1 (front)

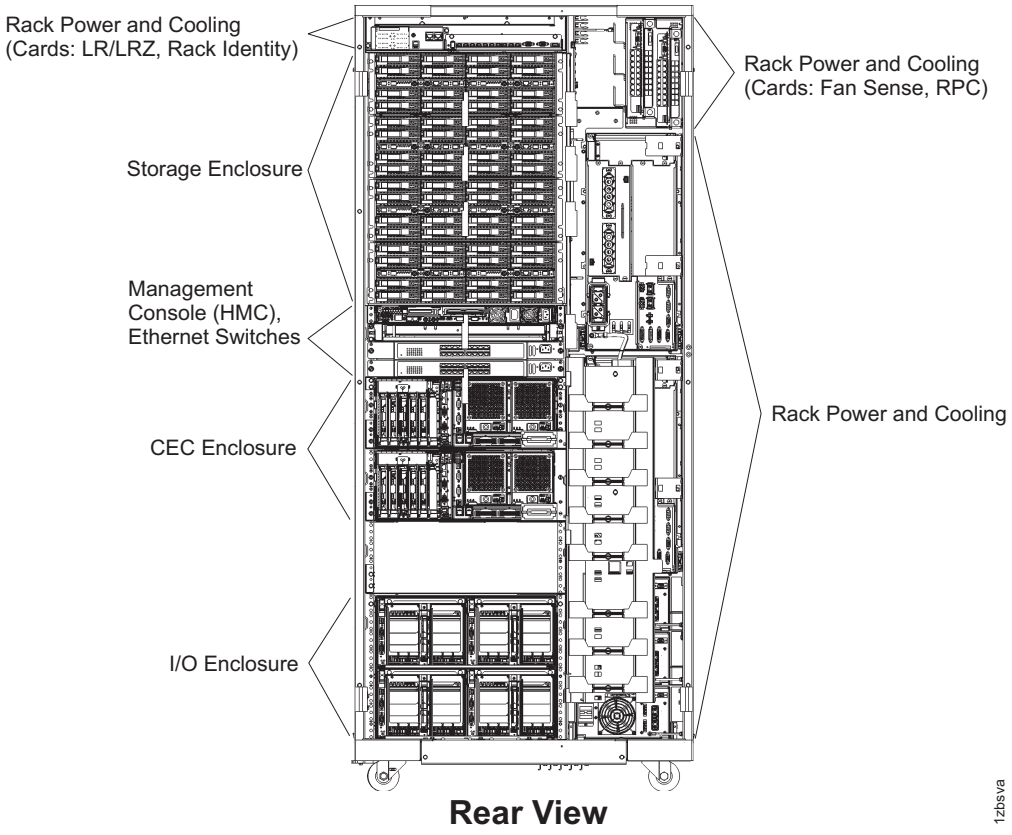


Figure 792. Visual index of Rack-1 (rear)

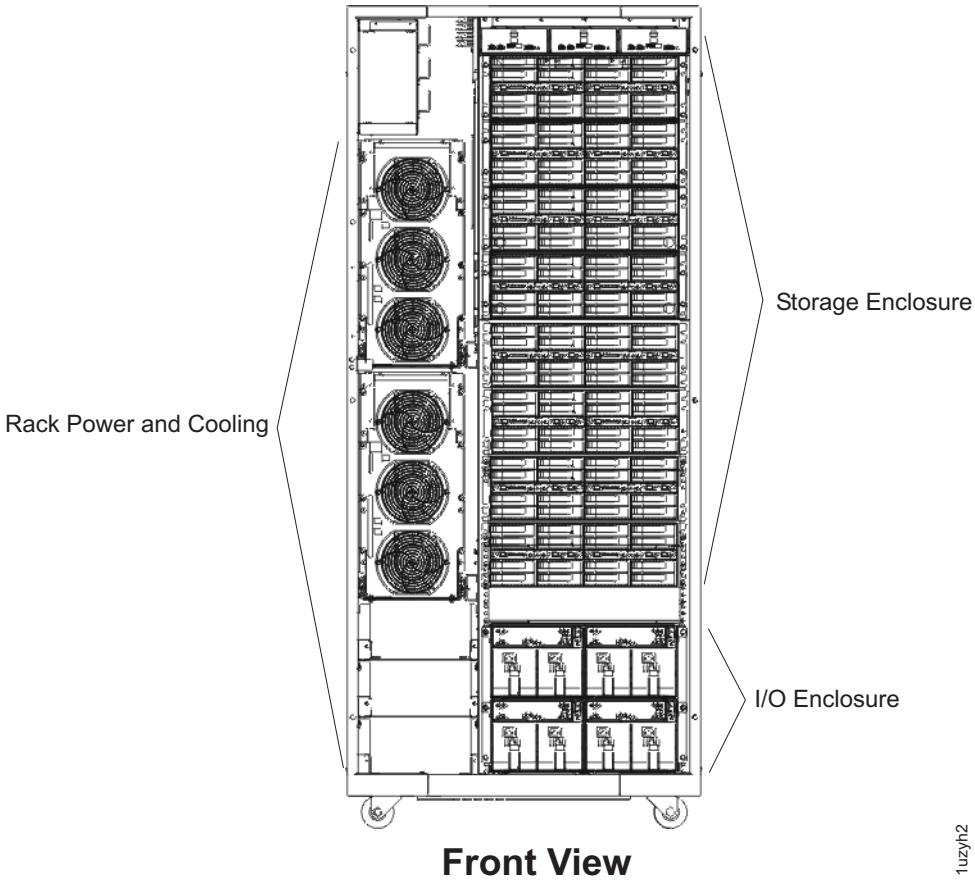


Figure 793. Visual index of an expansion rack (front)

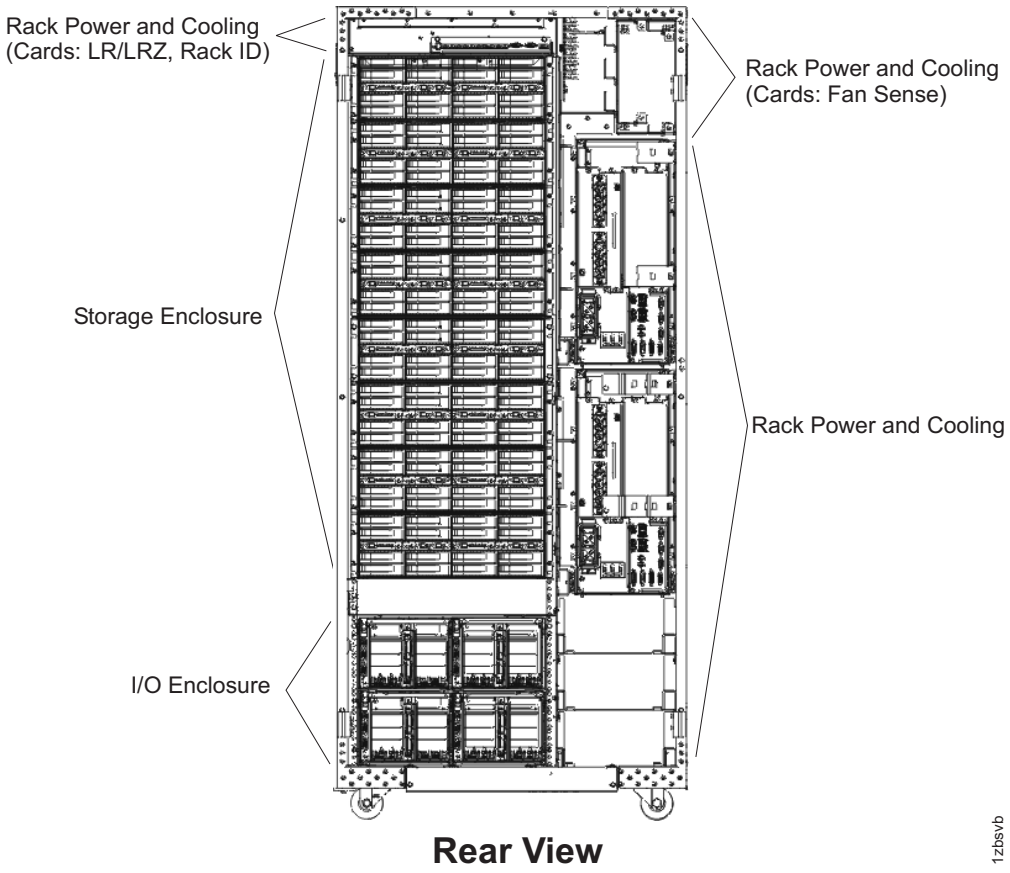


Figure 794. Visual index of an expansion rack (rear)

Chapter 43. Part numbers

Use this section to find part numbers (P/Ns).

Cable part numbers

To find part information about cables, see the topic that contains information about the part to which the cable is connected.

"CEC enclosure part numbers"

"Ethernet switch part numbers" on page 1340

"I/O enclosure part numbers" on page 1343

"Management console (MC) part numbers" on page 1352

"Rack power and cooling part numbers" on page 1374

"Storage enclosure part numbers" on page 1408

CEC enclosure part numbers

Information about CEC enclosure parts is listed below. Use Table 300 as a directory.

Notes:

- Version 1 part numbers are *not* eligible for use in European Union member states.
- Version 2 part numbers are eligible for use everywhere including European Union member states.
- Only the most recent part numbers are listed. Your DS8000 or serviceable event FRU list may contain an older part number. The parts ordering system can automatically substitute a later part number as needed.

Table 300. Start here

Part name	Figure
Cables	Figure 804 on page 1339
CEC disk drive	Figure 796 on page 1327
CEC enclosure control panel	Figure 795 on page 1325
CEC enclosure fan	Figure 795 on page 1325 Figure 796 on page 1327
CEC enclosure I/O backplane assembly	Figure 797 on page 1330
CEC enclosure power supply	Figure 797 on page 1330
CEC enclosure RIO card	Figure 797 on page 1330
CEC enclosure RIO card filler	Figure 797 on page 1330
Disk drive backplane assembly	Figure 796 on page 1327
DVD-RAM drive	Figure 795 on page 1325
Ethernet card	Figure 800 on page 1334
Media backplane assembly	Figure 795 on page 1325
Memory DIMM	Figure 801 on page 1335

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Table 300. Start here (continued)

Part name	Figure
NVC card	Figure 797 on page 1330 Figure 800 on page 1334
Service processor card	Figure 797 on page 1330
System processor backplane assembly	Figure 796 on page 1327
System processor card	Figure 796 on page 1327
System processor dummy card	Figure 796 on page 1327
System processor voltage card	Figure 795 on page 1325
System processor voltage dummy card	Figure 795 on page 1325
Time of day battery (service processor card)	Figure 802 on page 1337
VPD card	Figure 799 on page 1333
All other parts	(Find the appropriate figure below)

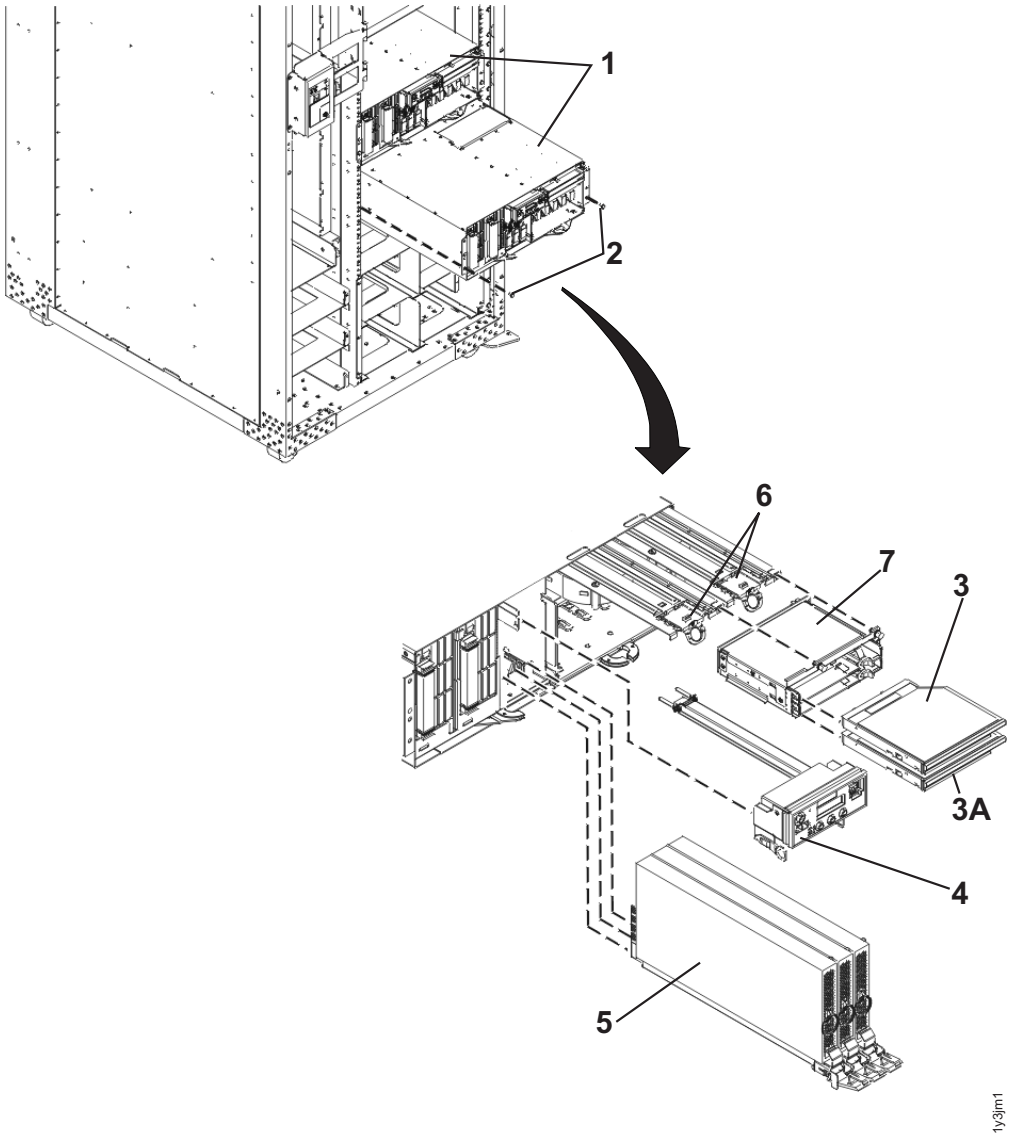


Figure 795. CEC enclosure parts

Table 301. CEC enclosure parts (front view) - 1 of 2

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
			See Version Notes at the start of this topic section	
1	CEC enclosure chassis[2]		53P5049	21P8359
2	Screw		54G2882	54G2882
3	DVD-RAM drive, version 1		97P6883	39J1364
	DVD-RAM drive, version 2		97P6884	39J1364
3a	Media dummy card		53P5867	53P5867
4	CEC enclosure control panel	28D4	97P4940	39J3272
5	System processor voltage card	28E8	97P5678	39J0473

Table 301. CEC enclosure parts (front view) - 1 of 2 (continued)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
			See Version Notes at the start of this topic section	
5	System processor voltage dummy card		97P3318	97P3318
6	CEC enclosure fan		53P5070	39J0859
7	Media backplane assembly	28DC	80P4556	03N4808

Notes:

1. Important, read this entire paragraph as there are exceptions to what part number to order. The custom card identification number (CCIN) identifies the physical features and logical behavior of a part. If two parts appear physically identical but have different CCINs, they are not interchangeable unless stated elsewhere in the maintenance package or by the next level of support. If two parts have different part numbers and yet have the same CCIN, they are interchangeable. When you order a part number (P/N) reported in a serviceable event or call home record, please check if the parts ordering system has a conditional substitute for DS8000. There are some exceptions where the P/N on the DS8000 FRU P/N is not the same P/N that is reported and called home. The P/N reported and called home may be the original eServer P/N which may have firmware that is not appropriate for DS8000. You must order the DS8000 FRU P/N to ensure the correct firmware is present.
2. The CEC enclosure chassis is a special order item. The chassis to be replaced has bar code labels with the specific MTMS (machine type model serial number) information. Contact next level of support to determine if the label can be moved to the new chassis. The MTMS should stay the same as there is not an HMC menu option to change it. The MTMS on the bar code label must match the MTMS in the code, as the CEC enclosure serial number is used in serviceable event FRU list and exchange part lists.

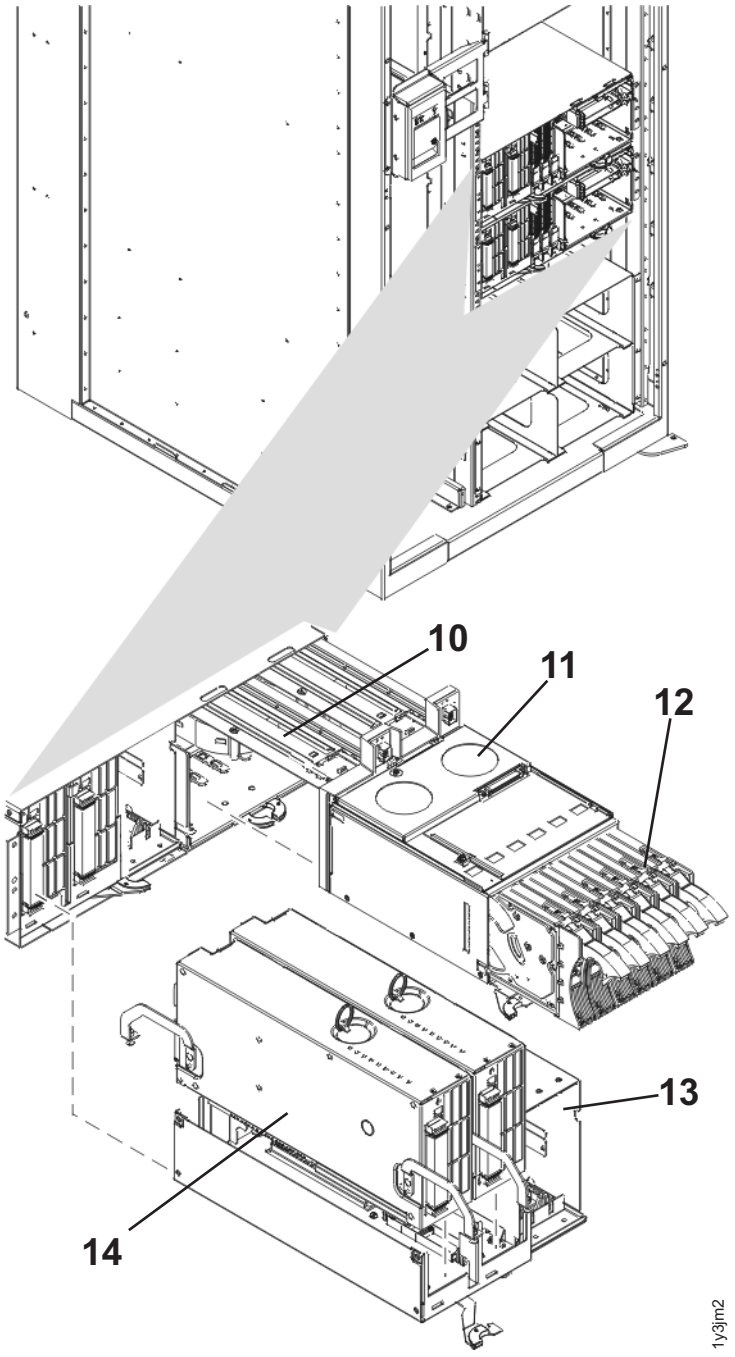


Figure 796. CEC enclosure parts

Table 302. CEC enclosure parts (front view) - 2 of 2

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
10	CEC enclosure fan		53P5070	39J0859
11	Disk drive backplane assembly	28DB	80P4812	03N4801

Table 302. CEC enclosure parts (front view) - 2 of 2 (continued)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
12	CEC disk drive, 73 GB **Important:** Engineering note: Two CEC disk drives work together as a mirrored pair. A 73 GB drive should always be replaced with a 73 GB drive. If a 73 GB drive is replaced with a 146 GB drive, the mirrored pair will work, but if the remaining 73 GB drive ever needs to be replaced, it MUST be replaced with a 146 GB drive, not a 73 GB drive.		00P3072[2] 00P3833	
	CEC disk drive, 146 GB, standard version (replace with same version)		00P3835	03N5265
	CEC disk drive, 146 GB, RPQ version (replace with same version)		00P2664[3] 00P2665	03N6330 03N6330
13	System processor backplane assembly	27AE	80P4990	3N4920
14	System processor dummy card		97P3289	39J0854
	System processor card, 1.5 GHz **Important:** In order to prevent errors during power up, both system processor cards in a CEC enclosure must have the same CCIN. The firmware detects the CCIN and makes adjustments to the speed and voltages for the pair of cards.	26EF	80P7079	N/A
	System processor card, 1.9 GHz nominal voltage w/out CoD **Important:** In order to prevent errors during power up, both system processor cards in a CEC enclosure must have the same CCIN. The firmware detects the CCIN and makes adjustments to the speed and voltages for the pair of cards.	272E	80P7083	N/A
	System processor card, 1.9 GHz high voltage w/out CoD **Important:** In order to prevent errors during power up, both system processor cards in a CEC enclosure must have the same CCIN. The firmware detects the CCIN and makes adjustments to the speed and voltages for the pair of cards.	272F	80P7084	N/A
	System processor card, 2.2 GHz Version 2.1 Version 3.1 **Important:** In order to prevent errors during power up, both system processor cards in a CEC enclosure must have the same CCIN. The firmware detects the CCIN and makes adjustments to the speed and voltages for the pair of cards.	832E 832E	N/A N/A	10N7471 10N7109

Table 302. CEC enclosure parts (front view) - 2 of 2 (continued)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2

Notes:

1. Important, read this entire paragraph as there are exceptions to what part number to order. The custom card identification number (CCIN) identifies the physical features and logical behavior of a part. If two parts appear physically identical but have different CCINs, they are not interchangeable unless stated elsewhere in the maintenance package or by the next level of support. If two parts have different part numbers and yet have the same CCIN, they are interchangeable. When you order a part number (P/N) reported in a serviceable event or call home record, please check if the parts ordering system has a conditional substitute for DS8000. There are some exceptions where the P/N on the DS8000 FRU P/N is not the same P/N that is reported and called home. The P/N reported and called home may be the original eServer P/N which may have firmware that is not appropriate for DS8000. You must order the DS8000 FRU P/N to ensure the correct firmware is present.
2. The CEC disk drive (73 GB) might call home with a P/N of 00P2672, which is the P/N of the disk drive itself. The FRU P/N 00P3072 is for the assembly of the disk drive that is mounted on the carrier. When replacing a CEC disk drive (73 GB), replace it with P/N 00P3072.
3. P/N 00P2664 is a manufacturing P/N that might appear in a serviceable FRU list, but P/N 00P2665 is the FRU P/N that you should order. This FRU P/N is a special version of the 146 GB drive for an RPQ feature. You must replace an RPQ drive with an RPQ drive P/N.

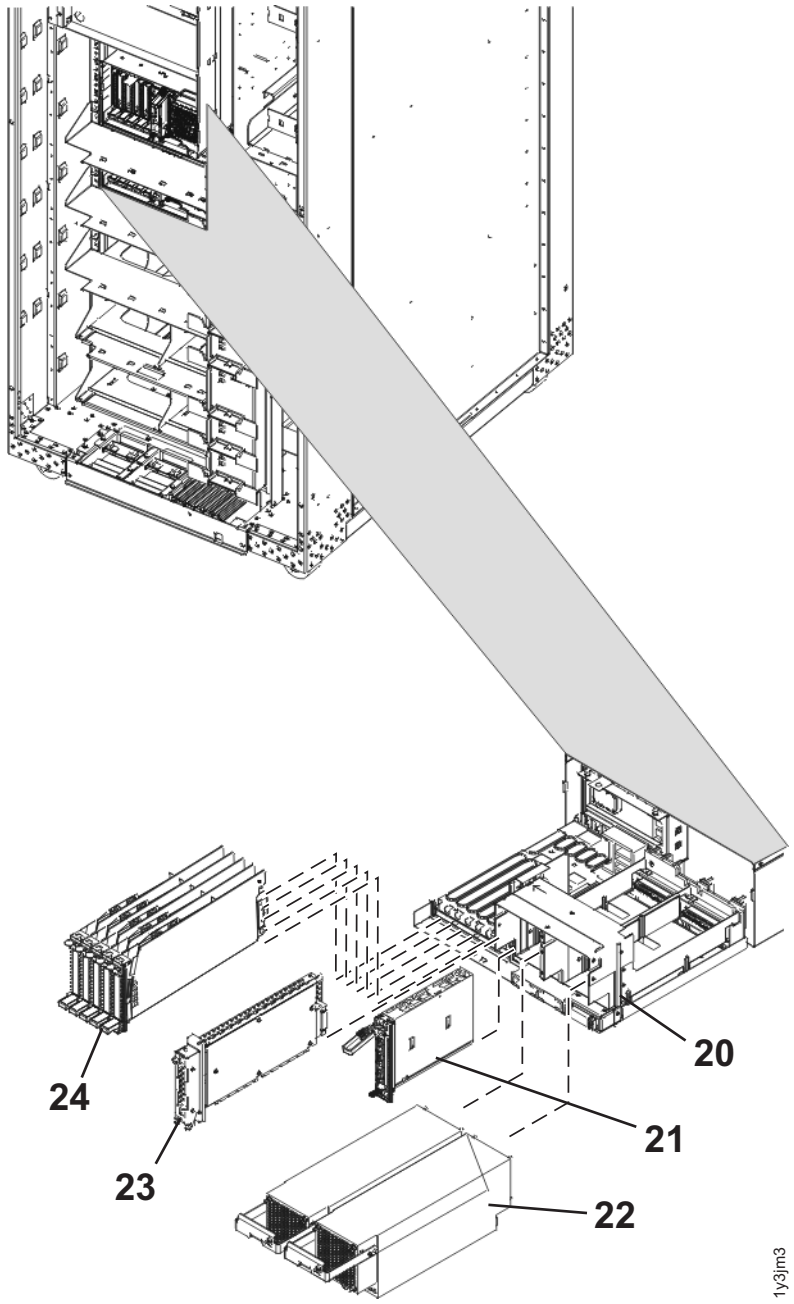


Figure 797. CEC enclosure parts

Table 303. CEC enclosure parts (rear view)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
20	CEC enclosure I/O backplane assembly	27AE	39J0202	39J3748
21	Service processor card (Rel 1.x firmware, bundles 6.0.xxx.xxx or 6.1.xxx.xxx)	28EA	22R6221 [2]	17P8787 [2]
21	Service processor card (Rel 2.x firmware, bundle 6.2.xxx.xxx)	28EA	N/A	17P8788 [2]
22	CEC enclosure power supply		97P5676	39J2779
23	CEC enclosure RIO card filler		97P4725	39J1338

Table 303. CEC enclosure parts (rear view) (continued)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
23	CEC enclosure RIO card	1800	97P6219	39J0792
24	NVC card **Note:** In newer machines, the NVC card has been eliminated.		24R0622	24R2129

Notes:

1. Important, read this entire paragraph as there are exceptions to what part number to order. The custom card identification number (CCIN) identifies the physical features and logical behavior of a part. If two parts appear physically identical but have different CCINs, they are not interchangeable unless stated elsewhere in the maintenance package or by the next level of support. If two parts have different part numbers and yet have the same CCIN, they are interchangeable. When you order a part number (P/N) reported in a serviceable event or call home record, please check if the parts ordering system has a conditional substitute for DS8000. There are some exceptions where the P/N on the DS8000 FRU P/N is not the same P/N that is reported and called home. The P/N reported and called home may be the original eServer P/N which may have firmware that is not appropriate for DS8000. You must order the DS8000 FRU P/N to ensure the correct firmware is present.
2. The P/N listed in the serviceable event FRU list and in the call home is the P/N from the service processor card VPD. The VPD has the generic manufacturing P/N and not the FRU P/N. The generic manufacturing P/N does not indicate which level of firmware is present in the FRU. The manufacturing P/N may be one of the following: 80P5319, 03N6355, 03N6603, or 10N8505.

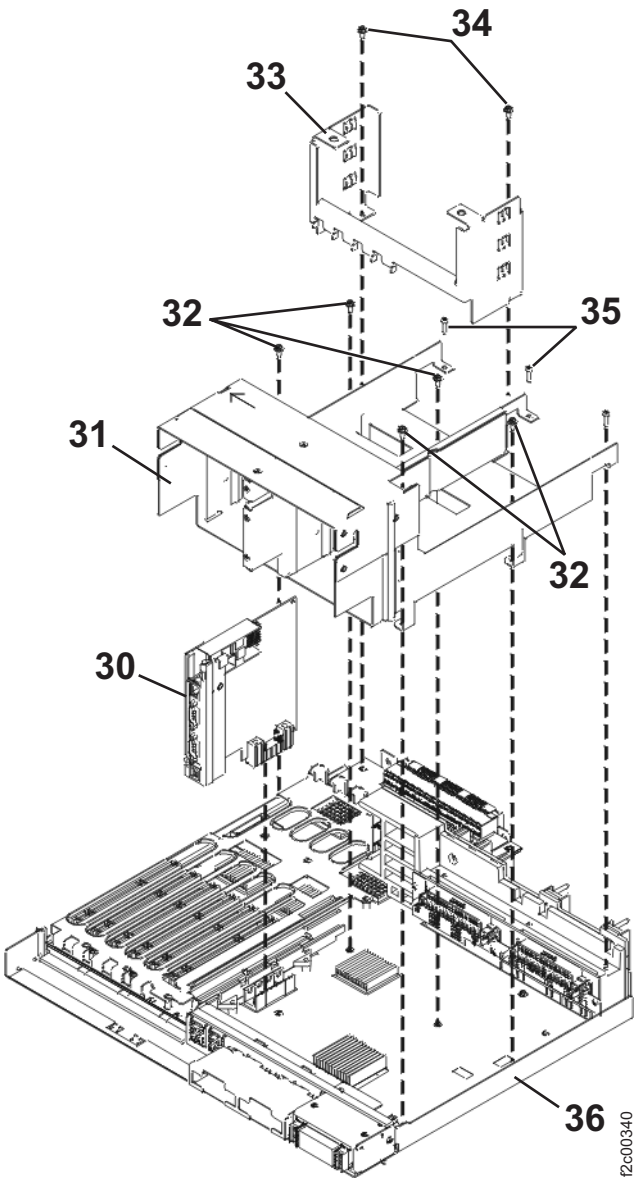


Figure 798. CEC enclosure parts (internal)

Table 304. CEC enclosure parts (internal view)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
30	Card		97P4214	39J0780
31	Shelf, power supply		53P5060	39J1130
32	Screw		75G2878	75G2878
33	Screw		44H8203	44H8203
34	Bracket		53P5068	21P8383
35	Screw, power shelf		75G2878	75G2878
36	CEC enclosure I/O backplane assembly	27AE	39J0202	39J3748

Table 304. CEC enclosure parts (internal view) (continued)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2

Notes:

1. Important, read this entire paragraph as there are exceptions to what part number to order. The custom card identification number (CCIN) identifies the physical features and logical behavior of a part. If two parts appear physically identical but have different CCINs, they are not interchangeable unless stated elsewhere in the maintenance package or by the next level of support. If two parts have different part numbers and yet have the same CCIN, they are interchangeable. When you order a part number (P/N) reported in a serviceable event or call home record, please check if the parts ordering system has a conditional substitute for DS8000. There are some exceptions where the P/N on the DS8000 FRU P/N is not the same P/N that is reported and called home. The P/N reported and called home may be the original eServer P/N which may have firmware that is not appropriate for DS8000. You must order the DS8000 FRU P/N to ensure the correct firmware is present.

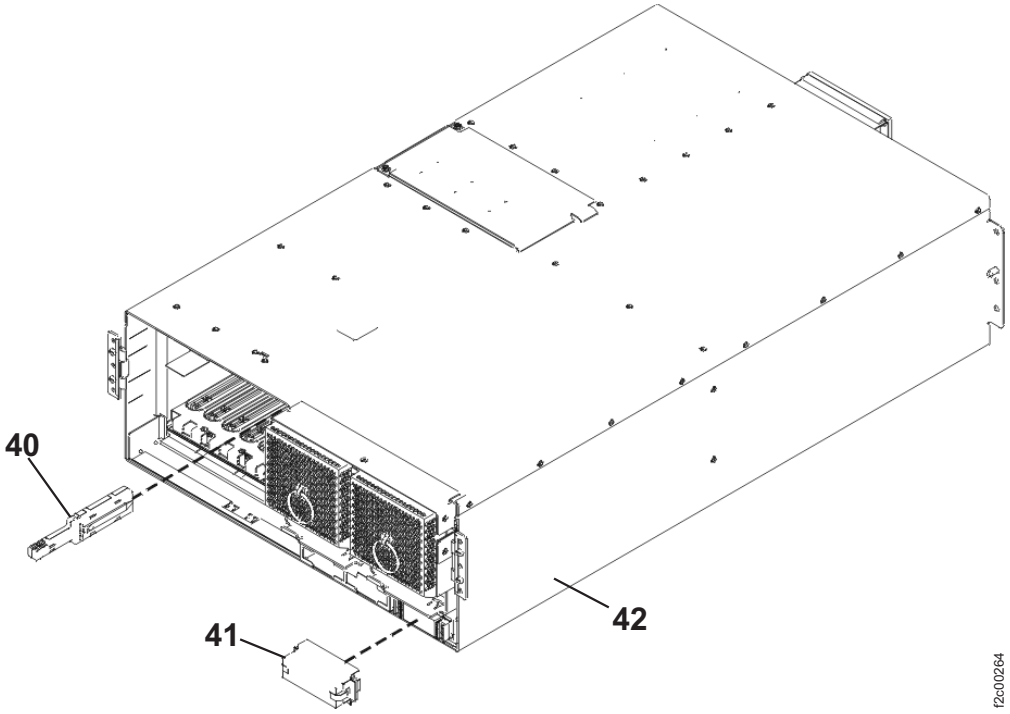


Figure 799. CEC enclosure parts

Table 305. CEC enclosure parts (rear view)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
40	VPD card	528E	80P5110	03N6018
41	Cover, connector[2]		97P5704	N/A
42	Chassis assembly		53P5049	21P8359

Table 305. CEC enclosure parts (rear view) (continued)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2

Notes:

1. Important, read this entire paragraph as there are exceptions to what part number to order. The custom card identification number (CCIN) identifies the physical features and logical behavior of a part. If two parts appear physically identical but have different CCINs, they are not interchangeable unless stated elsewhere in the maintenance package or by the next level of support. If two parts have different part numbers and yet have the same CCIN, they are interchangeable. When you order a part number (P/N) reported in a serviceable event or call home record, please check if the parts ordering system has a conditional substitute for DS8000. There are some exceptions where the P/N on the DS8000 FRU P/N is not the same P/N that is reported and called home. The P/N reported and called home may be the original eServer P/N which may have firmware that is not appropriate for DS8000. You must order the DS8000 FRU P/N to ensure the correct firmware is present.
2. Not used on later models.

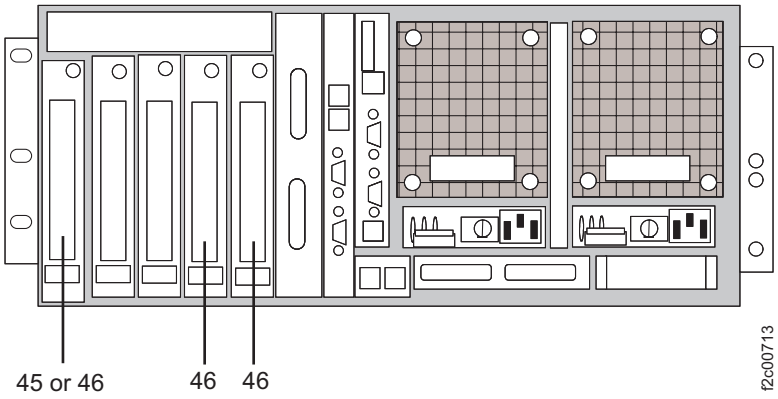


Figure 800. PCI card slots on the rear of the CEC enclosure

Table 306. NVC card and Ethernet card

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
45	NVC card **Note:** In newer machines, the NVC card has been eliminated.		24R0622	24R2129
46	Ethernet card	5706	00P6131	03N5297

Table 306. NVC card and Ethernet card (continued)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2

Notes:

1. Important, read this entire paragraph as there are exceptions to what part number to order. The custom card identification number (CCIN) identifies the physical features and logical behavior of a part. If two parts appear physically identical but have different CCINs, they are not interchangeable unless stated elsewhere in the maintenance package or by the next level of support. If two parts have different part numbers and yet have the same CCIN, they are interchangeable. When you order a part number (P/N) reported in a serviceable event or call home record, please check if the parts ordering system has a conditional substitute for DS8000. There are some exceptions where the P/N on the DS8000 FRU P/N is not the same P/N that is reported and called home. The P/N reported and called home may be the original eServer P/N which may have firmware that is not appropriate for DS8000. You must order the DS8000 FRU P/N to ensure the correct firmware is present.

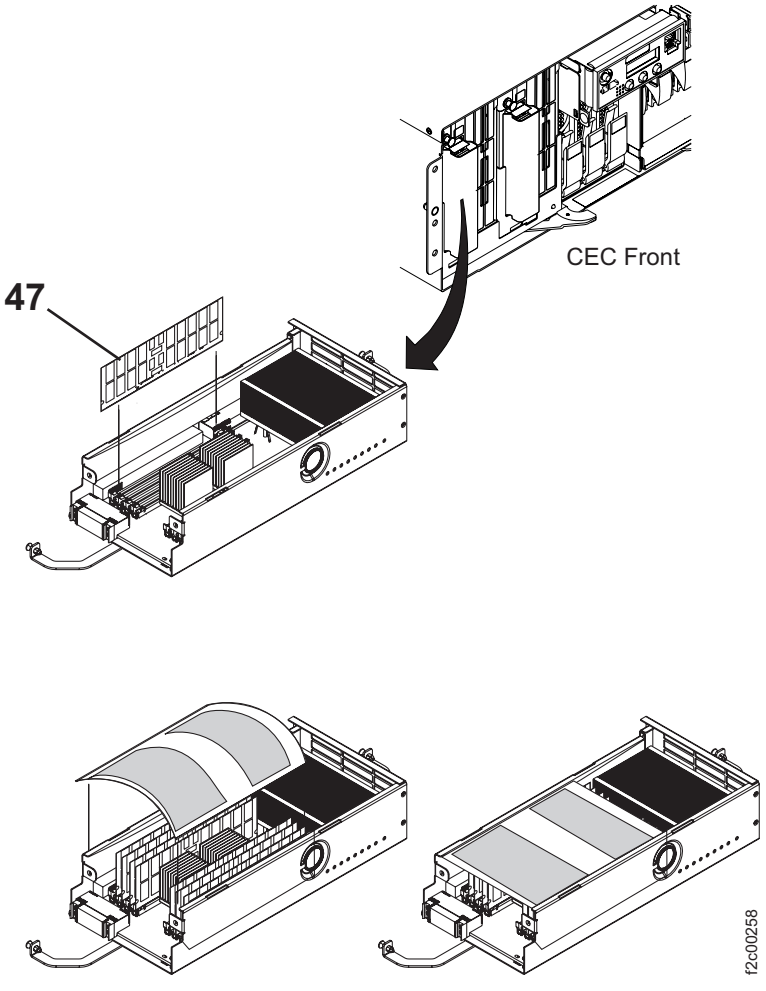


Figure 801. CEC enclosure parts

Table 307. Memory DIMM

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
47	Memory DIMM, 2 GB DDR1	30AA	53P3232	12R9259
47	Memory DIMM, 2 GB DDR2	30F3	N/A	16R1530
47	Memory DIMM, 4 GB DDR1	310E	12R7631[2]	12R9264[2]
47	Memory DIMM, 4 GB DDR2	312F	N/A	12R8994
47	Memory DIMM, 8 GB DDR1	30F7	16R1221	12R9269
47	Memory DIMM, 8 GB DDR2	314C	N/A	12R8468

Notes:

1. Important, read this entire paragraph as there are exceptions to what part number to order. The custom card identification number (CCIN) identifies the physical features and logical behavior of a part. If two parts appear physically identical but have different CCINs, they are not interchangeable unless stated elsewhere in the maintenance package or by the next level of support. If two parts have different part numbers and yet have the same CCIN, they are interchangeable. When you order a part number (P/N) reported in a serviceable event or call home record, please check if the parts ordering system has a conditional substitute for DS8000. There are some exceptions where the P/N on the DS8000 FRU P/N is not the same P/N that is reported and called home. The P/N reported and called home may be the original eServer P/N which may have firmware that is not appropriate for DS8000. You must order the DS8000 FRU P/N to ensure the correct firmware is present.
2. There is a known problem with the parts ordering system. The system might incorrectly identify this P/N as a 16 GB memory DIMM, even though the part that is shipped is a 4 GB memory DIMM. Ensure that “4 GB” is on the label on the memory DIMM. The problem is being fixed.

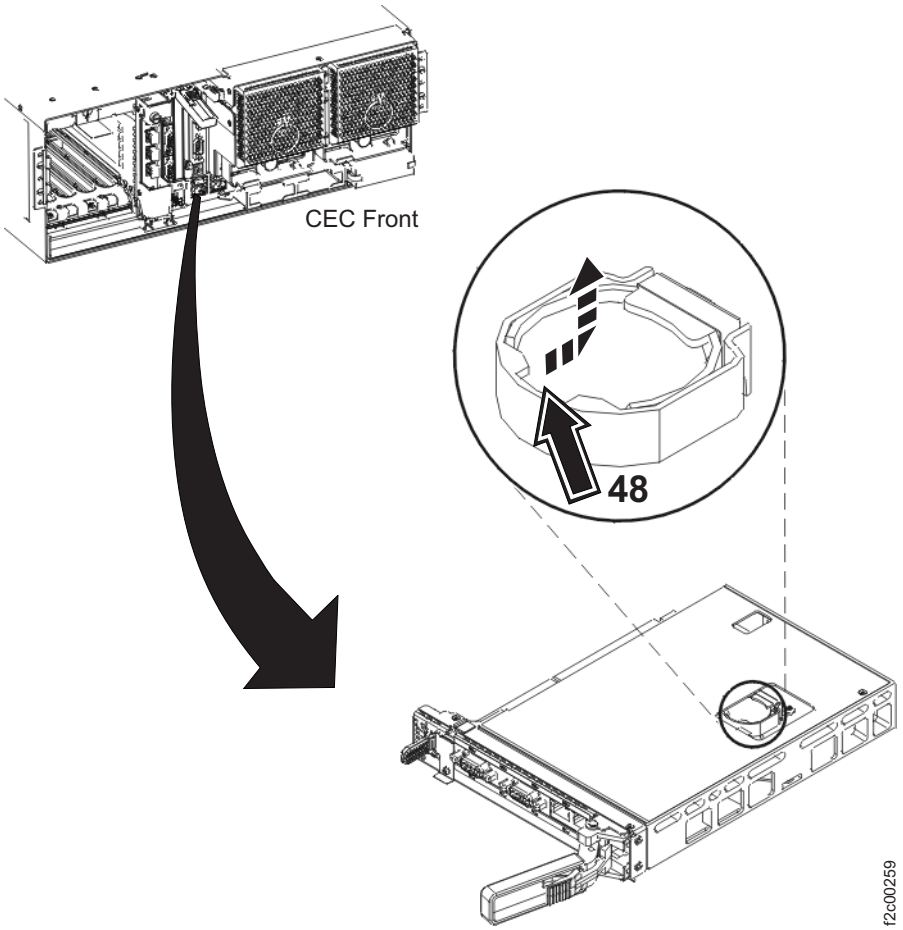


Figure 802. Time of day battery

Table 308. Time of day battery

Index	Part name	Part number	
		Version 1	Version 2
48	Time of day battery (service processor card)	16G8095	16G8095

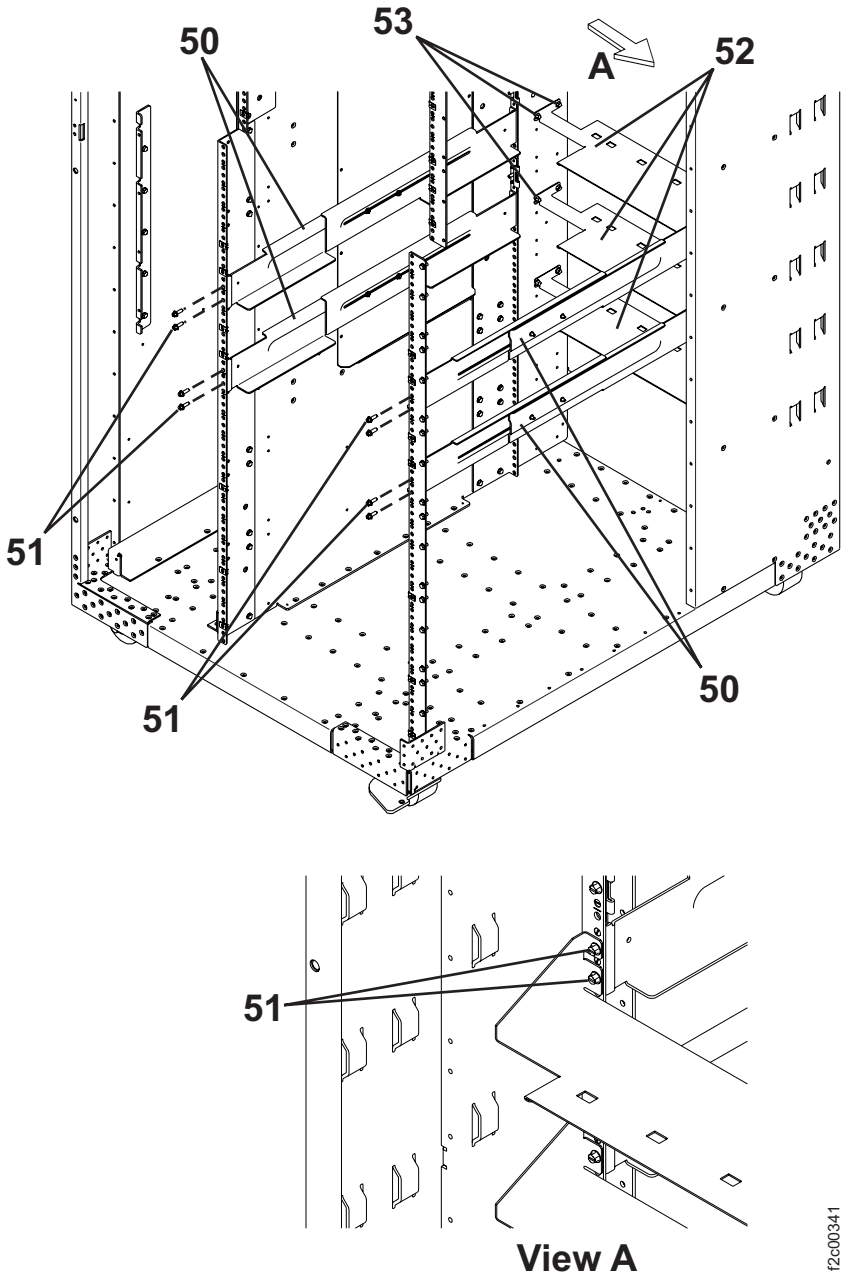


Figure 803. Parts for mounting a CEC enclosure chassis

Table 309. CEC enclosure parts (internal view)

Index	Part name	Part number	
		Version 1	Version 2
51	Rail kit, version 1	97P4735	23R0409
	Rail kit, version 2	22R5185	23R0409
52	Screw, rail kit	54G2882	54G2882
53	Bracket, CEC cabling	17P7890	22R4947

Cables for CEC enclosure parts

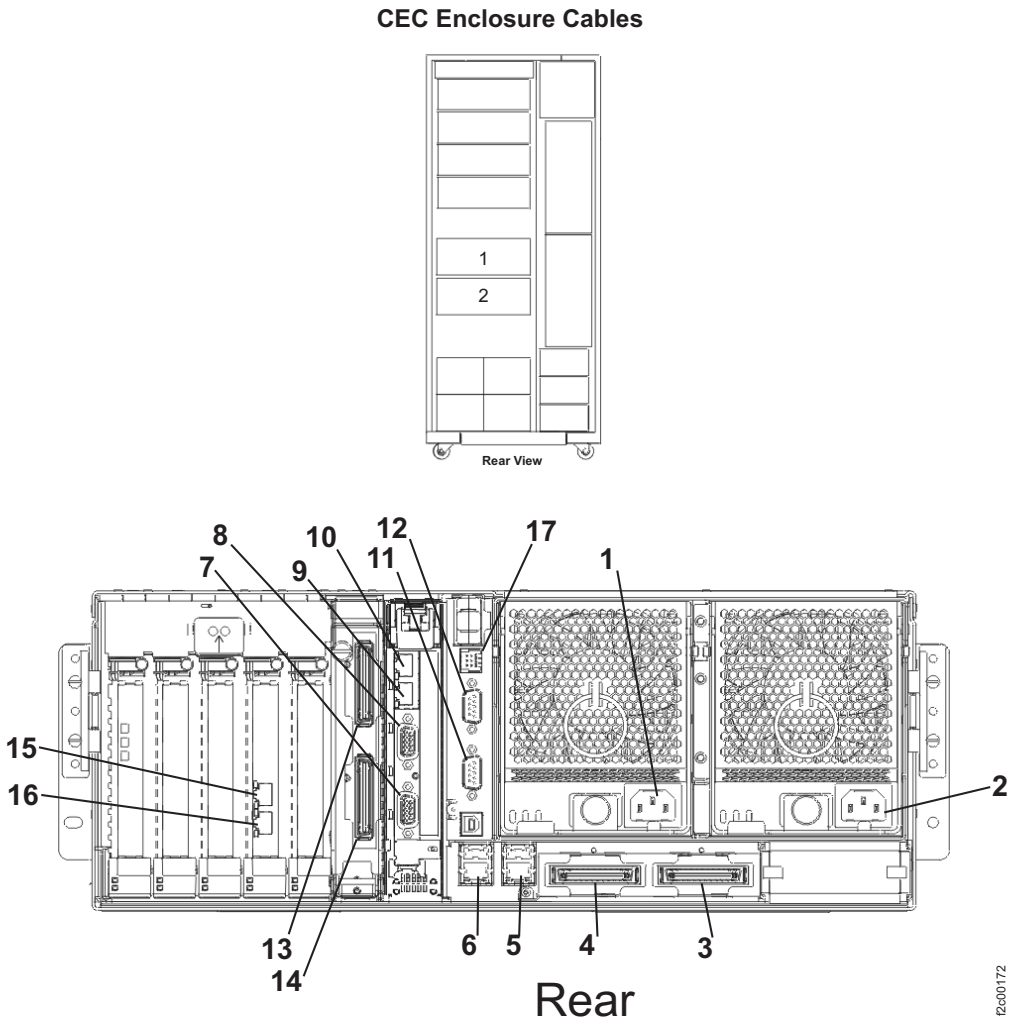


Figure 804. CEC enclosure cables

Table 310. Cables for CEC enclosure parts (rear view)

Index	Part name	Part number	
		Version 1	Version 2
1	Cable, power (from 208VDC bus bar, 4.4 m)	22R0976	22R5828
2	Cable, power (from 208VDC bus bar, 5.4 m)	22R0977	22R5829
3-4	Cable, RIO-G, 1.0 m	21P5454	39J2562
	Cable, RIO-G, 3.5 m	53P2676	39J2554
5-6	Cable, Ethernet, CEC enclosure 1 (1.0 m grey)	22R0997	22R0997
	Cable, Ethernet, CEC enclosure 2 (1.2 m grey)	22R0998	22R0998
7-8	Cable, SPCN, 0.4 m	22R1240	22R5215
	Cable, SPCN, 1.0 m	17P7879	22R5216
	Cable, SPCN, 4.0 m	22R0872	22R5218
9	Cable, Ethernet, CEC enclosure 1 (1.1 m grey)	22R0995	22R0995
	Cable, Ethernet, CEC enclosure 2 (1.2 m grey)	22R0996	22R0996

Table 310. Cables for CEC enclosure parts (rear view) (continued)

Index	Part name	Part number	
		Version 1	Version 2
10	Cable, Ethernet, CEC enclosure 1 (1.0 m black)	22R0990	22R0990
	Cable, Ethernet, CEC enclosure 2 (1.2 m black)	22R0991	22R0991
11	(Call next level of support)		
12	(Call next level of support)		
13-14	Cable, RIO-G, 1.0 m	21P5454	39J2562
	Cable, RIO-G, 3.5 m	53P2676	39J2554
15	Cable, Ethernet, CEC enclosure 1 (1.1 m black)	22R2214	22R2214
	Cable, Ethernet, CEC enclosure 2 (1.2 m black)	22R2216	22R2216
16	Cable, Ethernet, CEC enclosure 1 (1.1 m grey)	22R2215	22R2215
	Cable, Ethernet, CEC enclosure 2 (1.2 m grey)	22R2217	22R2217
17	Cable, RPC card, CEC enclosure 1	22R0416	22R6143
	Cable, RPC card, CEC enclosure 2	22R0417	22R6144

Ethernet switch part numbers

Information about Ethernet switch parts is listed below. Use Table 311 as a directory.

Notes:

- Version 1 part numbers are *not* eligible for use in European Union member states.
- Version 2 part numbers are eligible for use everywhere including European Union member states.
- Only the most recent part numbers are listed. Your DS8000 or serviceable event FRU list may contain an older part number. The parts ordering system can automatically substitute a later part number as needed.

Table 311. Start here

Part name	Figure
Cables	Figure 806 on page 1341
Ethernet switch	Figure 805 on page 1341

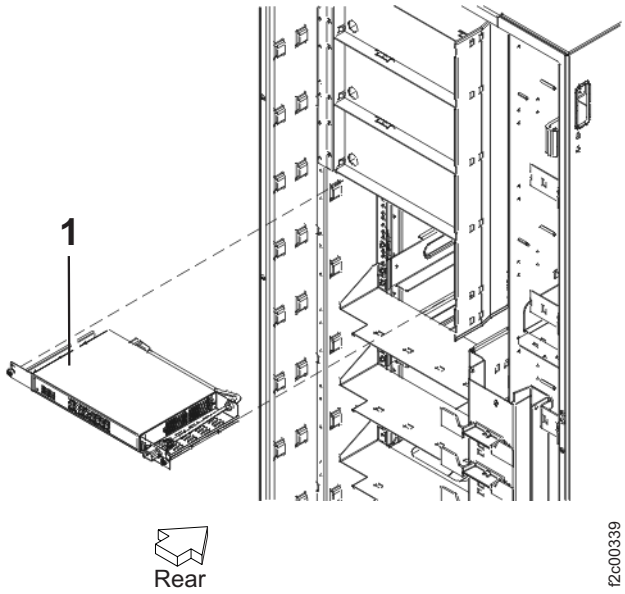


Figure 805. Ethernet switch

Table 312. Ethernet switch parts

Index	Part name	Part number	
		Version 1	Version 2
1	Ethernet switch	22R0804	22R4916

Cables for Ethernet switch SW1

To find part numbers for the cables that are connected to Ethernet switch SW1 (the upper Ethernet switch), see Figure 806 and Table 313 on page 1342.

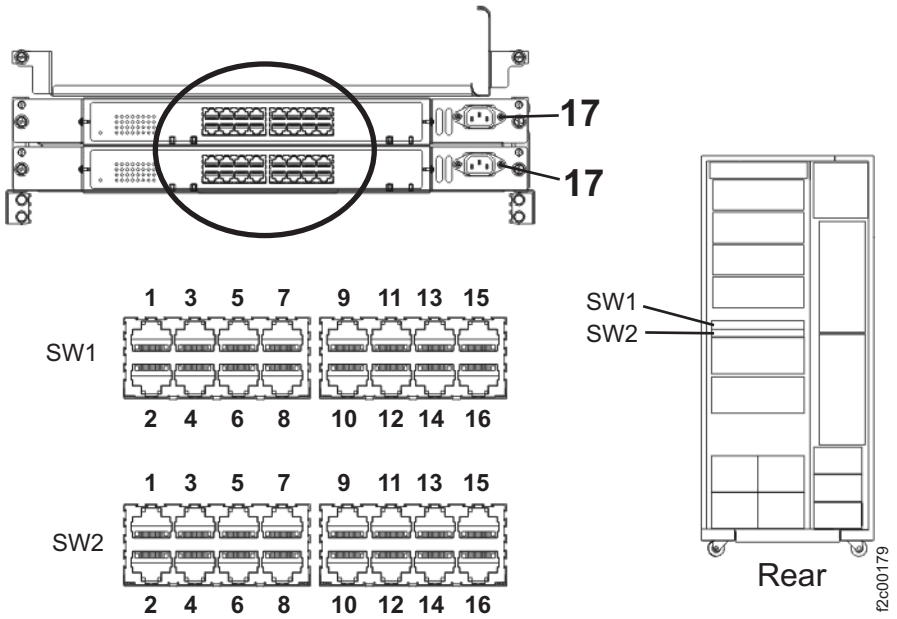


Figure 806. Ethernet switch cables

Table 313. Cables for Ethernet switch SW1

Index	Part name	Part number	
		Version 1	Version 2
1	Cable, Ethernet switch SW1 -to- HMC (1.0 m black)	22R0989	22R0989
2	(Call your next level of support)		
3	Cable, Ethernet switch SW1 -to- CEC enclosure XC1[1] (1.1 m black)	22R0990	22R0990
4	Cable, Ethernet switch SW1 -to- CEC enclosure XC2[2] (1.2 m black)	22R0991	22R0991
5	Cable, Ethernet switch SW1 -to- CEC enclosure XC1[1] (1.0 m black)	22R0992	22R0992
6	Cable, Ethernet switch SW1 -to- CEC enclosure XC2[2] (1.2 m black)	22R3748	22R3748
7	Cable, Ethernet switch SW1 -to- CEC enclosure XC2[2] (1.1 m black)	22R2214	22R2214
8	Cable, Ethernet switch SW1 -to- CEC enclosure XC2[2] (1.3 m black)	22R2216	22R2216
9 - 16	(Call your next level of support)		
17	Multi-connector power cord[3]	22R0842	22R5759

Notes:

1. XC1 is the upper CEC enclosure.
2. XC2 is the lower CEC enclosure.
3. This chord is hardwired to a junction connector that receives power from both PPSs. The junction connector also supplies power to the management console, the display/keyboard tray, and Ethernet switch SW2.

Cables for Ethernet switch SW2

To find part numbers for the cables that are connected to Ethernet switch SW2 (the lower Ethernet switch), see Figure 806 on page 1341 and Table 314.

Table 314. Cables for Ethernet switch SW2

Index	Part name	Part number	
		Version 1	Version 2
1	Cable, Ethernet switch SW2 -to- HMC (1.0 m grey)	22R0994	22R0994
2	(Call your next level of support)		
3	Cable, Ethernet switch SW2 -to- CEC enclosure XC1[1] (1.1 m grey)	22R0995	22R0995
4	Cable, Ethernet switch SW2 -to- CEC enclosure XC2[2] (1.2 m grey)	22R0996	22R0996
5	Cable, Ethernet switch SW2 -to- CEC enclosure XC1[1] (1.0 m grey)	22R0997	22R0997
6	Cable, Ethernet switch SW2 -to- CEC enclosure XC2[2] (1.2 m grey)	22R3749	22R3749
7	Cable, Ethernet switch SW2 -to- CEC enclosure XC2[2] (1.1 m grey)	22R2215	22R2215
8	Cable, Ethernet switch SW2 -to- CEC enclosure XC2[2] (1.3 m grey)	22R2217	22R2217

Table 314. Cables for Ethernet switch SW2 (continued)

Index	Part name	Part number	
		Version 1	Version 2
9 - 16	(Call your next level of support)		
17	Multi-connector power cord[3]	22R0842	22R5759

Notes:

1. XC1 is the upper CEC enclosure.
2. XC2 is the lower CEC enclosure.
3. This chord is hardwired to a junction connector that receives power from both PPSs. The junction connector also supplies power to the management console, the display/keyboard tray, and Ethernet switch SW1.

I/O enclosure part numbers

Information about I/O enclosure parts is listed below. Use Table 315 as a directory.

Notes:

- Version 1 part numbers are *not* eligible for use in European Union member states.
- Version 2 part numbers are eligible for use everywhere including European Union member states.
- Only the most recent part numbers are listed. Your DS8000 or serviceable event FRU list may contain an older part number. The parts ordering system can automatically substitute a later part number as needed.

Table 315. Start here

Part name	Figure
Cables, except I/O enclosure fan	Figure 812 on page 1351
Cable, I/O enclosure fan	Figure 808 on page 1346
Device adapter card	Figure 809 on page 1348
ESCON host card	Figure 809 on page 1348
Fibre Channel host card	Figure 809 on page 1348
I/O enclosure backplane (includes SPCN connector card)	Figure 808 on page 1346
I/O enclosure fan	Figure 808 on page 1346
I/O enclosure fan cable	Figure 808 on page 1346
I/O enclosure power supply	Figure 807 on page 1344
I/O enclosure RIO card	Figure 809 on page 1348
All other parts	(Find the appropriate figure below)

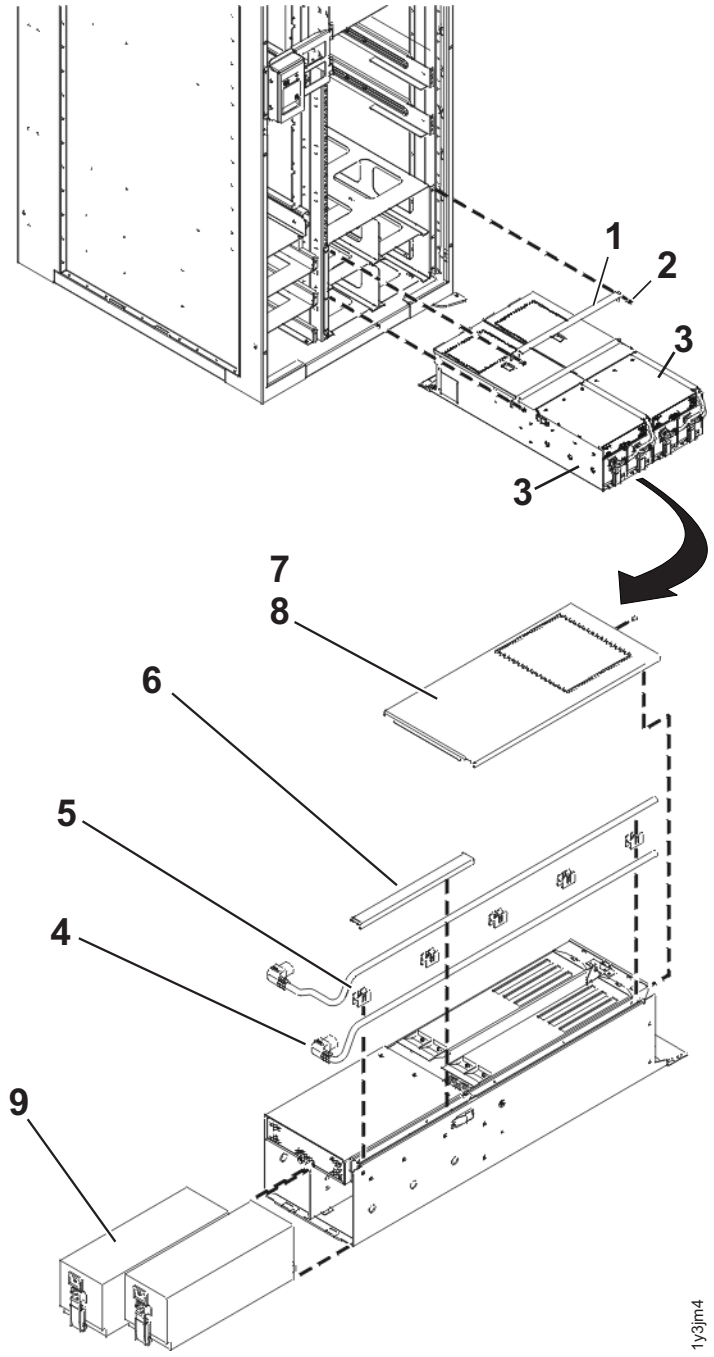


Figure 807. I/O enclosure parts

Table 316. I/O enclosure parts (front view)

Index	Part name	Part number	
		Version 1	Version 2
1	Bracket, hold down	22R4532	22R4532
2	Screw, cover mounting (M5X16)	77G0599	77G0599
3	I/O drawer	39J1826	03N6372

Table 316. I/O enclosure parts (front view) (continued)

Index	Part name	Part number	
		Version 1	**Version 2**
4	I/O enclosure power cord	See Table 321 on page 1351	See Table 321 on page 1351
5	Clip, power cord	09P3185	09P3185
6	Power cable tray cover	80P2654	80P2654
7	I/O enclosure cover	80P2646	80P2646
8	Screw	1624743	1624743
9	I/O enclosure power supply	22R3958	22R3958

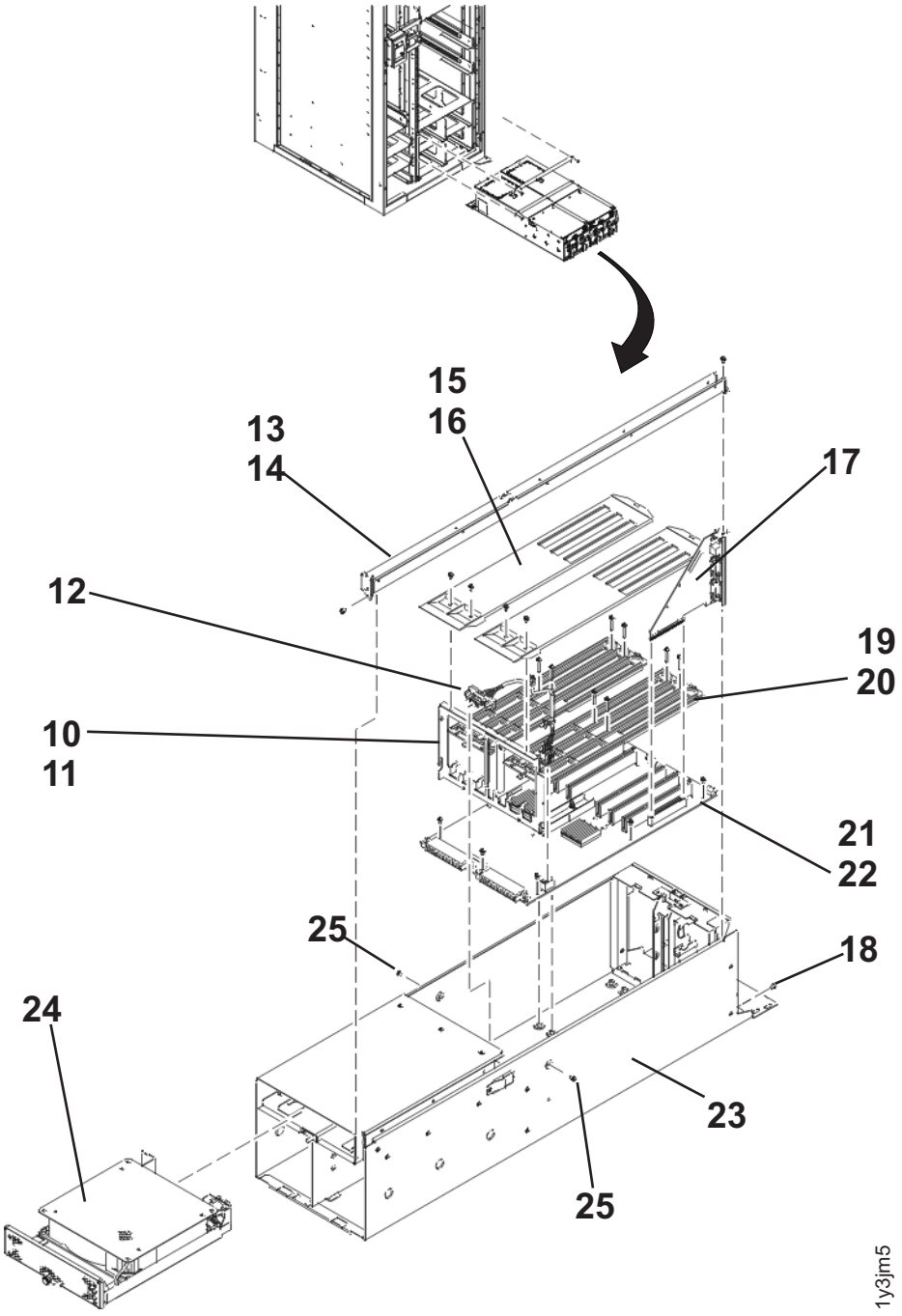


Figure 808. I/O enclosure parts (continued)

Table 317. I/O enclosure parts (rear view)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
10	Bulkhead bracket		80P2645	80P2645
11	Screw, bracket		93H4729	93H4729
12	I/O enclosure fan cable		09P5417	03N6196
13	Cable tray		80P2648	80P2648
14	Screw, cable tray mounting		1621829	1621829

Table 317. I/O enclosure parts (rear view) (continued)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
15	Card guide, upper		80P2673	80P2673
16	Screw, cable tray mounting		1621829	1621829
17	SPCN connector card (included as part of I/O enclosure backplane)		80P2843	03N5893
18	Screw		1621829	1621829
19	Card guide, lower		80P2672	80P2672
20	Screw, card guide mounting		1624749	1624749
21	I/O enclosure backplane (includes SPCN connector card)	28BB	22R6222	23R0181
22	Screw, card mounting		1624743	1624743
23	Sheet metal enclosure (not a FRU)[2]		80P2631	80P2631
24	I/O enclosure fan		80P2650	03N6069
25	Screw		1621829	1621829

Notes:

1. Important, read this entire paragraph as there are exceptions to what part number to order. The custom card identification number (CCIN) identifies the physical features and logical behavior of a part. If two parts appear physically identical but have different CCINs, they are not interchangeable unless stated elsewhere in the maintenance package or by the next level of support. If two parts have different part numbers and yet have the same CCIN, they are interchangeable. When you order a part number (P/N) reported in a serviceable event or call home record, please check if the parts ordering system has a conditional substitute for DS8000. There are a couple of exceptions where the P/N on the DS8000 FRU P/N is not the same P/N that is reported and called home. The P/N reported and called home may be the original eServer P/N which may have firmware that is not appropriate for DS8000. You must order the DS8000 FRU P/N to ensure the correct firmware is present.
2. The enclosure chassis is a special order item. The chassis to be replaced has bar code labels with the specific MTMS (machine type model serial number) information. Contact next level of support to determine if the label can be moved to the new chassis. The MTMS should stay the same as there is not an HMC menu option to change it. The MTMS on the bar code label must match the MTMS in the code, as the enclosure serial number is used in serviceable event FRU list and exchange part lists.

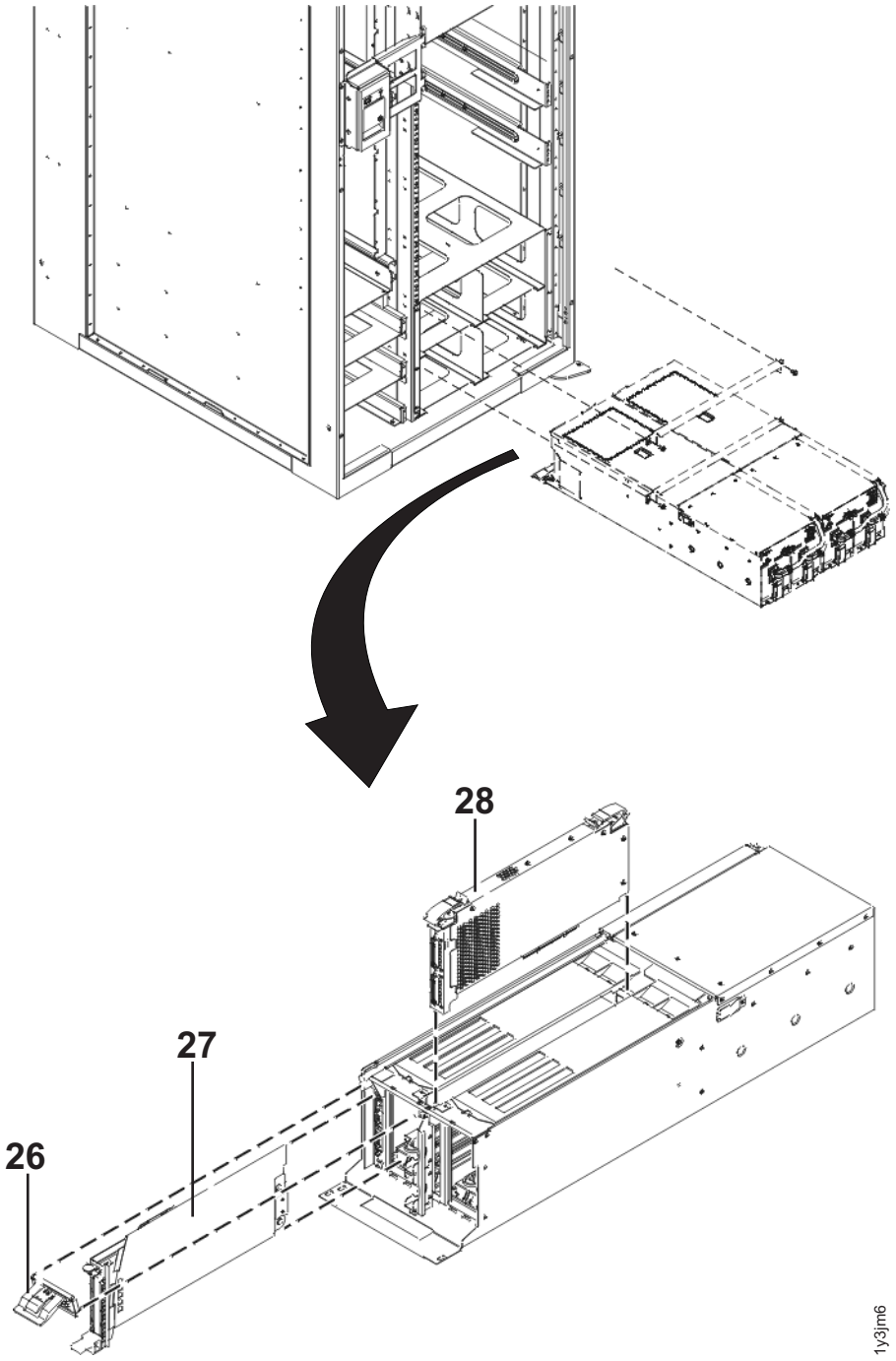


Figure 809. I/O enclosure parts (continued)

Table 318. I/O enclosure parts

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
26	I/O enclosure card retainer		03N6541	03N6541
27	Device adapter card	DAFC (DA)	64P8380	64P8382
27	ESCON host card	HA2E (HA2)	22R1800	23R0241

Table 318. I/O enclosure parts (continued)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
27	Fibre Channel host card, short wave, 2 Gb	HA1S	22R4912	22R6207
27	Fibre Channel host card, short wave, 4 Gb	HA3S	N/A	23R0185
27	Fibre Channel host card, long wave, 2 Gb	HA1L	22R4913	22R6209
27	Fibre Channel host card, long wave, 4 Gb, 4 Km	HA34	N/A	23R0873
27	Fibre Channel host card, long wave, 4 Gb, 10 Km	HA3L	N/A	23R0187
28	I/O enclosure RIO card	28FF	80P4904	03N5633

Notes:

1. Important, read this entire paragraph as there are exceptions to what part number to order. The custom card identification number (CCIN) identifies the physical features and logical behavior of a part. If two parts appear physically identical but have different CCINs, they are not interchangeable unless stated elsewhere in the maintenance package or by the next level of support. If two parts have different part numbers and yet have the same CCIN, they are interchangeable. When you order a part number (P/N) reported in a serviceable event or call home record, please check if the parts ordering system has a conditional substitute for DS8000.There are a couple of exceptions where the P/N on the DS8000 FRU P/N is not the same P/N that is reported and called home. The P/N reported and called home may be the original eServer P/N which may have firmware that is not appropriate for DS8000. You must order the DS8000 FRU P/N to ensure the correct firmware is present. CCINs that are in parentheses are reported by earlier levels of the LIC code bundle.

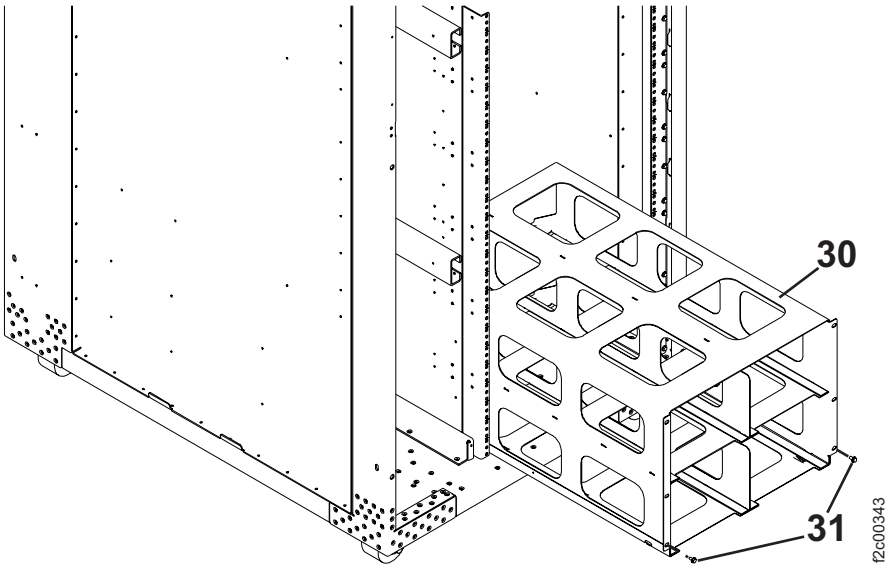


Figure 810. I/O wrapper frame

Table 319. I/O enclosure frame, brackets, and screws

Index	Part name	Part number	
		Version 1	Version 2
30	I/O wrapper frame	23R1338	23R1338
31	Screw	54G2882	54G2882

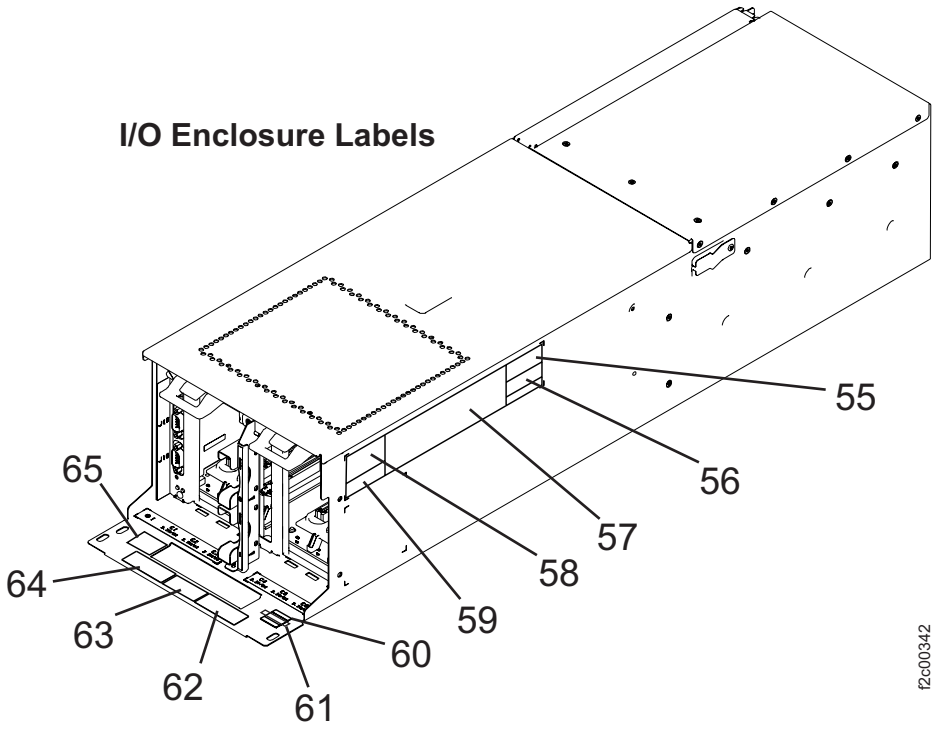


Figure 811. I/O enclosure labels

Table 320. I/O enclosure labels

Index	Part name	Part number	
		Version 1	Version 2
55	Label, FC 5790	80P4655	80P4655
56	Label, COO US	44P3946	44P3946
56	Label, COO US Korea	44P3947	44P3947
57	Label, agency	80P4614	80P4614
58	Label, IBM logo	97P2549	97P2549
59	Label, new / used parts statement	97P2550	97P2550
60	Label, asset protection VIN security	21H7141	21H7141
61	Label, serial number (rear)	53P3435	53P3435
61	Label, FC 57901	80P4655	80P4655
62	Label, Nordic	80P4509	80P4509
63	Label, serial number barcode	44H8386	44H8386
64	Label, serial number barcode	44H8386	44H8386
65	Label, Taiwan battery notice	22R2305	22R2305

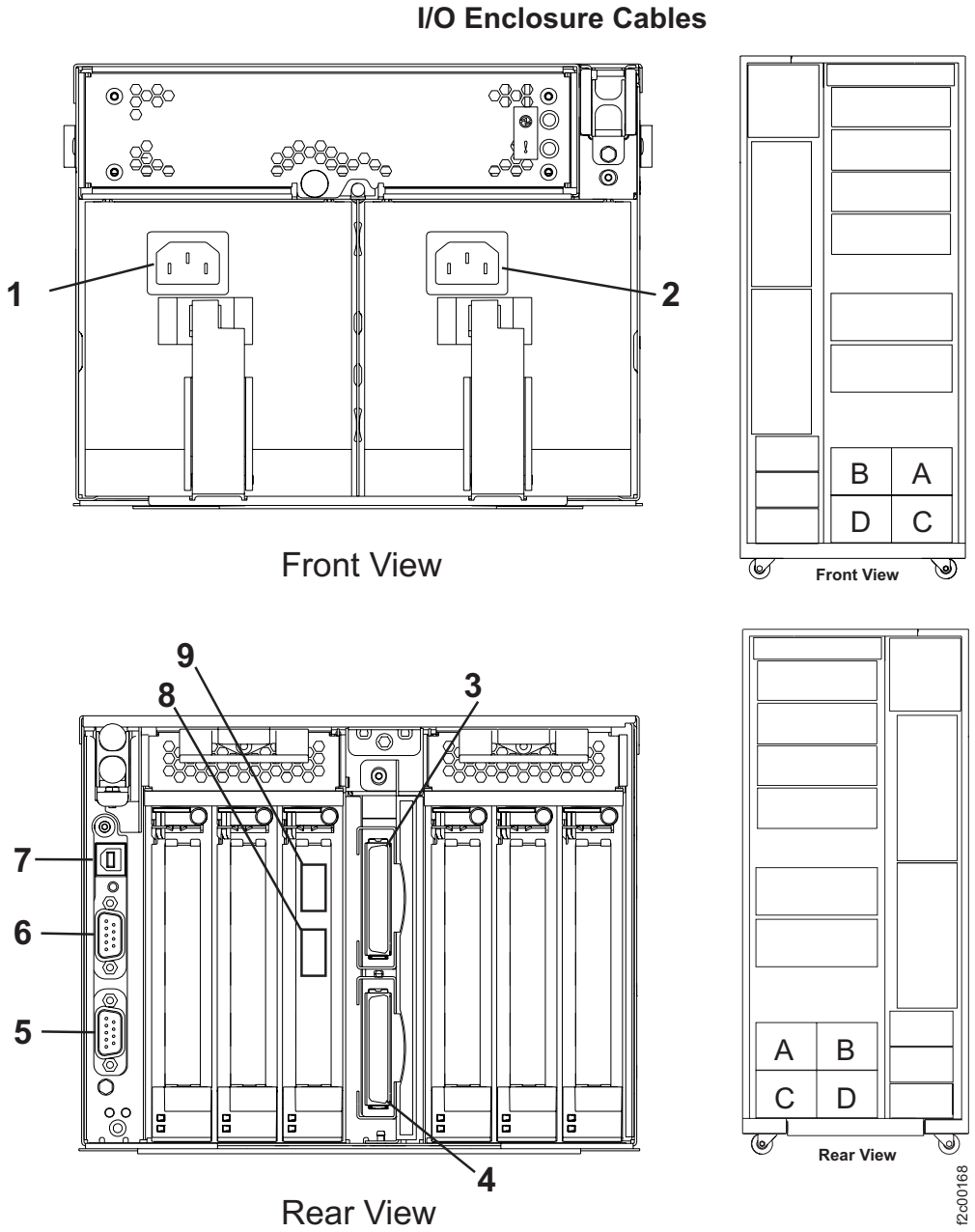


Figure 812. I/O enclosure cables

Table 321. I/O enclosure cables

Index	Part name	Part number	
		Version 1	Version 2
1	Cable, power, I/O enclosure 1 (from 208V bus bar)	22R0973	22R5833
	Cable, power, I/O enclosure 2 (from 208V bus bar)	22R0971	22R5831
2	Cable, power, I/O enclosure 1 (from 208V bus bar)	22R0974	22R5834
	Cable, power, I/O enclosure 2 (from 208V bus bar)	22R0972	22R5832
3-4	Cable, RIO-G (1.0 m)	21P5454	39J2562

Table 321. I/O enclosure cables (continued)

Index	Part name	Part number	
		Version 1	Version 2
5-6	Cable, SPCN (0.4 m)	22R1240	22R5215
	Cable, SPCN (1.0 m)	17P7879	22R5216
	Cable, SPCN (4.0 m)	22R0872	22R5218
7	Cable, rack identity card, I/O enclosure 1 (2.2 m)	22R2907	22R5922
	Cable, rack identity card, I/O enclosure 2 (2.0 m)	22R2908	22R5923
	Cable, rack identity card, I/O enclosure 3 (2.3 m)	22R2909	22R5924
	Cable, rack identity card, I/O enclosure 4 (2.1 m)	22R2910	22R5925
8-9	Cable, Fibre Channel (set of 8 cables)	22R2828	22R5264

Management console (MC) part numbers

Use this section to locate information about parts that are associated with the management console (MC) server and the display/keyboard tray.

Display/keyboard tray part numbers

Note: The information in this section applies regardless of the type of MC server (X335 or X336).

Notes:

- Version 1 part numbers are *not* eligible for use in European Union member states.
- Version 2 part numbers are eligible for use everywhere including European Union member states.
- Only the most recent part numbers are listed. Your DS8000 or serviceable event FRU list may contain an older part number. The parts ordering system can automatically substitute a later part number as needed.

Use the figures and tables below to locate information about parts that are associated with the display/keyboard tray.

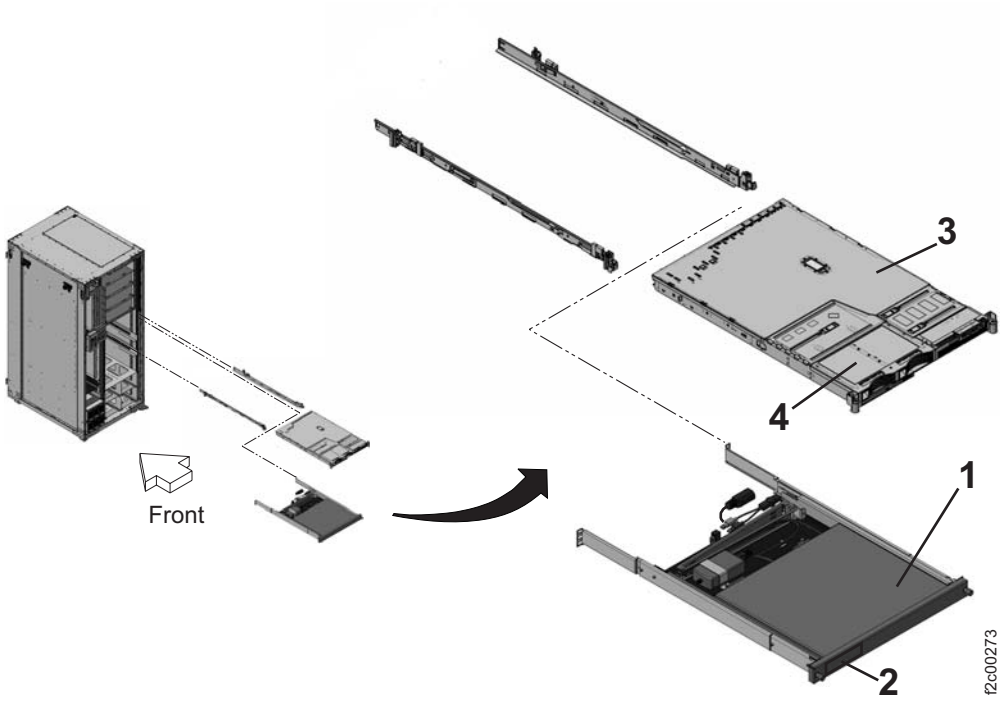


Figure 813. Management console display/keyboard tray (X336 MC server is shown; X335 MC server is similar)

Table 322. Parts of the display/keyboard tray

Index	Part name	Part number	
		Version 1	Version 2
1	Display/tray assembly, 15″ (does not include keyboard)	N/A	17P8487[3]
	USB keyboard, Japanese for 15″ display/tray	N/A	40K9414
	USB keyboard, US/English for 15″ display/tray	N/A	40K9400
	Display/tray assembly, 17″ (does not include keyboard)	23K4885	23R2051
	PS2 keyboard, Japanese for 17″ display/tray	89P8514	40K9414
	PS2 keyboard, US/English for 17″ display/tray	89P8500	40K9400
2	HMC role label	22R2707	22R2707
	Cable, keyboard/mouse/video	[2]	[2]
	Cable management arm[1] for 17″ display/tray	23K4889	23K4889
	Jumper cord[1] for 17″ display/tray	36L8886	36L8886
	Miscellaneous hardware kit[1] for 17″ display/tray	26K4103	26K4103
	Slide assembly[1] for 17″ display/tray	23K4887	23K4887

Table 322. Parts of the display/keyboard tray (continued)

Index	Part name	Part number	
		Version 1	Version 2

Notes:

1. This part is not shown in the figure, but it is associated with the 1U keyboard tray chassis.
2. For X335 MC server, see "X335 MC server part numbers." For X336 MC server, see "X336 MC server part numbers" on page 1356.
3. This FRU includes an Ethernet switch air baffle bracket 22R6977. If you are replacing a 17″ display/tray with the new 15″ display/tray and have a DS8000 built prior to approximately July 2006, the new display/tray may interfere with the Ethernet switch air baffle bracket below it. If this is the case, then replace that bracket with the air baffle bracket included in this kit.

X335 MC server part numbers

Use the figures and tables below to locate information about the X335 management console (MC) server.

Notes:

- Version 1 part numbers are *not* eligible for use in European Union member states.
- Version 2 part numbers are eligible for use everywhere including European Union member states.
- Only the most recent part numbers are listed. Your DS8000 or serviceable event FRU list may contain an older part number. The parts ordering system can automatically substitute a later part number as needed.

Table 323. Main parts of the X335 management console (MC) server

Part name	Part number		Figure
	Version 1	Version 2	
Cables			Figure 816 on page 1356
DVD-RAM drive (old stock)	33P3307		Figure 814 on page 1355, Index **4**
DVD-RAM drive (new stock)	26K5417		Figure 814 on page 1355, Index **4**
Ethernet card[1]	00P6131	03N5297	Figure 815 on page 1356
Hard drive, 80 GB IDE 7200 RPM, standard version (replace with same version)	24P3665	N/A	
Hard drive, 80 GB IDE 7200 RPM, RPQ version[2] (replace with same version) **Note:** This FRU P/N is a special version of the hard drive. You must replace an RPQ drive with an RPQ drive P/N.	23R0813	N/A	
Microprocessor (3.2 GHz)	23K4739	N/A	
Modem card[1]	80P4702	N/A	Figure 815 on page 1356
Server assembly[3], Model 8676-G2X[4]	23K4727[4]	N/A	Figure 814 on page 1355, Index **3**
Server assembly[3], Model 8676-GHX	31R0827	N/A	Figure 814 on page 1355, Index **3**
System board[5], Model 8676-G2X	22R6176	N/A	
System board[5], Model 8676-GHX	22R6176	N/A	

Table 323. Main parts of the X335 management console (MC) server (continued)

Part name	Part number		Figure
	Version 1	Version 2	
All other management console server parts	6	6	6

Notes:

1. To replace the part, refer to the appropriate manual that is on the *IBM System Storage DS8000 series Service Documents CDROM*:
   - *xSeries 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide*
   - *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*
2. This FRU P/N is a special version of the hard drive. You must replace an RPQ drive with an RPQ drive P/N.
3. Ordering the management console server assembly requires approval from the next level of support. The assembly is not a field replaceable unit for normal repairs. If requested by next level of support, you can order a replacement assembly using the part number that is listed. The new assembly will need to have all code and configuration information loaded onto the hard drive (the same procedure as if you were replacing the hard drive).
4. Not available. Order Model 8676-GHX.
5. The management console system board has special firmware for the DS8000. The part number is unique for DS8000, so the standard system board for the X335 should not be used. When you order the part number listed in the *xSeries 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide*, select the option for DS8000 usage. The correct part number will be substituted and sent to you. The system board must be loaded with special BIOS firmware for the DS8000. The replacement part should come with a diskette or CD that contains the firmware and the instructions on how to load it and then restore the machine type, model, and serial number of the MC server. If the CD or instructions are missing, contact the next level of support who should have the downloadable images and instructions on the DS8000 - Engineering Web site.
6. FRUs not listed in the table are listed in the *xSeries 335 Type 8676, Type 8830 Hardware Maintenance Manual and Troubleshooting Guide*, chapter 7. The guide contains information (including part numbers) about those FRUs.

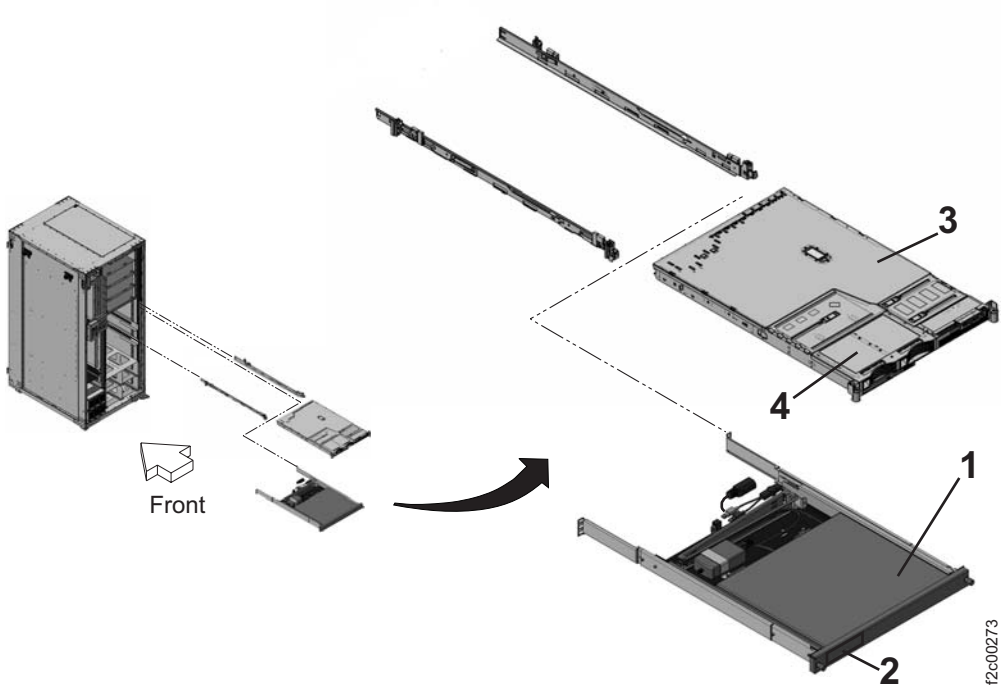


Figure 814. Management console display/keyboard tray (X336 MC server is shown; X335 MC server is similar)

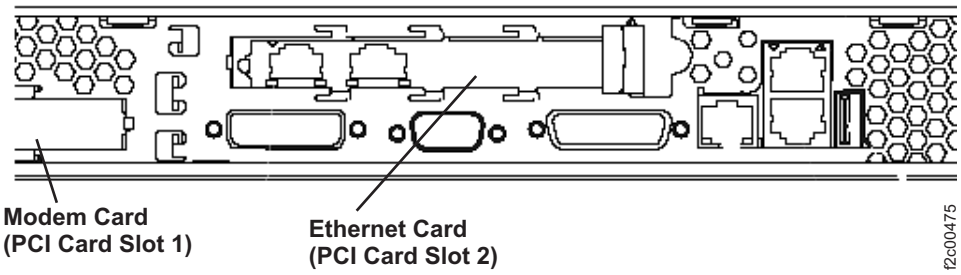


Figure 815. Cards in the slots at the rear of the X335 management console (MC) server

Cables for the X335 management console server

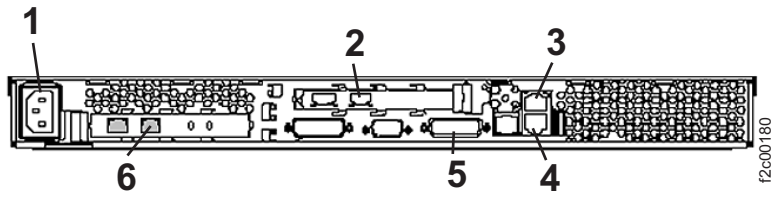


Figure 816. Connectors on the rear of the X335 management console (MC) server

Table 324. Cables for the X335 management console server

Index	Part name	Part number	
		Version 1	Version 2
1	Cable (multi-connector power cord)[1]	22R0842	22R5759
2	Cable, Ethernet, 1.0 m, internal HMC (black)	22R0989	22R0989
	Cable, Ethernet, 31.0 m, external HMC (black)	22R1798	22R1798
3	Cable, Ethernet, 1.0 m, internal HMC (gray)	22R0994	22R0994
	Cable, Ethernet, 31.0 m, external HMC (gray)	22R1799	22R1799
4	Cable, Ethernet (network cable supplied by the customer)	N/A	N/A
5	Cable, mouse/keyboard/video (C2T OUT)	00N6954	
6	(Phone cable supplied by the customer)	N/A	N/A

Notes:

1. This cable is hard wired to a junction connector that receives power from both PPSs. The junction connector also supplies power to both Ethernet switches and the display/keyboard tray.

X336 MC server part numbers

Use the figures and tables below to locate information about the X336 management console (MC) server.

Notes:

- Version 1 part numbers are *not* eligible for use in European Union member states.
- Version 2 part numbers are eligible for use everywhere including European Union member states.

- Only the most recent part numbers are listed. Your DS8000 or serviceable event FRU list may contain an older part number. The parts ordering system can automatically substitute a later part number as needed.

Table 325. Main parts of the X336 management console (MC) server

Part name	Part number		Figure
	Version 1	Version 2	
Cables			Figure 819 on page 1358
DVD-RAM drive	33P3306	39M3522	Figure 817 on page 1358, Index **4**
Ethernet card[1]	00P6131	03N5531	Figure 818 on page 1358
Hard drive, 160 GB SATA	39M4505	39M4505	
Microprocessor, 3.2 GHz (in server model 8837-PLM)	25R4768	N/A	
Microprocessor, 3.4 GHz (in server model 8837-PQZ)	N/A	39Y6947	
Modem card[1]	80P4702	03N7041	Figure 818 on page 1358
Server assembly, Model 8837-PLM[3]	39R6168	N/A	Figure 817 on page 1358, Index **3**
Server assembly, Model 8837-PQZ[3]	N/A	42C3601	Figure 817 on page 1358, Index **3**
System board[4]	22R6177	22R6177	
All other management console server parts	[5]	[5]	[5]

Notes:

1. To replace the part, refer to the *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*.
2. This FRU P/N is a special version of the hard drive. You must replace an RPQ drive with an RPQ drive P/N.
3. Ordering the management console server assembly requires approval from the next level of support. The assembly is not a field replaceable unit for normal repairs. If requested by next level of support, you can order a replacement assembly using the part number that is listed. The new assembly will need to have all code and configuration information loaded onto the hard drive (the same procedure as if you were replacing the hard drive).
4. The management console system board has special firmware for the DS8000. The part number is unique for DS8000, so the standard system board for the X336 should not be used. When you order the part number listed in the *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*, select the option for DS8000 usage. The correct part number will be substituted and sent to you. The system board must be loaded with special BIOS firmware for the DS8000. The replacement part should come with a diskette or CD that contains the firmware and the instructions on how to load it and then restore the machine type, model, and serial number of the MC server. If the CD or instructions are missing, contact the next level of support who should have the downloadable images and instructions on the DS8000 - 2107 Engineering Web site .
5. FRUs not listed in the table are listed in the *xSeries 336 Type 1879 and Type 8837 Hardware Maintenance Manual and Troubleshooting Guide*, chapter 7. The guide contains information (including part numbers) about those FRUs.

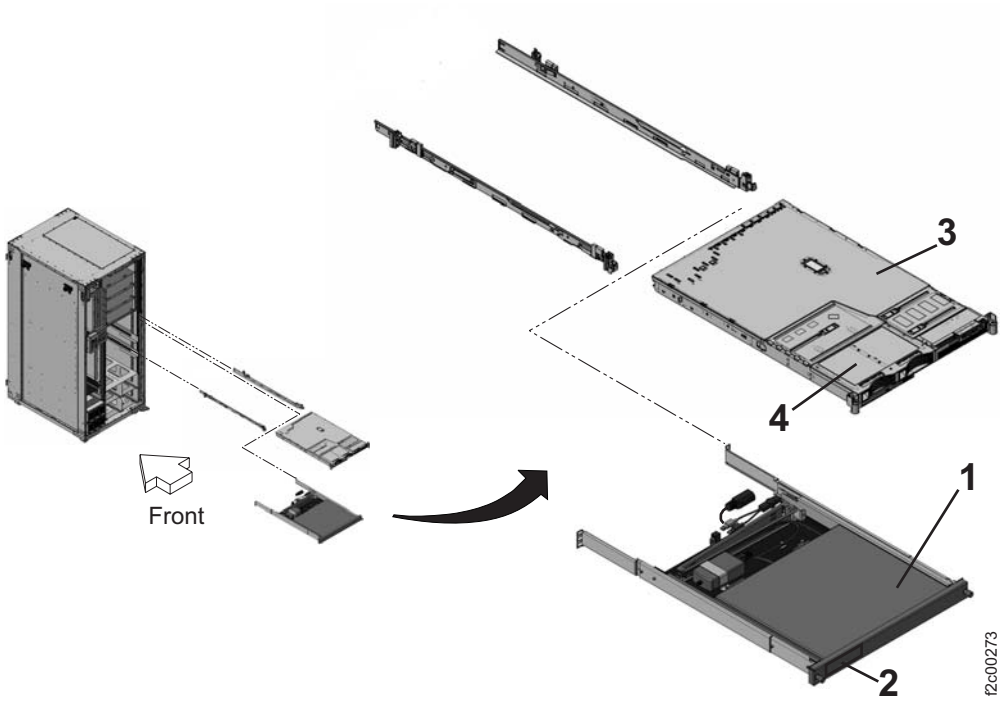


Figure 817. Management console display/keyboard tray (X336 MC server is shown; X335 MC server is similar)

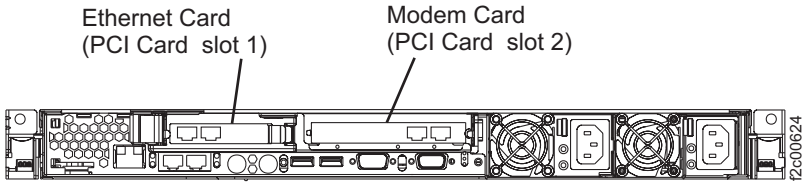


Figure 818. X336 management console (MC) server card slots

Cables for the X336 management console server

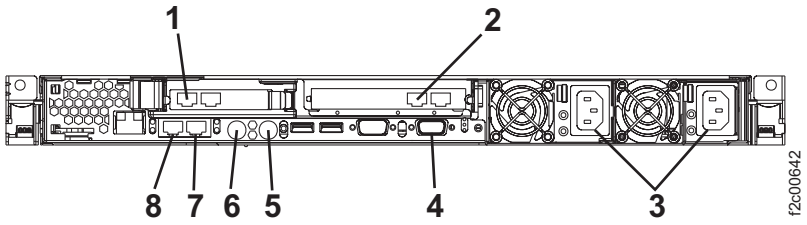


Figure 819. X336 management console (MC) server cables

Table 326. Cables for the X336 management console server

Index	Part name	Part number	
		Version 1	Version 2
1	Cable, Ethernet, 1.0 m, internal HMC (black)	22R0989	22R0989
	Cable, Ethernet, 31.0 m, external HMC (black)	22R1798	22R1798
2	(Phone cable supplied by the customer)	N/A	N/A

Table 326. Cables for the X336 management console server (continued)

Index	Part name	Part number	
		Version 1	**Version 2**
3	Cable (multi-connector power cord)[1]	22R0842	22R5759
4	Cable, video[2]	32P1652[2]	39M2897
5	Cable, keyboard[2]	32P1652[2]	39M2897
6	Cable, mouse[2]	32P1652[2]	39M2897
7	Cable, Ethernet, 1.0 m, internal HMC (gray)	22R0994	22R0994
	Cable, Ethernet, 31.0 m, external HMC (gray)	22R1799	22R1799
8	Ethernet (network cable supplied by the customer)	N/A	N/A

Notes:

1. This cord is hard wired to a junction connector that receives power from both PPSs. The junction connector also supplies power to both Ethernet switches and the display/keyboard tray.
2. Combined keyboard, mouse, and video cable.

Rack brackets, sheetmetal, and covers part numbers

Use the figures and tables below to find information about parts such as rack brackets, sheetmetal, and covers.

Notes:

- Version 1 part numbers are *not* eligible for use in European Union member states.
- Version 2 part numbers are eligible for use everywhere including European Union member states.
- Only the most recent part numbers are listed. Your DS8000 or serviceable event FRU list may contain an older part number. The parts ordering system can automatically substitute a later part number as needed.

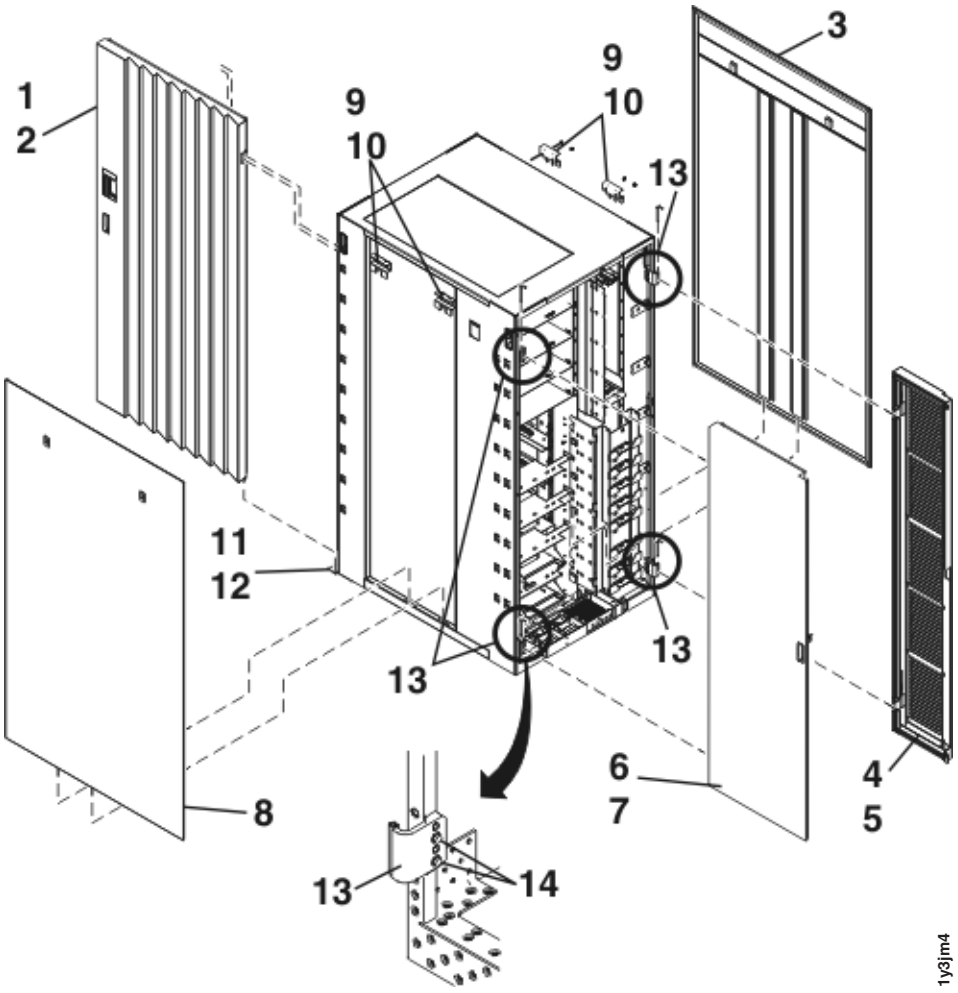


Figure 820. Rack cover parts

Table 327. Rack covers parts

Index	Description	Part number	
		Version 1	Version 2
1	Cover, front, aluminum	22R1404	22R1404
	Cover, front, steel	23R0275	23R0275
2	Screw	54G2882	54G2882
3	Cover, side	22R2975[1]	22R5966[2]
4	Cover, rear, left[3]	22R5956	22R4296
5	Screw (M5x8)	1621381	39J3128
6	Cover, rear, right[3]	22R5958	22R4300
7	Pin, cover hinge	34L2486	22R4298
8	Cover, side	22R2975[1]	22R5966[2]
9	Bracket, side cover-to-rack	22R1728	N/A
10	Screw, side cover bracket	1621842	1621842
11	Bracket, bottom hinge	22R1415	22R4959
12	Screw, bracket-to-frame	23R1520	23R1520

Table 327. Rack covers parts (continued)

Index	Description	Part number	
		Version 1	Version 2
13	Hinge, rear cover	18P4578	18P4578
14	Screw, rear cover hinge-to-frame	23R1520	23R1520

Notes:

1. Two finger latches secure the early version cover (at the side of the rack).
2. Two screws (P/N 31L7540) secure the later version cover (at the top of the rack).
3. Viewed from the front.

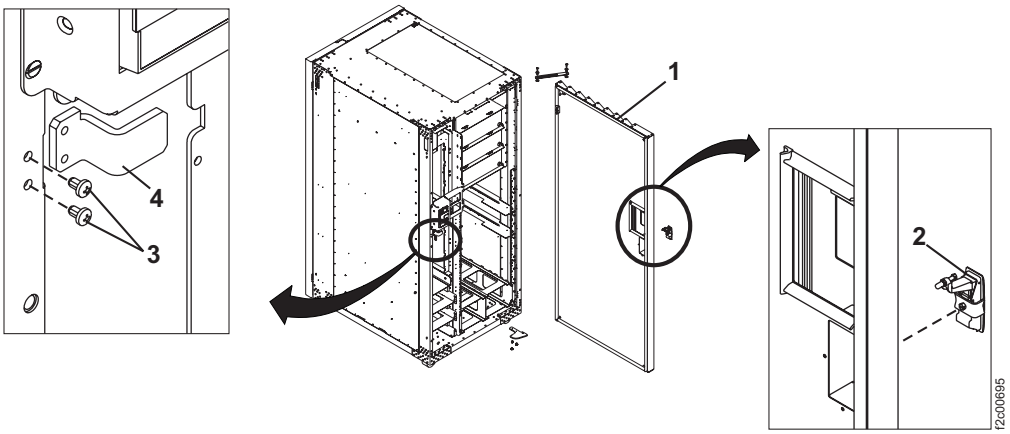


Figure 821. Front cover latch parts

Table 328. Front cover latch parts

Index	Description	Part number	
		Version 1	Version 2
1	Cover, front, aluminum	22R1404	22R1404
	Cover, front, steel	23R0275	23R0275
2	Latch, front cover	21P4054	21P4054
3	Screw, bracket-to-frame	22R0780	22R0780
4	Bracket, front cover latch	31L7545	41V0082

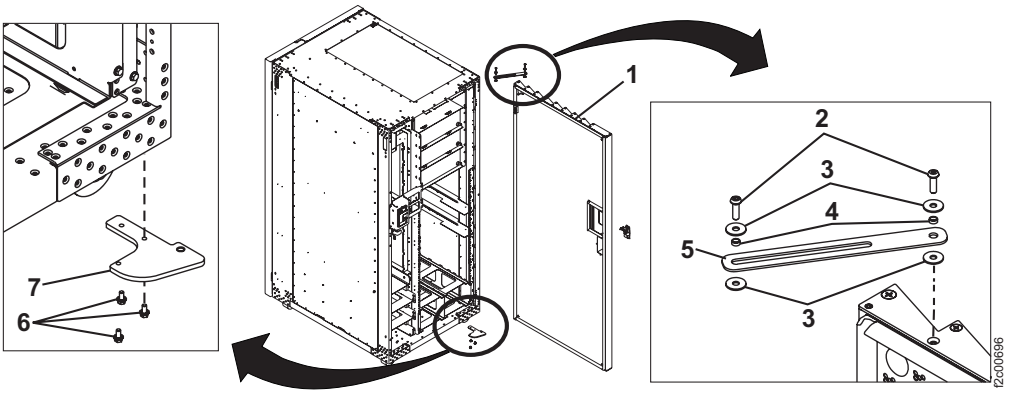


Figure 822. Front cover stop and lower hinge parts

Table 329. Front cover stop and lower hinge parts

Index	Description	Part number	
		Version 1	**Version 2**
1	Cover, front, aluminum	22R1404	22R1404
	Cover, front, steel	23R0275	23R0275
2	Screw, stop strap (M6x20)[1]	22R3604	22R3604
3	Washer, stop strap[1]	22R3496	22R3496
4	Bushing/spacer, stop strap[1]	22R3495	22R3495
5	Bracket, stop strap[1]	22R3481	22R3481
6	Screw, bracket/hinge-to-frame	23R1520	23R1520
7	Bracket/hinge, front cover mount, lower	22R1415	22R4959
Notes: 1. Part of the stop strap kit P/N 23R1261.			

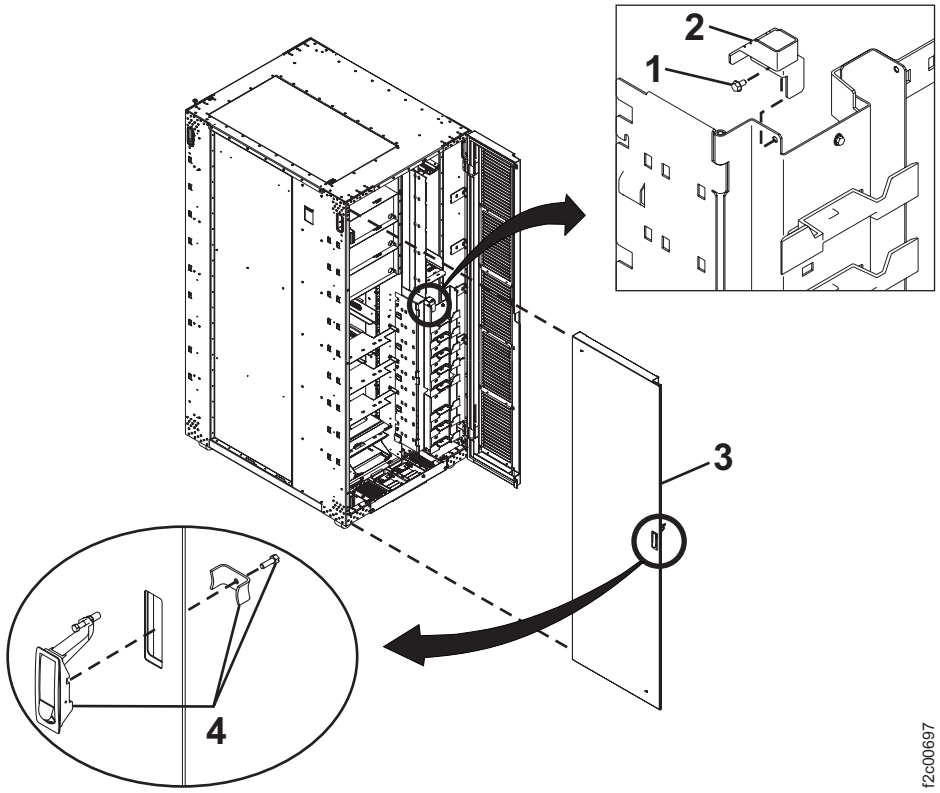


Figure 823. Rear cover latch parts

Table 330. Rear cover latch parts

Index	Description	Part number	
		Version 1	Version 2
1	Screw, bracket-to-frame	23R1520	23R1520
2	Bracket, rear cover latch	23R0871	23R0871
3	Rear cover, right[1]	22R5958	22R4300
4	Latch, rear cover	21P4054	21P4054

Notes:

1. Viewed from the front.

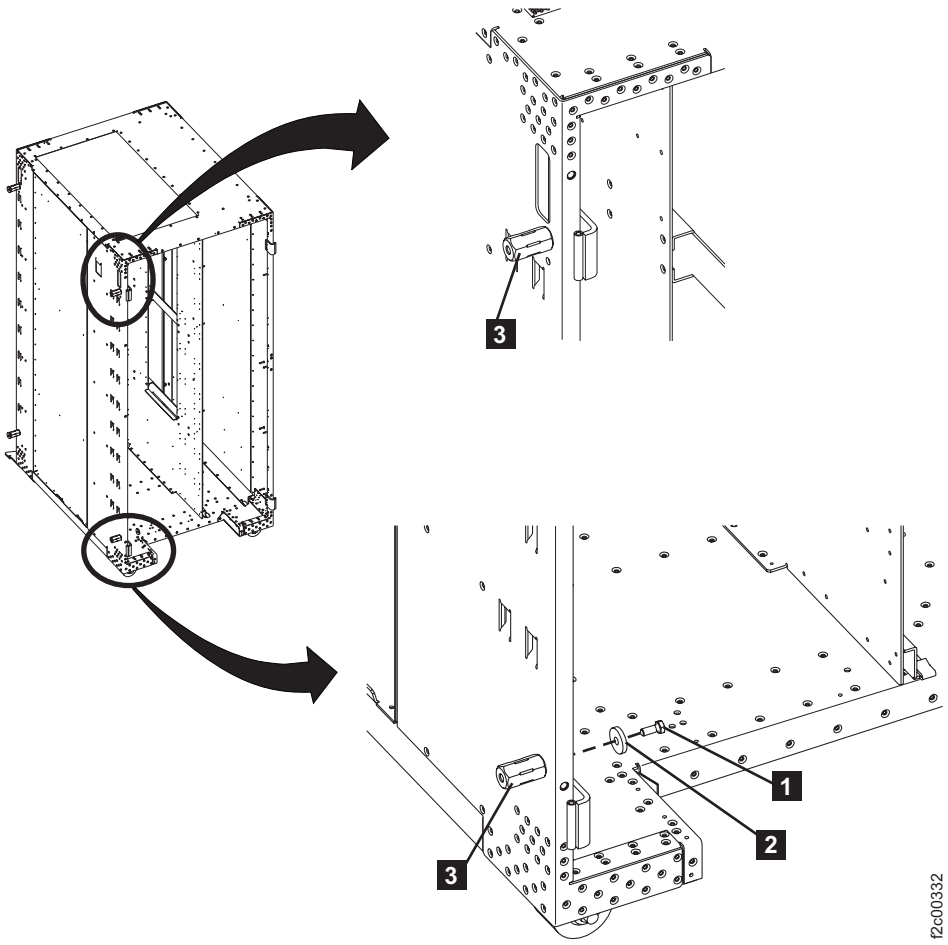


Figure 824. Interrack spacer studs

Table 331. Interrack spacer studs

Index	Description	Part number	
		Version 1	**Version 2**
1	Bolt, interrack spacer stud	1621545	1621545
2	Washer, interrack spacer stud (M8)	84X5850	84X5850
3	Spacer stud, interrack	22R5046	22R5046

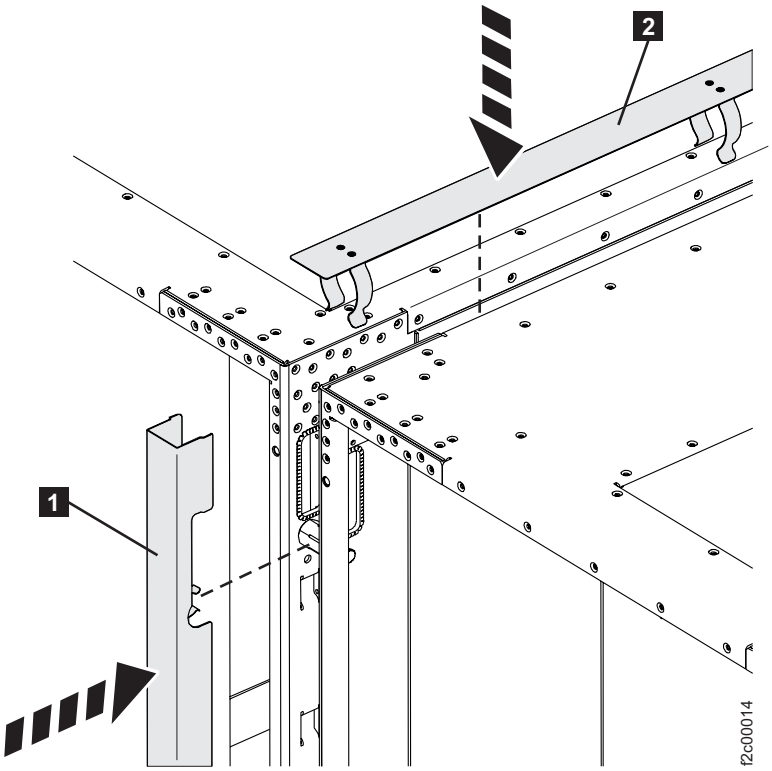


Figure 825. Installing the interrack decorative covers

Table 332. Interrack decorative covers

Index	Description	Part number	
		Version 1	Version 2
1	Cover, interrack decorative, side (one-piece early version)	22R4964	22R4964
	Cover, interrack decorative, side (two-piece/hinged later version)	23R1050[1]	23R1050[1]
2	Cover, interrack decorative, top	22R4962	22R4962

Notes:

1. For details, see Figure 826 on page 1366.

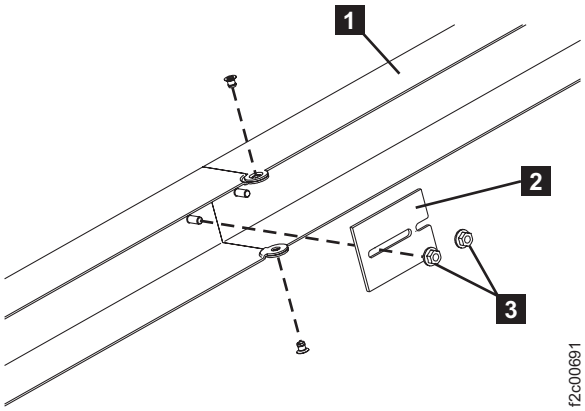


Figure 826. Assembling the later version of the interrack decorative side covers

Table 333. Interrack decorative side covers (later version)

Index	Description	Part number	
		Version 1	Version 2
1	Cover, interrack decorative, side (two-piece/hinged later version)	23R1050	23R1050
2	Bracket	23R2044	23R2044
3	Nut	84X4841	84X4841

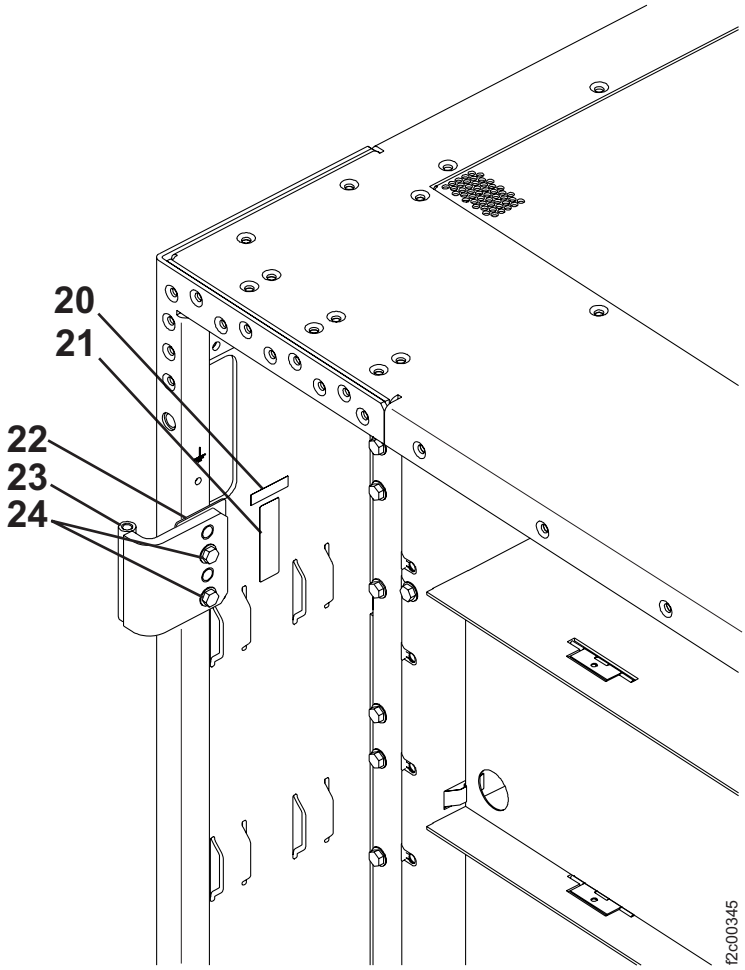


Figure 827. Rack labels

Table 334. Frames and covers labels

Index	Description	Part number	
		Version 1	**Version 2**
20	Label, serial number	05J7400	05J7400
21	Label, barcode serial number	44F0924	44F0924
22	Shim, rear door adjustment	22R2942	22R6151
23	Hinge, rear covers	18P4578	18P4578
24	Screw, rear hinges	54G2882	54G2882

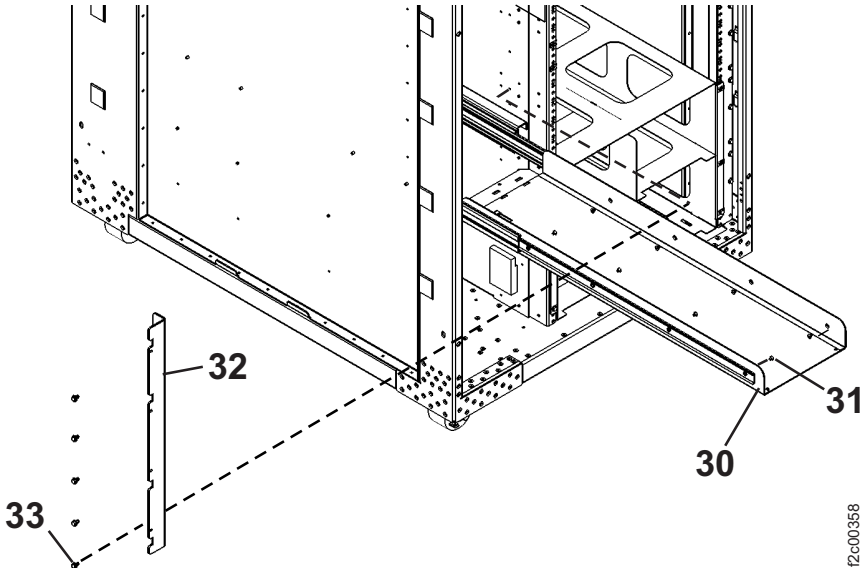


Figure 828. Rack shelves and brackets

Table 335. Frames and covers PPS shelf and bracket

Index	Description	Part number	
		Version 1	Version 2
30	Shelf, PPS	17P7883	22R4942
31	Screw, PPS shelf mounting (M5x6)	1621329	1621329
N/A	Bracket, PPS left (not shown)	17P7885	22R4943
32	Bracket, PPS right	17P7886	22R4944
33	Screw, PPS bracket (M5x8)	1621842	1621842

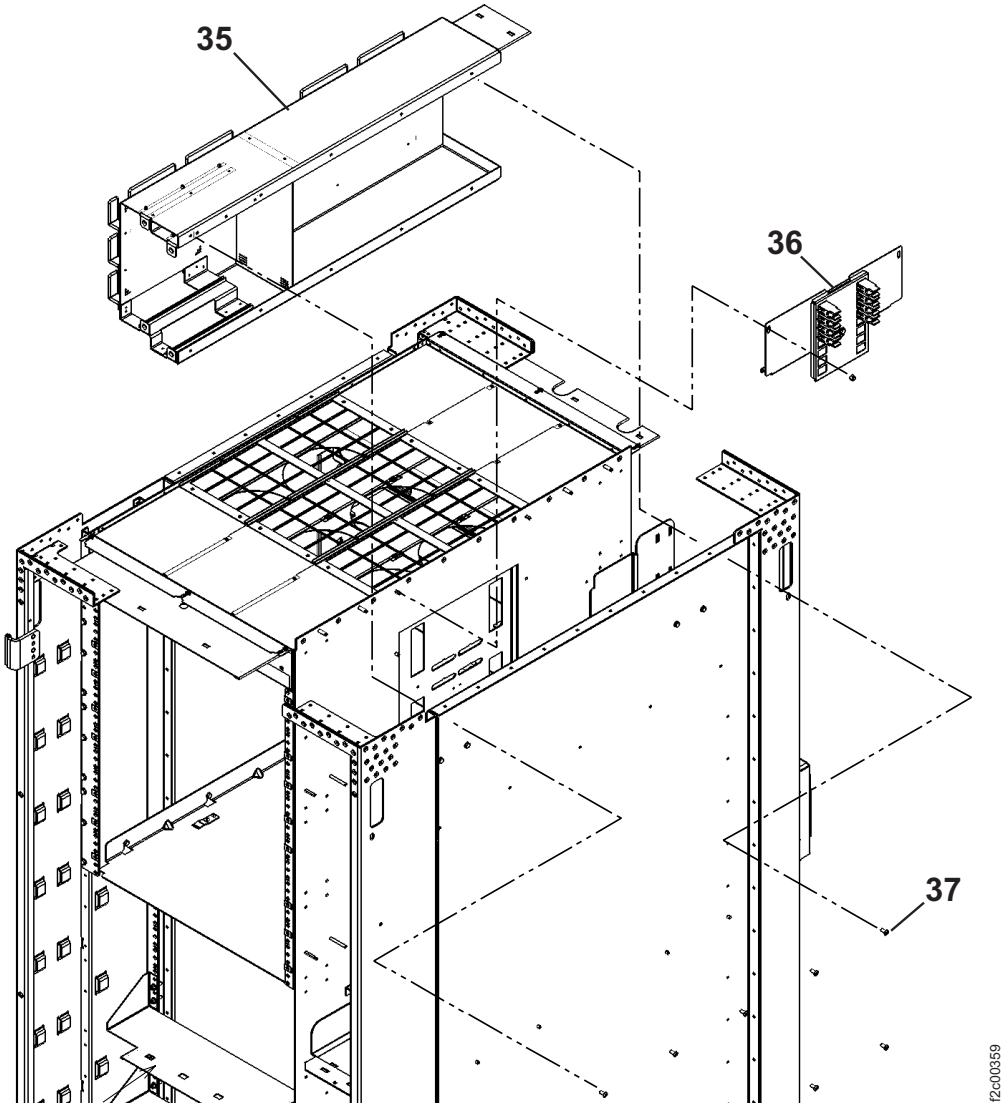


Figure 829. Rack shelves and brackets

Table 336. Frames and covers PPS shelf and bracket

Index	Description	Part number	
		Version 1	Version 2
35	Housing assembly, RPC card	17P7882	22R4940
36	Bracket, cable routing	22R0633	22R6122
37	Rivets, RPC housing	04F1988	04F1988

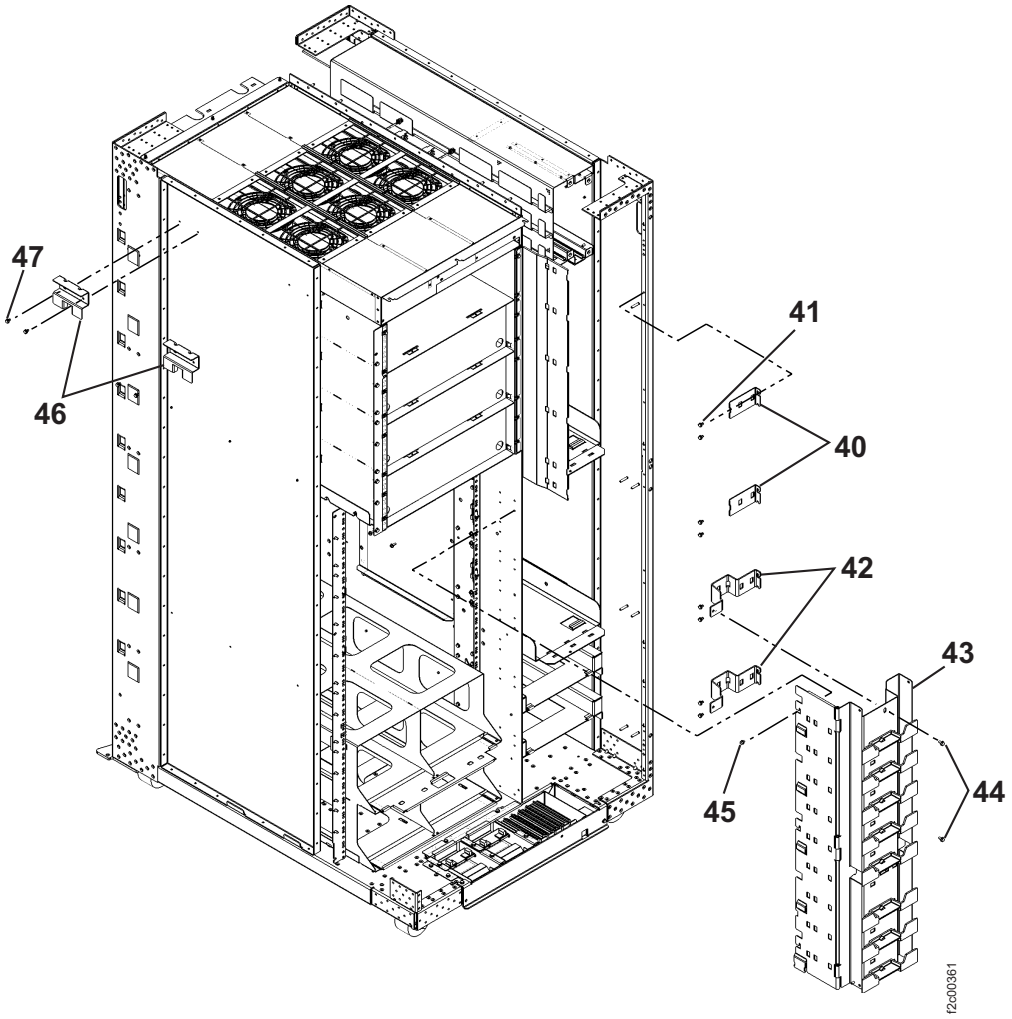


Figure 830. Rack shelves and brackets

Table 337. Frames and covers brackets and screws

Index	Description	Part number	
		Version 1	Version 2
40	Bracket, cable routing	22R0905	22R6135
41	Screw, cable routing bracket	1621842	1621842
42	Bracket, cable routing	22R0906	22R6136
43	Bracket, bus bar	22R0902	22R6132
44	Screw, bus bar	54G2882	54G2882
45	Screw, bus bar	1624775	1624775
46	Bracket, side covers	22R1728	N/A
47	Screw, side cover bracket	1621842	1621842

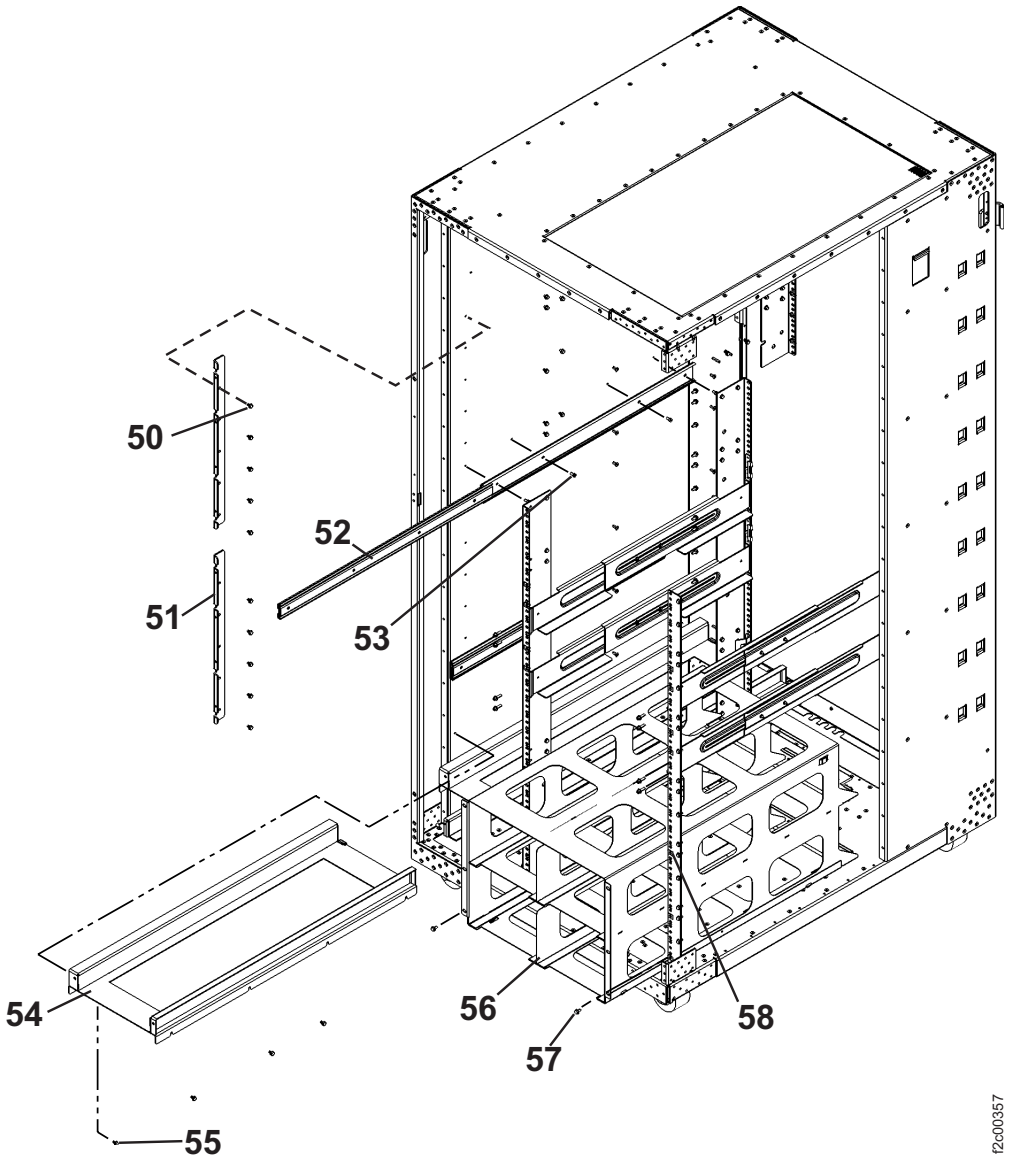


Figure 831. Rack shelves and wrappers

Table 338. Frames and covers shelves and wrappers

Index	Description	Part number	
		Version 1	Version 2
50	Screw	1621842	1621842
51	Bracket, PPS left	17P7885	22R4943
52	Slide, PPS	17P7887	22R4945
53	Screw, PPS slide mounting (M5x8)	22R0780	22R0780
54	Shelf, battery	17P7888	22R4946
55	Screw, battery shelf	1621842	1621842
56	Wrapper, I/O enclosure	23R1338	23R1338
57	Screw, wrapper	54G2882	54G2882
58	Nut clip, wrapper	74F1823	74F1823

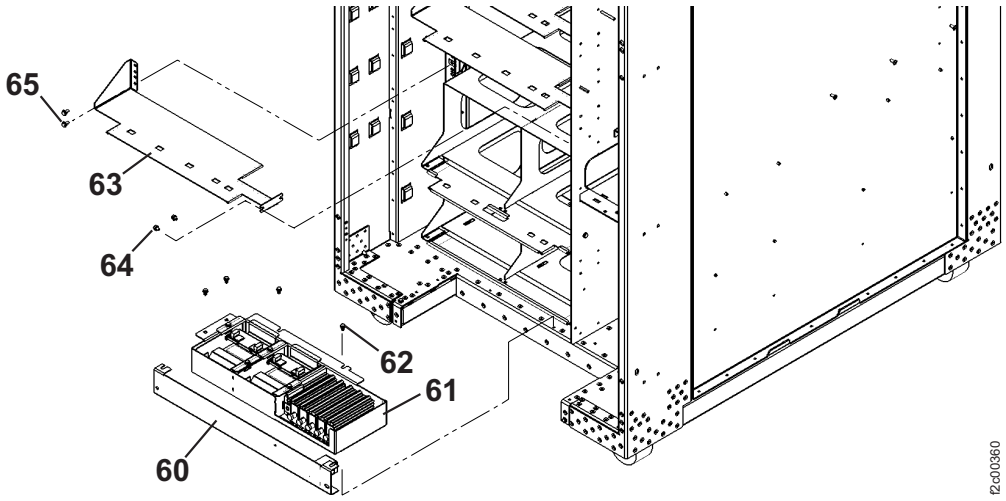


Figure 832. Rack shelves and brackets

Table 339. Frames and covers brackets and screws

Index	Description	Part number	
		Version 1	**Version 2**
60	Tailgate bar	22R3069	23R0039
61	Tailgate assembly, early version	22R0111	N/A
61	Tailgate assembly, later version[1]	23R2456	23R2456
62	Screw, tailgate assembly	1621842	1621842
63	Bracket, cable	17P7890	22R4947
64	Screw, cable bracket	1624775	1624775
65	Screw, cable bracket	54G2882	54G2882

Notes:

1. See Figure 834 on page 1373.

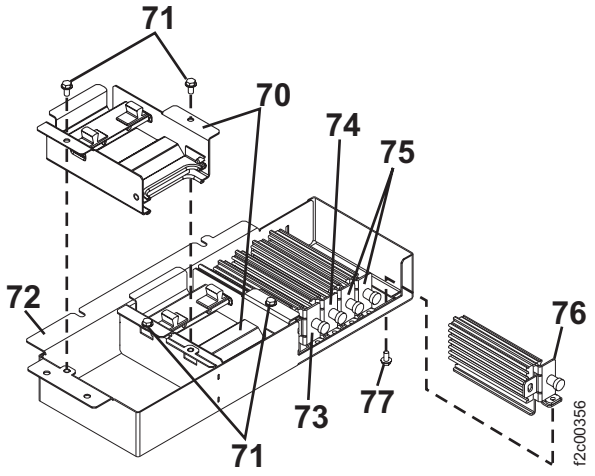


Figure 833. Tailgate parts (early version)

Table 340. Tailgate parts (early version)

Index	Description	Part number	
		Version 1	**Version 2**
70	Bracket, strain relief	22R0113	N/A
71	Screw, strain relief assembly mounting	54G2882	N/A
72	Tailgate frame	22R0112	N/A
73	Tailgate insert (clamping bracket)[1]	07H6823	N/A
74	Tailgate insert (clamping bracket)[2]	07H6822	N/A
75	Tailgate insert (clamping bracket)[3]	44P4450	N/A
76	Tailgate insert (clamping bracket)[4]	44P4451	N/A
77	Screw, tailgate insert mounting	54G2882	N/A

Notes:

1. The rubber pad on the left side of the bracket is 11 mm (0.43 in.) thick.The right pad is 6 mm (0.24 in.) thick.
2. The rubber pad on the left side of the bracket is 9 mm (0.35) thick.The right pad is 6 mm (0.24 in.) thick.
3. The rubber pad on the left side of the bracket is 6 mm (0.24) thick.The right pad is 11 mm (0.43 in.) thick.
4. The rubber pad on each side of the bracket is 11 mm (0.43 in.) thick.

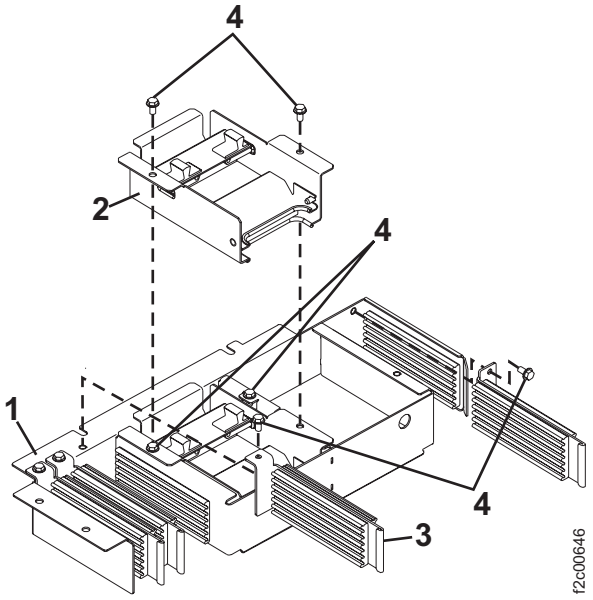


Figure 834. Tailgate parts (later version)

Table 341. Tailgate parts (later version)

Index	Description	Part number	
		Version 1	**Version 2**
1	Tailgate frame	22R2457	22R2457
2	Bracket, strain relief	22R4950	22R4950
3	Tailgate insert (clamping bracket)	[1]	[1]
4	Screw	54G2882	54G2882

Table 341. Tailgate parts (later version) (continued)

Index	Description	Part number	
		Version 1	Version 2
Notes: 1. Call the next level of support.			

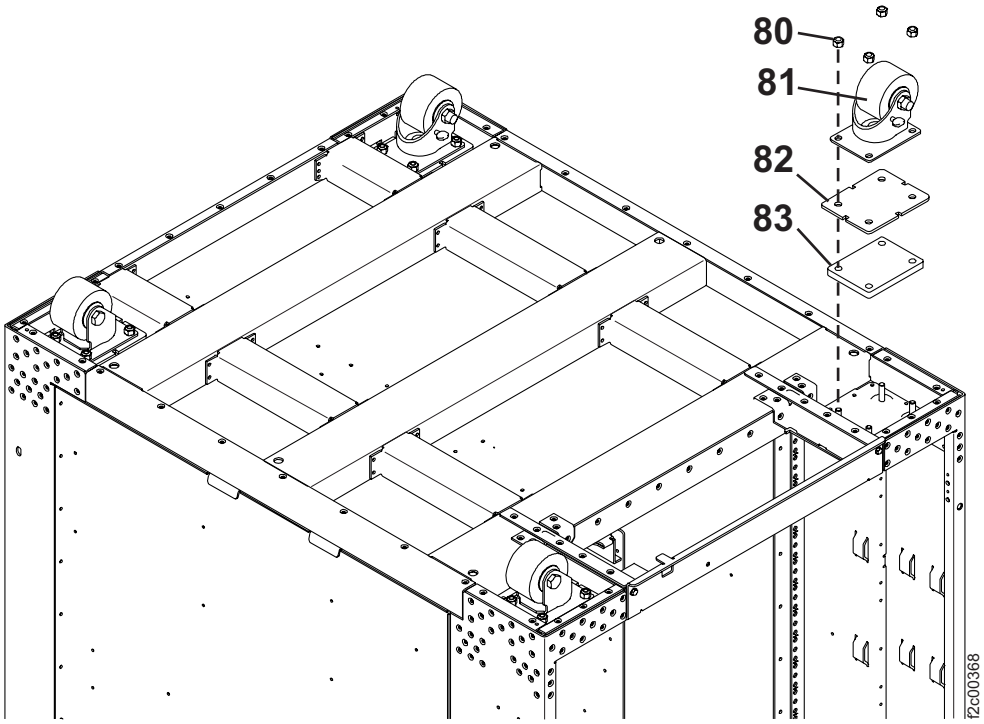


Figure 835. Caster parts

Table 342. Casters

Index	Description	Part number	
		Version 1	Version 2
80	Nut, caster mounting	1622420	1622420
81	Caster	31L7521	22R4156
82	Caster load plate	34L7027	22R4155
83	Caster shock pad	74X3431	22R4154

Rack power and cooling part numbers

Information about rack power and cooling parts is listed below. Use Table 343 on page 1375 as a directory.

Notes:

- Version 1 part numbers are *not* eligible for use in European Union member states.
- Version 2 part numbers are eligible for use everywhere including European Union member states.

- Only the most recent part numbers are listed. Your DS8000 or serviceable event FRU list may contain an older part number. The parts ordering system can automatically substitute a later part number as needed.

Table 343. Start here

Part name	Figure
5/12V DDM power module	Figure 837 on page 1377
Battery module set (a set is three battery modules)	Figure 836 on page 1376
Battery module chassis	Figure 836 on page 1376
Battery module chassis fan	Figure 836 on page 1376
Battery module filler	Figure 836 on page 1376
Booster power module	Figure 837 on page 1377
Bus bar A1, 208VDC, primary	Figure 844 on page 1385
Bus bar B1, 208VDC, primary	Figure 844 on page 1385
Bus bar A2 and B2, 208VDC, secondary	Figure 845 on page 1386
Bus bar A and B, 5/12V, primary	Figure 842 on page 1383
Bus bar A and B, 5/12V, secondary	Figure 842 on page 1383
Bus bar A, 5/12V, primary to 5/12V secondary	Figure 843 on page 1384
Bus bar B, 5/12V, primary to 5/12V secondary	Figure 843 on page 1384
Cables, battery module set	Figure 849 on page 1392
Cables, bus bar, A1, 208VDC, primary	Figure 847 on page 1390
Cables, bus bar, B1, 208VDC, primary	Figure 847 on page 1390
Cables, bus bar, A2, 208VDC, secondary	Figure 847 on page 1390
Cables, bus bar, B2, 208VDC, secondary	Figure 847 on page 1390
Cables, fan sense card	Figure 850 on page 1393
Cables, primary power supply (PPS)	Figure 846 on page 1387
Cables, rack identity card	Figure 852 on page 1395
Cables, rack operator panel UEPO switch assembly	Figure 853 on page 1396
Cables, RPC card	Figure 854 on page 1397
DASD fan tray assembly	Figure 839 on page 1380
Fan sense card	Figure 838 on page 1379
Local remote switch card	Figure 839 on page 1380
Primary power supply	Figure 837 on page 1377
Primary power supply fan	Figure 837 on page 1377
Rack identity card	Figure 839 on page 1380
Rack operator panel UEPO switch assembly	Figure 840 on page 1381
RPC card	Figure 838 on page 1379
Sequencer module	Figure 837 on page 1377
zSeries local remote switch card	Figure 839 on page 1380
All other parts	(Find the appropriate figure below)

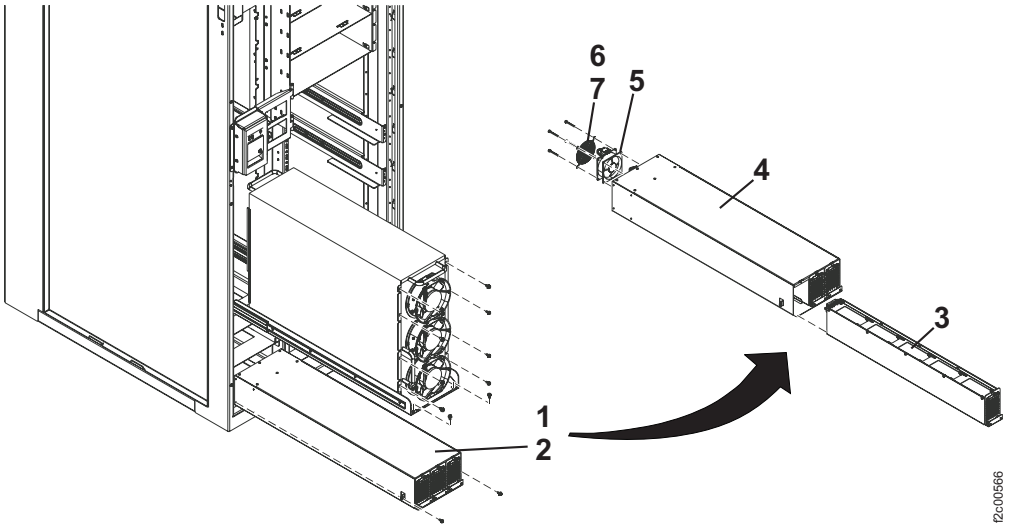


Figure 836. Battery module parts

Table 344. Battery module parts

Index	Part name	Part number	
		Version 1	Version 2
1	Battery module chassis	22R1129	22R4417
2	Screw	54G2882	54G2882
3	Battery module filler	22R1015	23R0207
3	Battery module set (three modules)	22R0328	22R4420
4	Battery module frame (not a FRU)	[1]	[1]
5	Battery module chassis fan	17P7656	22R4419
6	Fan guard, battery module chassis	93H6016	93H6016
7	Screw	1621200	1621200

Notes:

1. Call your next level of support.

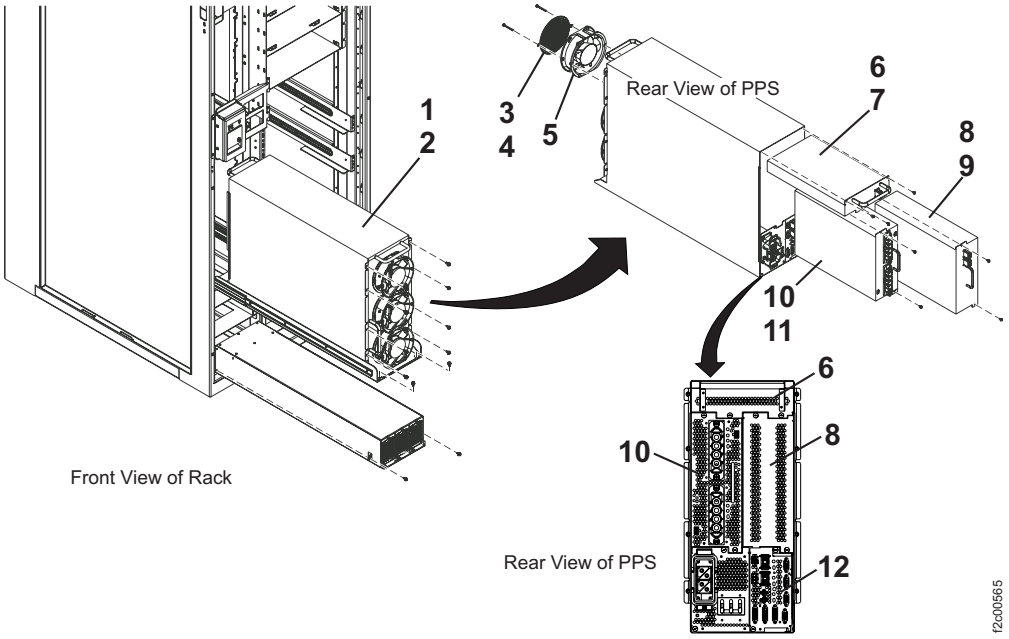


Figure 837. PPS parts

Table 345. PPS parts

Index	Part name	Part number	
		Version 1	Version 2
1	Primary power supply (PPS) A base PPS contains the following parts: • 208VDC base module • 5/12V DDM power module • AC input power module • PFC module • Sequencer module	22R2350	22R4215
2	Screw	54G2882	54G2882
3	Fan guard	18P4733	22R5052
4	Screw, fan guard	1621289	22R6069
5	PPS Fan	17P7389	22R4210
6	Booster power module (optional)	22R2349	22R4208
7	Screw	54G2882	54G2882
8	5/12V DDM power module[1] (optional)	22R1409	22R4207
8	Cover[2]	17P7450	22R4212
9	Screw	[3]	[3]
10	5/12V DDM power module	22R1409	22R4207
11	Screw	[3]	[3]

Table 345. PPS parts (continued)

Index	Part name	Part number	
		Version 1	**Version 2**
12	Sequencer module **Note:** The sequencer module is only replaced by itself if the PPS failed during a LIC code firmware CDA update. In this special case, the firmware in the sequencer module is probably corrupted. "MAP20A0 Protected 208 VDC is Off" on page 560 is the only MAP that can call the sequencer module as a FRU. For all other repairs, replace the part listed in the serviceable event FRU list or isolation MAP.	22R5730	23R0639
Notes: 1. Expansion rack with room for 16 storage enclosures. 2. Expansion rack with room for eight storage enclosures. 3. Call your next level of support.			

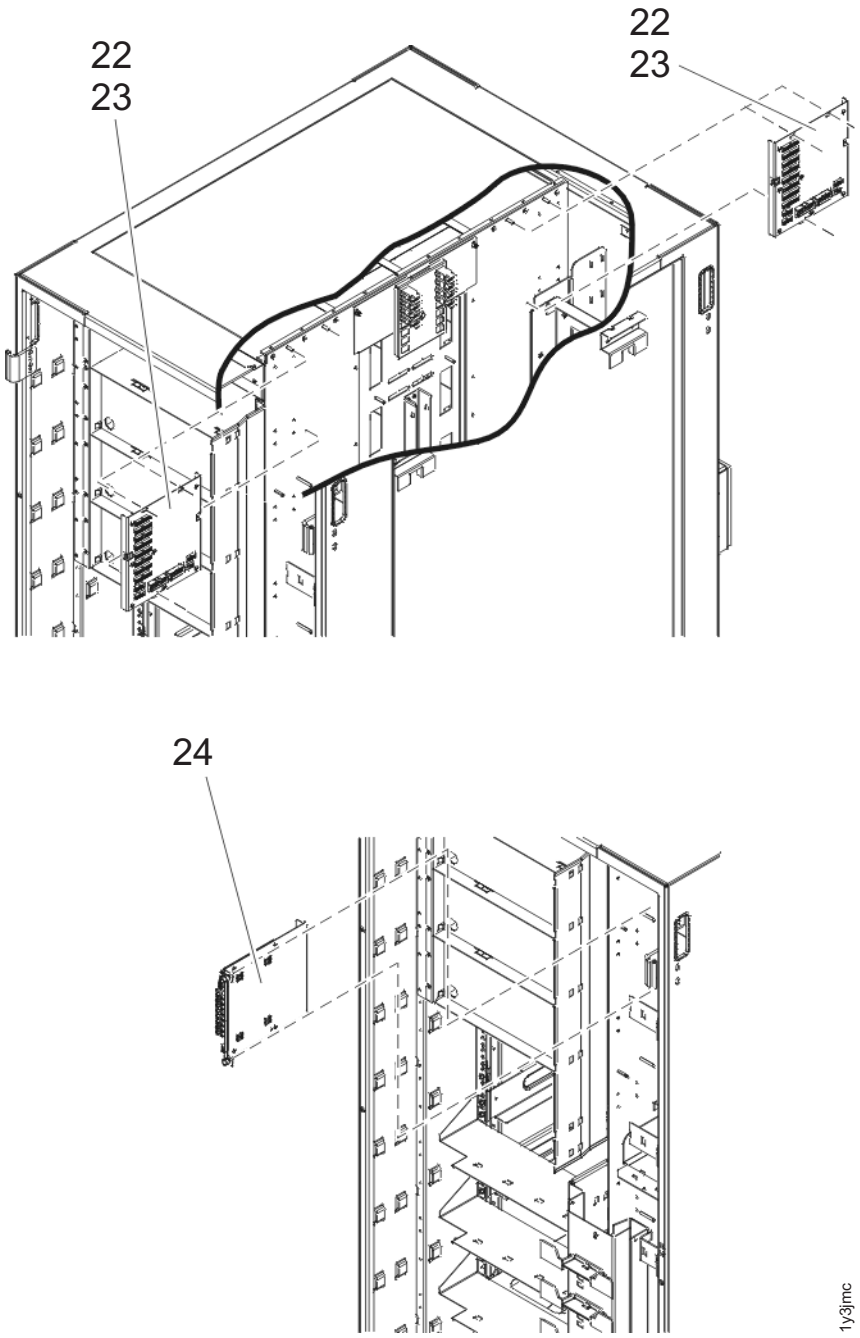


Figure 838. Rack power and cooling parts (continued)

Table 346. Rack power and cooling parts (1 of 3)

Index	Part name	Part number	
		Version 1	Version 2
22	Fan sense card	22R1784	22R4917
23	Screw	1621842	1621842
24	RPC card	24R1414	95P1959

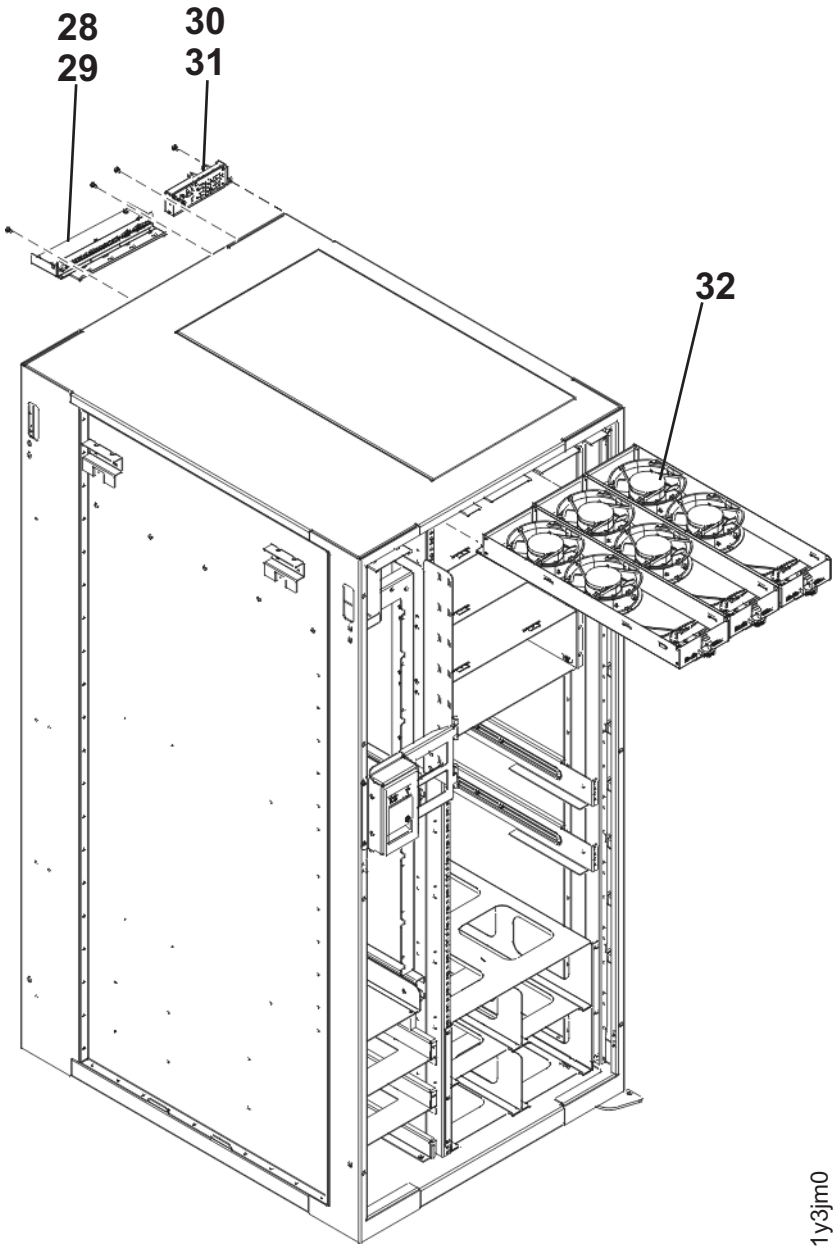


Figure 839. Rack power and cooling parts (continued)

Table 347. Rack power and cooling parts (2 of 3)

Index	Part name	Part number	
		Version 1	Version 2
28	Rack identity card	22R1498	22R5740
29	Screw	54G2882	54G2882
30	Card, local remote switch	24R1385	95P1963
30	Card, zSeries local remote switch	24R1384	95P1962
31	Screw	54G2882	54G2882
32	DASD fan tray assembly	22R4022	22R5051

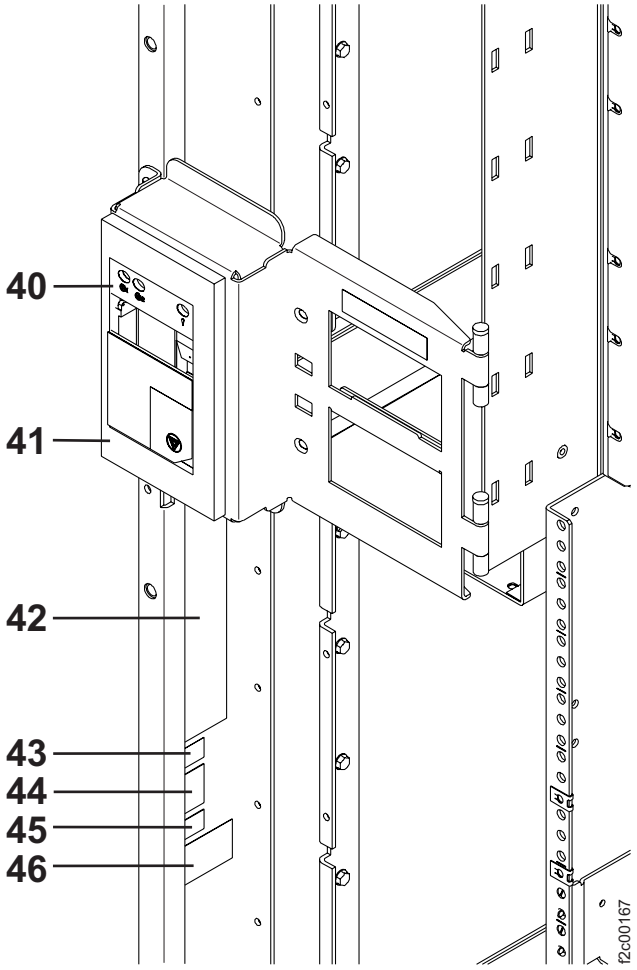


Figure 840. Rack power and cooling parts (continued)

Table 348. Rack power and cooling parts (3 of 3)

Index	Part name	Part number	
		Version 1	Version 2
40	Rack operator panel UEPO switch assembly	22R0203	22R5741
41	Cover gasket	22R1453	22R1453
42	Label, agency	22R1790	22R1790
43	Label, country of origin, Hungary	53P5888	53P5888
43	Label, country of origin, US	44P3946	44P3946
44	Label, IBM logo	97P2549	97P2549
45	Label, manufacturing site, Hungary	22R1805	22R1805
45	Label, manufacturing site, San Jose, CA	22R1804	22R1804
46	Label, Nordic	97P5092	97P5092

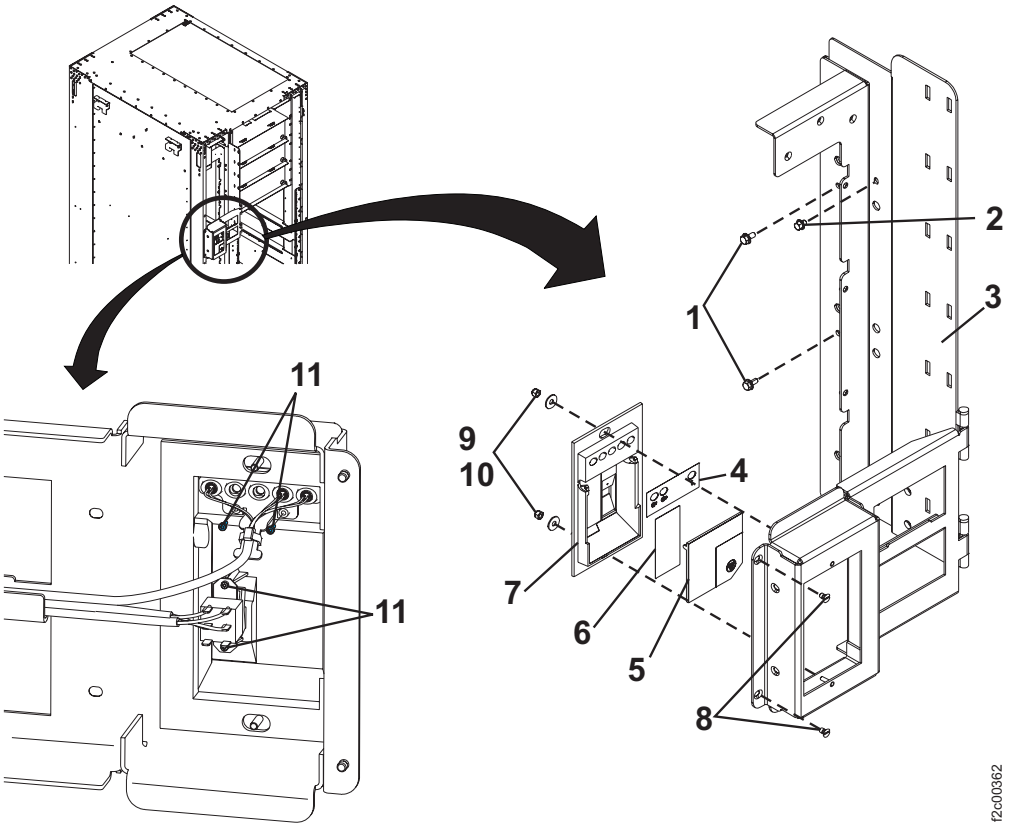


Figure 841. Rack operator panel UEPO switch assembly parts

Table 349. Parts of the rack operator panel UEPO switch assembly

Index	Part name	Part number	
		Version 1	Version 2
1	Screw, operator panel gate	54G2882	54G2882
2	Screw, operator panel gate	1624775	1624775
3	Operator panel gate	22R3734	22R4905
4	Label, operator panel	22R5887	22R5887
5	Door, operator panel, early version[1]	22R0179	N/A
	Door, operator panel, later version[1]	N/A	22R3997
6	Label, emergency switch	22R1047	22R1047
7	Housing, operator panel, early version[1]	22R0178	N/A
	Housing, operator panel, later version[1]	N/A	22R3996
8	Screw, operator panel gate[2]	1621319	1621319
9	Lock nut, housing mounting	1622417	1622417
10	Washer, housing mounting	1622276	1622276
11	Screw, connector-to-housing	1622660	1622660

Notes:

1. On the early version, nipples on the door pivot on holes in the housing. On the later version, holes in the door pivot on nipples on the housing. An early version door will not work with a later version housing and vice versa.
2. Keeps the gate closed.

Parts of the rack power and cooling bus bars

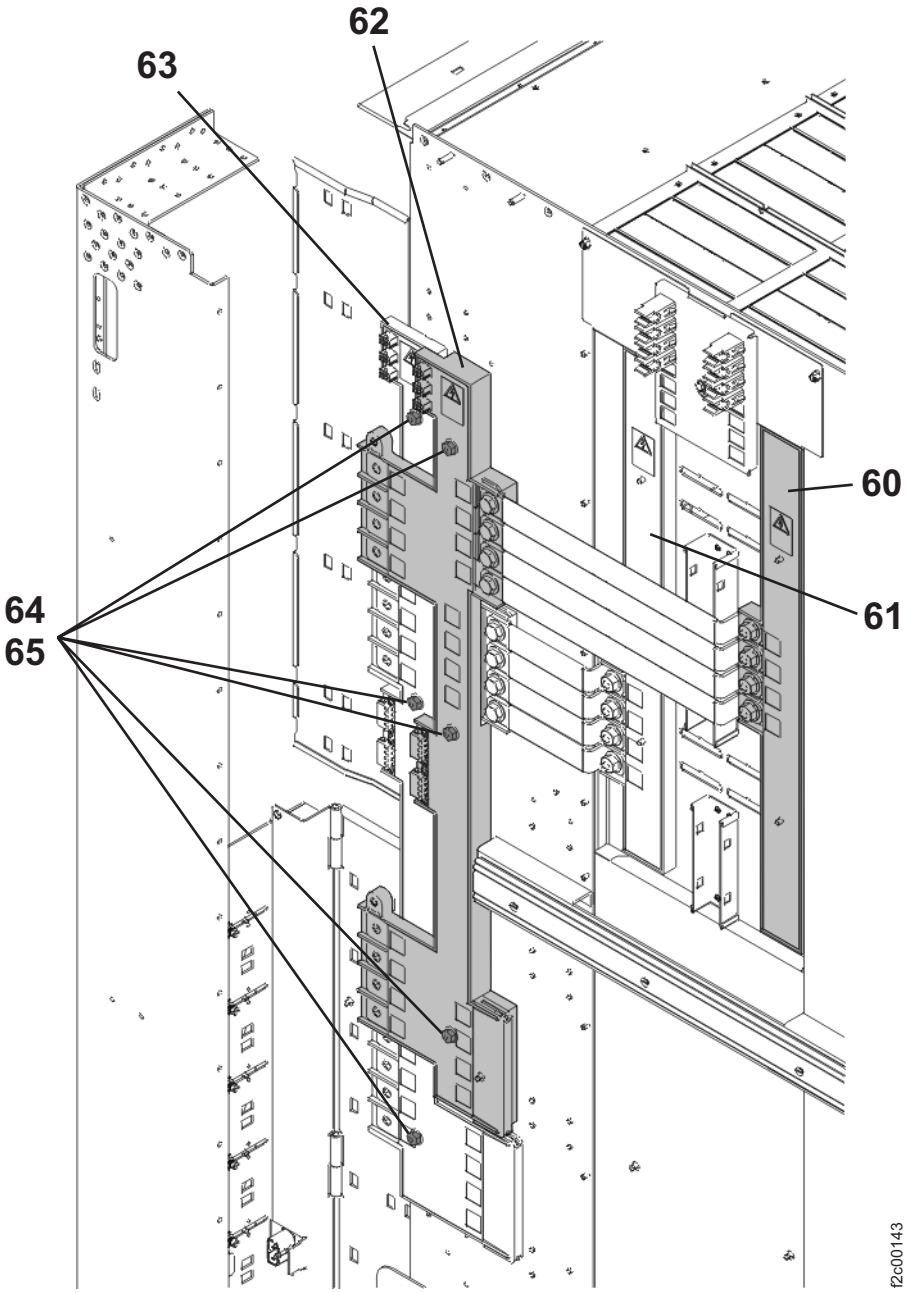


Figure 842. Rack power and cooling parts (continued)

Table 350. Parts of the rack power and cooling bus bars (1 of 4)

Index	Part name	Part number	
		Version 1	Version 2
60	Bus bar A, 5/12V, primary	22R0060	22R6100
61	Bus bar B, 5/12V, primary	22R0061	22R6101
62	Bus bar A, 5/12V, secondary	22R0073	22R6102
63	Bus bar B, 5/12V, secondary	22R0074	22R6103

Table 350. Parts of the rack power and cooling bus bars (1 of 4) (continued)

Index	Part name	Part number	
		Version 1	Version 2
64	Washer	1622276	1622276
65	Lock nut	1622418	1622418

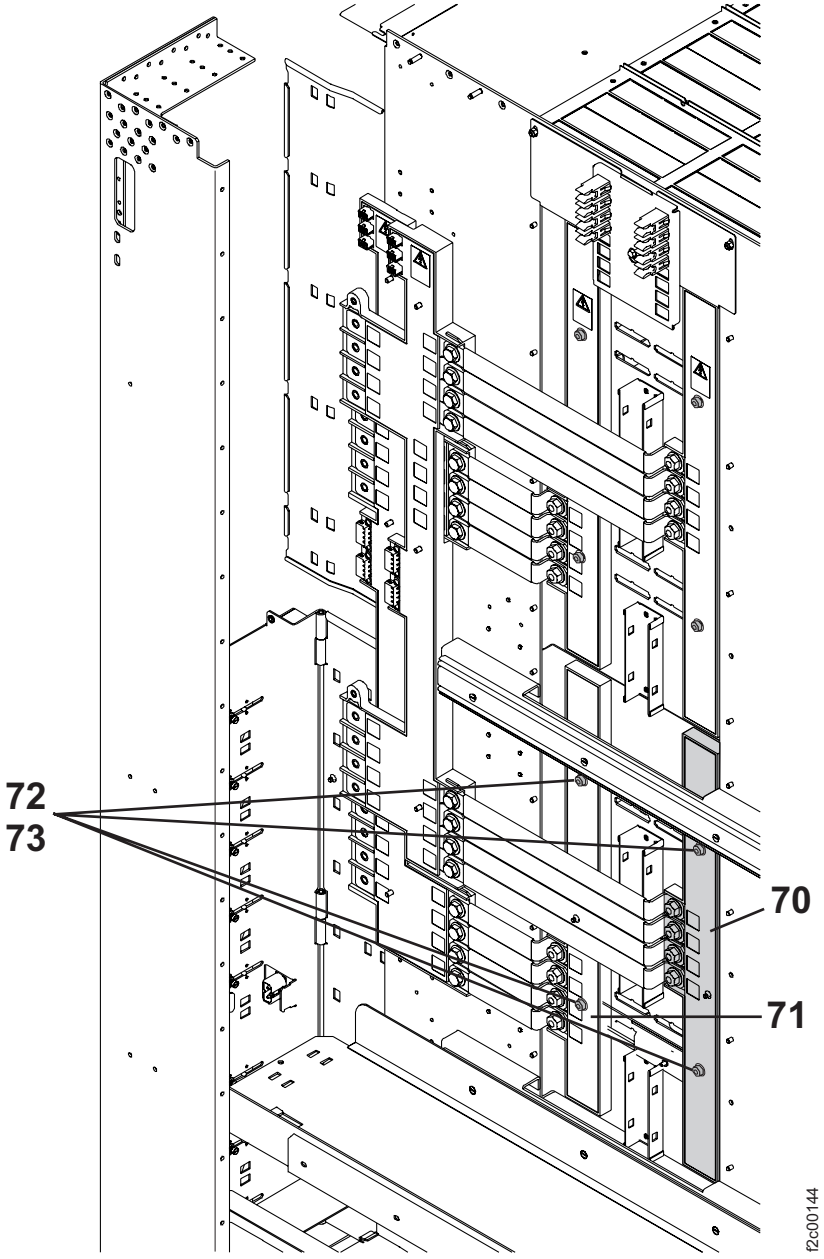


Figure 843. Rack power and cooling parts (continued)

Table 351. Parts of the rack power and cooling bus bars (2 of 4)

Index	Part name	Part number	
		Version 1	Version 2
70	Cable, bus bar -to- bus bar	22R0062	22R6104
71	Cable, bus bar -to- bus bar	22R0063	22R6105
72	Washer	1622276	1622276
73	Lock nut	1622418	1622418

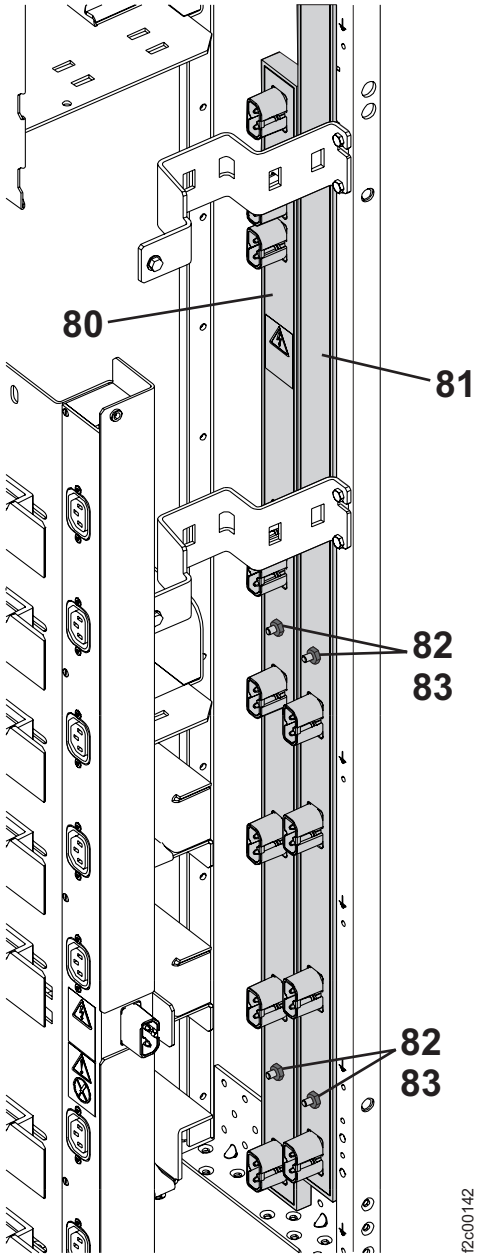


Figure 844. Rack power and cooling parts (continued)

Table 352. Parts of the rack power and cooling bus bars (3 of 4)

Index	Part name	Part number	
		Version 1	Version 2
80	Bus bar B1, 208VDC, primary	22R0221	22R6125
81	Bus bar A1, 208VDC, primary	22R0220	22R6124
82	Washer	1622276	1622276
83	Lock nut	1622418	1622418

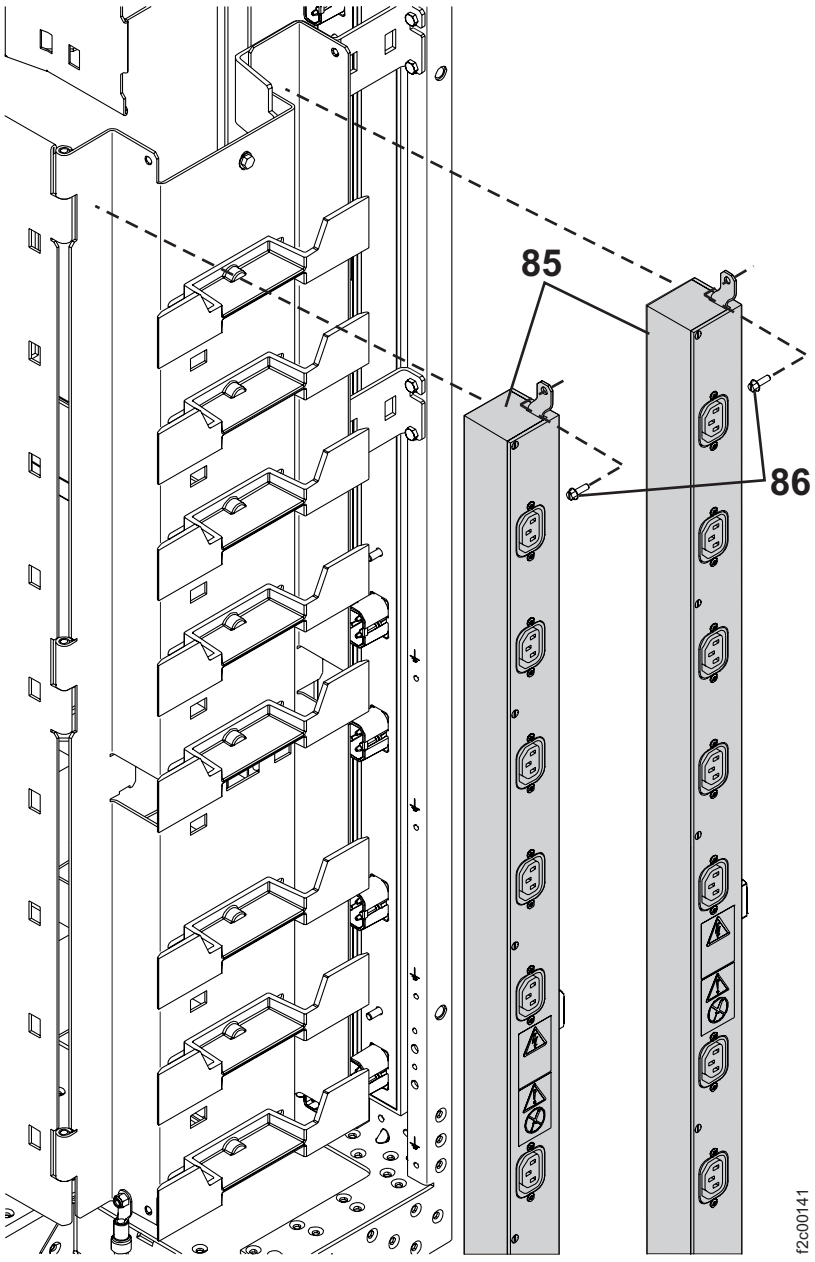


Figure 845. Rack power and cooling parts (continued)

Table 353. Parts of the rack power and cooling bus bars (4 of 4)

Index	Part name	Part number	
		Version 1	Version 2
85	Bus bar A2 and B2, 208VDC, secondary	22R0222	22R6126
86	Screw	54G2882	54G2882

Cables for rack power and cooling parts

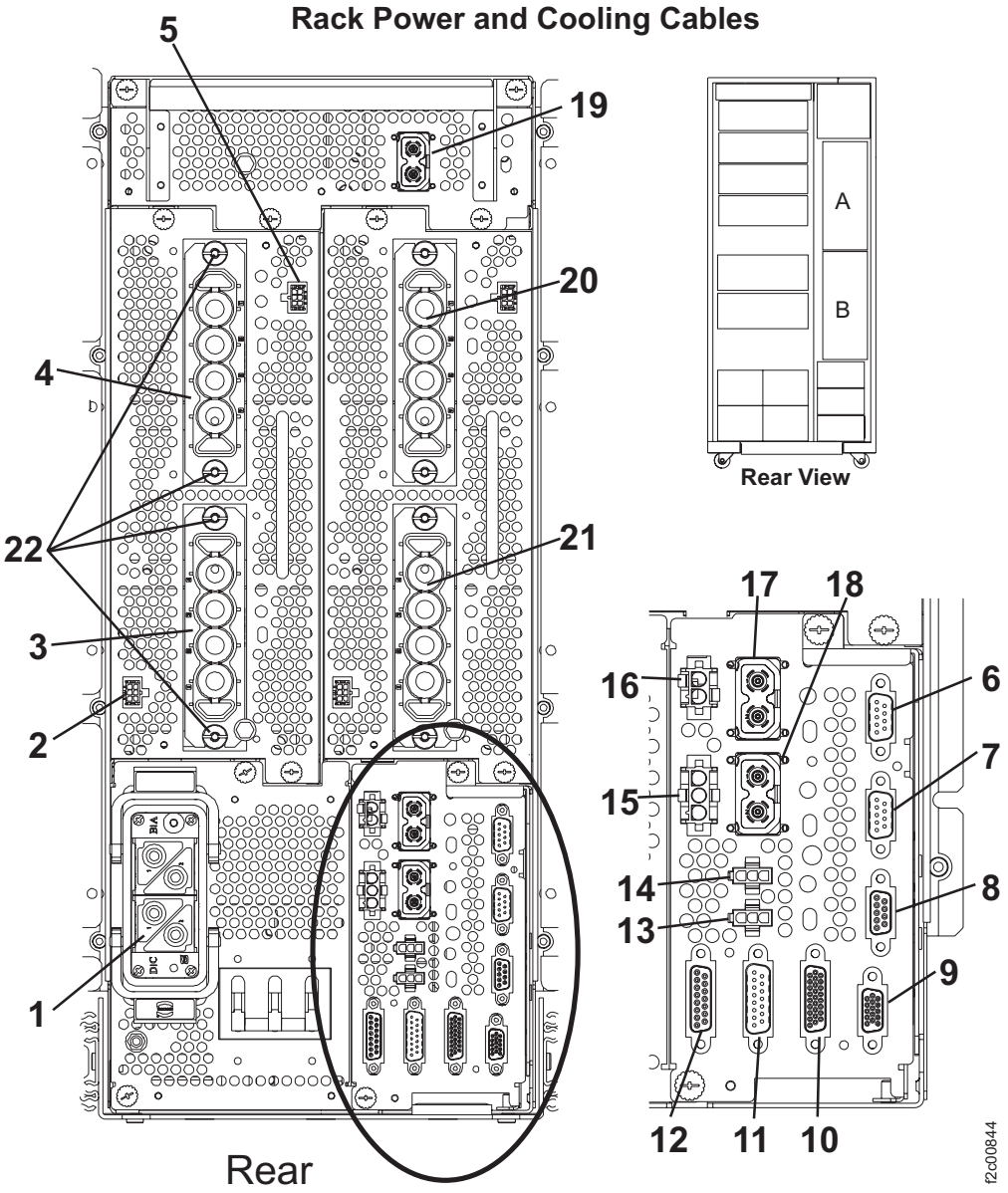


Figure 846. Rack power and cooling cables

Table 354. Cables for rack power and cooling parts

Index	Part name	Part number	
		Version 1	Version 2
1	Cable, power (3-phase), long (PPS 1), EMEA (17.5 feet)	22R3795	22R3795
	Cable, power (3-phase), long (PPS 1), 60A Japan (17.5 feet)	22R2224	22R2224
	Cable, power (3-phase), long (PPS 1), non-EMEA (17.5 feet)	22R2222	22R2222
	Cable, power (3-phase), long (PPS 1), 60A Chicago (9.5 feet)	22R1189	22R1189
	Cable, power (3-phase), short (PPS 2), EMEA (15.8 feet)	22R3794	22R3794
	Cable, power (3-phase), short (PPS 2), 60A Japan (15.8 feet)	22R1191	22R1191
	Cable, power (3-phase), short (PPS 2), non-EMEA (15.8 feet)	22R1190	22R1190
	Cable, power (3-phase), short (PPS 2), 60A Chicago (7.7 feet)	22R1188	22R1188
2	Cable, PPS 1 -to- 5/12V bus bar	22R0386	22R6116
	Cable, PPS 2 -to- 5/12V bus bar	22R0387	22R6117
3	Cable, PPS -to- 5/12V bus bar Base rack only	22R0119	22R6106
	Cable, PPS -to- 5/12V bus bar Expansion rack only	22R0121	22R6108
4	Cable, PPS -to- 5/12V bus bar Base rack only	22R0119	22R6106
	Cable, PPS -to- 5/12V bus bar *x* Expansion rack only	22R0120	22R6107
5	Cable, PPS 1 -to- 5/12V bus bar	22R0384	22R6114
	Cable, PPS 2 -to- 5/12V bus bar	22R0385	22R6115
6	Cable, PPS -to- RPC card (except Rack-1)	22R0629	22R6139
	Cable, PPS -to- RPC card (Rack 1)	22R0420	22R6147
7	Cable, PPS -to- RPC card (except Rack-1)	22R0630	22R6140
	Cable, PPS -to- RPC card (Rack 1)	22R0421	22R6148
8	Cable, PPS 1 -to- rack identity card	22R0626	22R5756
	Cable, PPS 2 -to- rack identity card	22R0627	22R5757
9	Cable, PPS -to- PPS	22R0606	22R5754
10	Cable, PPS 1 -to- fan sense card	22R0209	22R5743
	Cable, PPS 2 -to- fan sense card	22R0210	22R5744
11	Cable, PPS 1 -to- fan sense card	22R0212	22R5746
	Cable, PPS 2-to- fan sense card	22R0213	22R5747
12	Cable, PPS 1 -to- battery module	22R1771	22R5752
	Cable, PPS 2 -to- battery module	22R1772	22R5753
13	Cable (multi-connector power cord)[1]	22R0842	22R5759

Table 354. Cables for rack power and cooling parts (continued)

Index	Part name	Part number	
		Version 1	**Version 2**
14	Cable (multi-connector power cord)[1]	22R0842	22R5759
15	Cable, PPS 1-to- battery module	22R2190	22R5749
	Cable, PPS 2 -to- battery module	22R2191	22R5750
16	Cable, PPS -to- rack operator panel UEPO switch	22R0203	22R5741
19	Cable, PPS -to- 208V bus bar	22R0364	22R6127
20	Cable, PPS -to- 5/12V bus bar *x* Expansion rack only	22R0120	22R6107
21	Cable, PPS -to- 5/12V bus bar Expansion rack only	22R0121	22R6108
22	Screw, 5/12V cable retention	22R0123	22R0123

Notes:

1. This cable is hardwired to a junction connector that provides power to the Ethernet switches, the display/ keyboard tray, and the management console. The junction box also receives power from the other PPS via this cord.

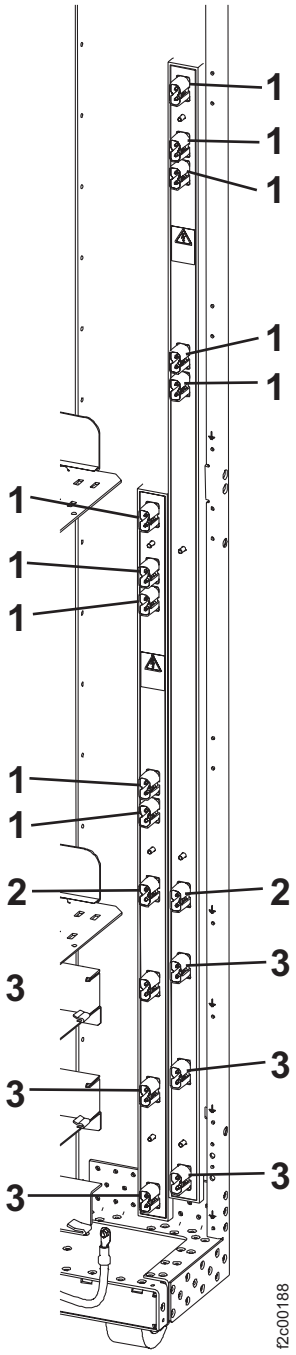


Figure 847. Rack power and cooling 208VDC bus bars (A1 and B1)

Table 355. Cables for 208V bus bars A1 and B1

Index	Part name	Part number	
		Version 1	Version 2
1	Cable, 208V bus bar -to- PPS	22R0364	22R6127
2	Cable, 208V bus bar A1 -to- 208V bus bar A2	22R0900	22R6129
	Cable, 208V bus bar B1 -to- 208V bus bar B2	22R0901	22R6130
3	Cable, 208V bus bar -to- battery module	22R0365	22R6128

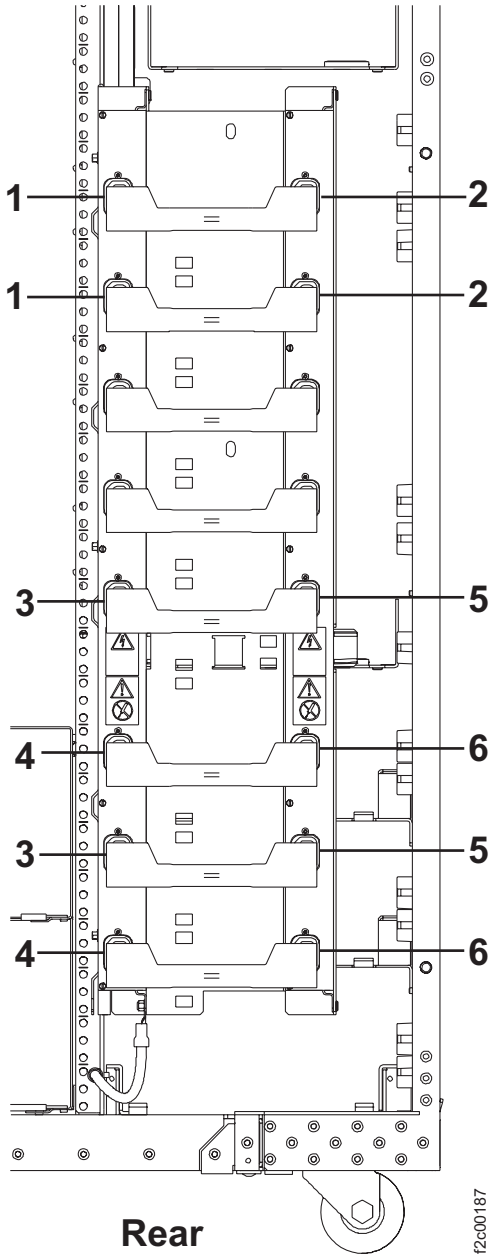


Figure 848. Rack power and cooling 208VDC bus bars (A2 and B2)

Table 356. Cables for 208V bus bars A2 and B2

Index	Part name	Part number	
		Version 1	Version 2
1	Cable, 208V bus bar -to- CEC enclosure power supply	22R0976	22R5828
2	Cable, 208V bus bar -to- CEC enclosure power supply	22R0977	22R5829
3	Cable, 208V bus bar -to- I/O enclosure power supply	22R0972	22R5832
4	Cable, 208V bus bar -to- I/O enclosure power supply	22R0974	22R5834

Table 356. Cables for 208V bus bars A2 and B2 (continued)

Index	Part name	Part number	
		Version 1	Version 2
5	Cable, 208V bus bar -to- I/O enclosure power supply	22R0971	22R5831
6	Cable, 208V bus bar -to- I/O enclosure power supply	22R0973	22R5833

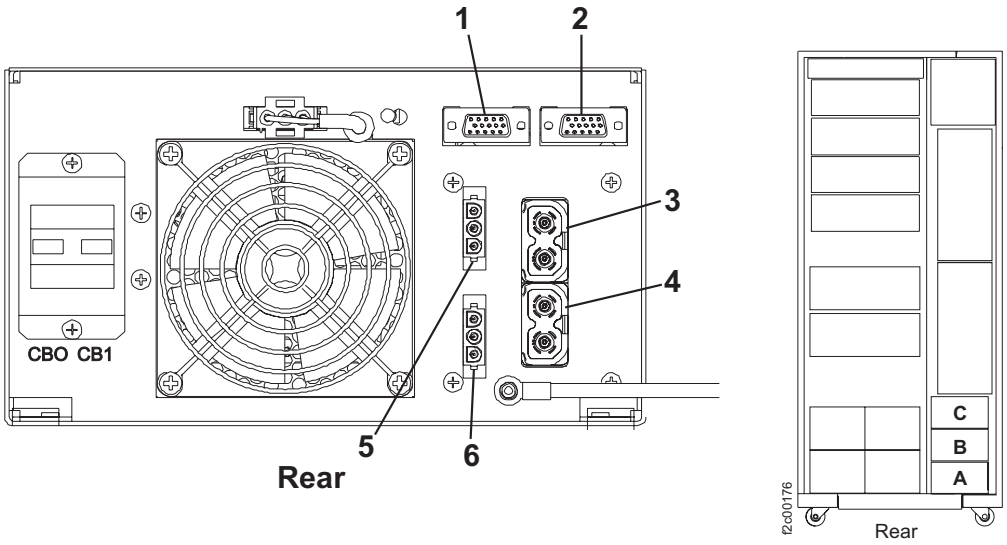


Figure 849. Rack power and cooling battery module set cables

Table 357. Cables for a battery module set

Index	Part name	Part number	
		Version 1	Version 2
1-2	Cable, battery module -to- PPS 1	22R1771	22R5752
	Cable, battery module -to- PPS 2	22R1772	22R5753
3-4	Cable, battery module -to- 208V bus bar	22R0365	22R6128
5	Cable, battery module -to- PPS 1	22R2190	22R5749
6	Cable, battery module -to- PPS 2	22R2191	22R5750

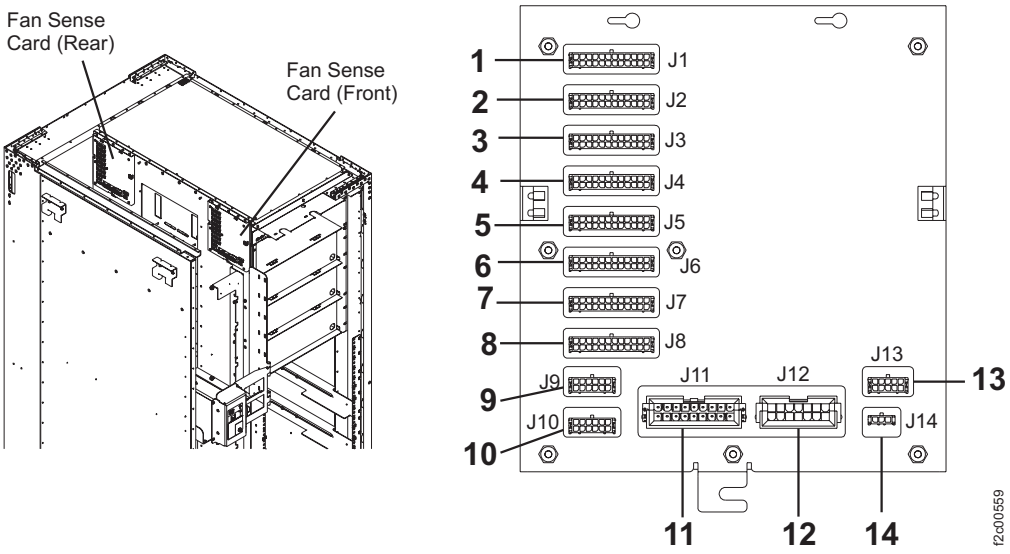


Figure 850. Cables on the fan sense cards

Table 358. Cables for the fan sense card (front card)

Index	Part name	Part number	
		Version 1	Version 2
1-4	Cable, fan sense card (front) -to- storage enclosure	22R1150	22R6110
5-8	Cable, fan sense card (front) -to- storage enclosure[1, 2]	22R1152	22R6112
9-10	Cable, fan sense card (front) -to- DASD fan tray assy.	17P8101	22R5474
11	Cable, fan sense card (front) -to- PPS 1	22R0209	22R5743
12	Cable, fan sense card (front) -to- PPS 1	22R0212	22R5746
13	Cable, fan sense card (front) -to- rack identity card	17P8106	22R5916
14	Cable, fan sense card -to- fan sense card	17P8103	22R5476

Notes:

1. Expansion rack only.
2. The circuit between the fan sense card and the storage enclosure consists of two cables that are joined at the center wall (bulkhead). This part is a four-cable harness that runs between the fan sense card and the center wall. The part number of the cable that runs between the center wall and the storage enclosure is 22R2192 (old P/N) or 22R6109 (new P/N). This cable is also known as the ″Y″ cable because one leg of the ″Y″ leads to the storage enclosure and the other leg leads to a bus bar on the center wall.

Table 359. Cables for the fan sense card (rear card)

Index	Part name	Part number	
		Version 1	Version 2
1-4	Cable, fan sense card (rear) -to- storage enclosure	22R1151	22R6111
5-8	Cable, fan sense card (rear) -to- storage enclosure[1, 2]	22R1153	22R6113
9-10	Cable, fan sense card (rear) -to- DASD fan tray assy.	17P8102	22R5475
11	Cable, fan sense card (rear) -to- PPS 2	22R0210	22R5744
12	Cable, fan sense card (rear) -to- PPS 2	22R0213	22R5747
13	Cable, fan sense card (rear) -to- rack identity card	17P8107	22R5917
14	Cable, fan sense card -to- fan sense card	17P8103	22R5476

Table 359. Cables for the fan sense card (rear card) (continued)

Index	Part name	Part number	
		Version 1	Version 2
Notes: 1. Expansion rack only. 2. The circuit between the fan sense card and the storage enclosure consists of two cables that are joined at the center wall (bulkhead). This part is a four-cable harness that runs between the fan sense card and the center wall. The part number of the cable that runs between the center wall and the storage enclosure is 22R2192 (old P/N) or 22R6109 (new P/N). This cable is also known as the ″Y″ cable because one leg of the ″Y″ leads to the storage enclosure and the other leg leads to a bus bar on the center wall.			

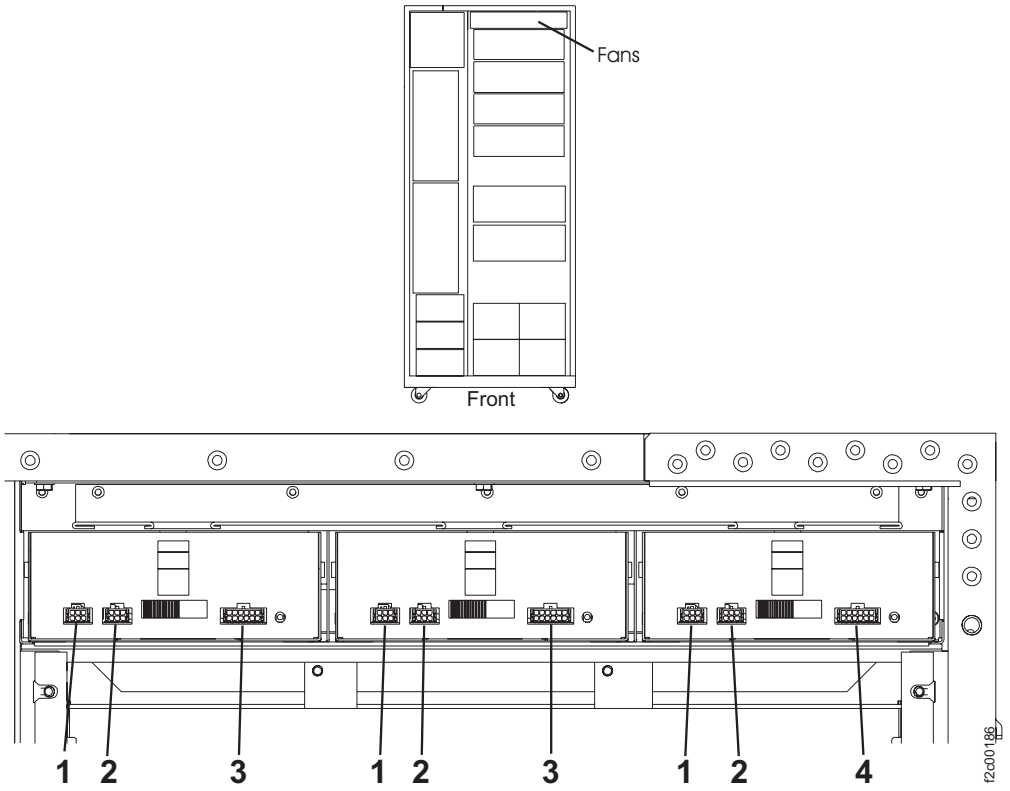


Figure 851. Rack power and cooling fan tray cables

Table 360. Cables for the DASD fan trays

Index	Part name	Part number	
		Version 1	Version 2
1	Cable, DASD fan tray -to- 5/12V secondary bus bar	17P8100	22R5473
2	Cable, DASD fan tray -to- 5/12V secondary bus bar	17P8099	22R5472
3	Cable, DASD fan tray -to- fan sense card (front)	17P8101	22R5474
4	Cable, DASD fan tray -to- fan sense card (rear)	17P8102	22R5475

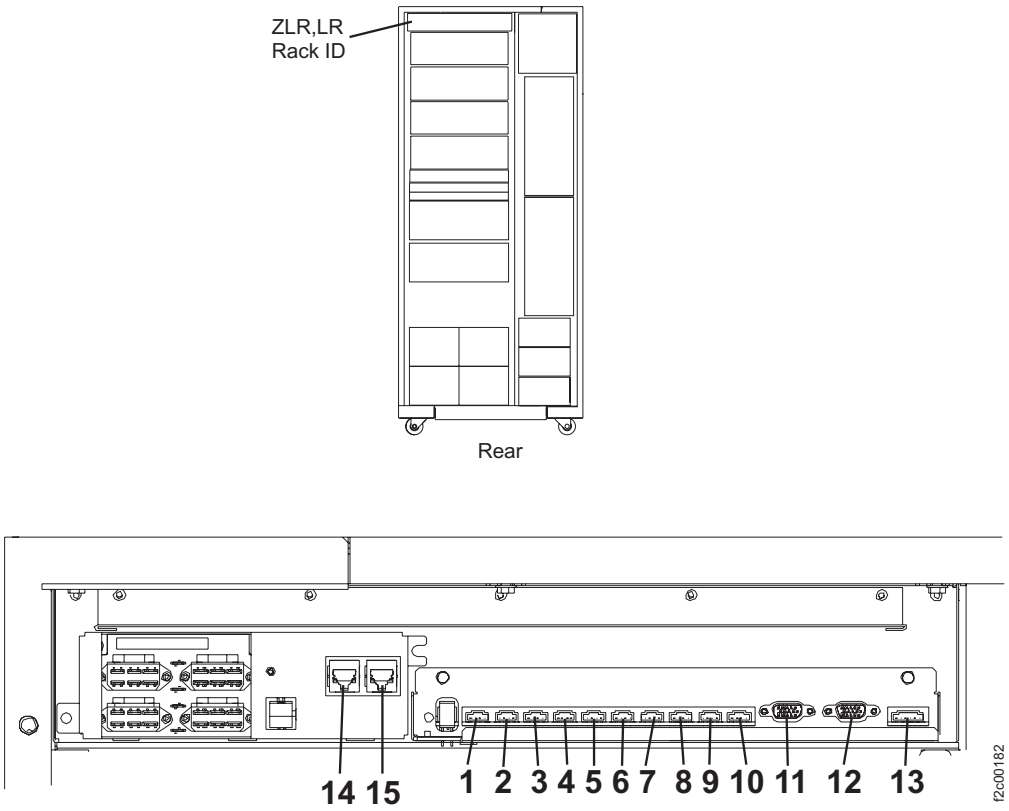


Figure 852. Rack power and cooling local remote and rack identity card cables

Table 361. Cables for the rack identity card and the local remote switch card

Index	Part name	Part number	
		Version 1	Version 2
1	Cable, rack identity card -to- fan sense card (front)	17P8106	22R5916
2	Cable, rack identity card -to- fan sense card (rear)	17P8107	22R5917
3-4	Cable, rack identity card -to- CEC enclosure 1	17P8109	22R5919
	Cable, rack identity card -to- CEC enclosure 2	17P8110	22R5920
	Cable, rack identity card -to- CEC enclosure 3	17P8111	22R5921
5	Cable, rack identity card -to- I/O enclosure	22R2907	22R5922
6	Cable, rack identity card -to- I/O enclosure	22R2908	22R5923
7	Cable, rack identity card -to- I/O enclosure	22R2909	22R5924
8	Cable, rack identity card -to- I/O enclosure	22R2910	22R5925
9	Cable, rack identity card -to- PPS	22R0626	22R5756
10	Cable, rack identity card -to- PPS	22R0627	22R5757
11	Cable, rack identity card -to- RPC card	22R0418	22R6145
12	Cable, rack identity card -to- RPC card	22R0419	22R6146
13	Cable, rack identity card -to- rack operator panel LED assembly	22R0816	22R5758
14	Cable, local remote switch card -to- Ethernet	22R0414	22R6141
15	Cable, local remote switch card -to- Ethernet	22R0415	22R6142

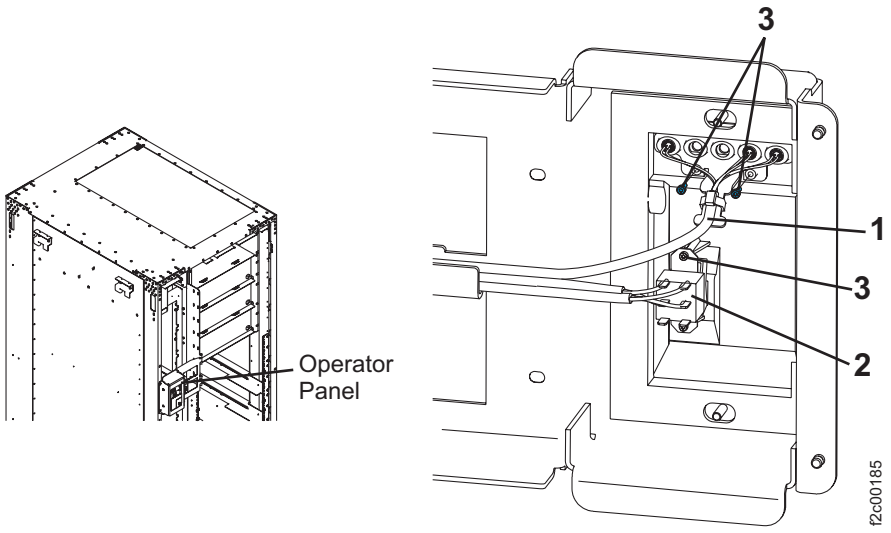


Figure 853. Rack operator panel UEPO switch cables

Table 362. Cables for the rack operator panel UEPO switch

Index	Part name	Part number	
		Version 1	Version 2
1	Cable, rack operator panel LED assembly	22R0816	22R5758
2	Cable, rack operator panel UEPO switch	22R0203	22R5741
3	Screw, connector-to-housing	1622660	1622660

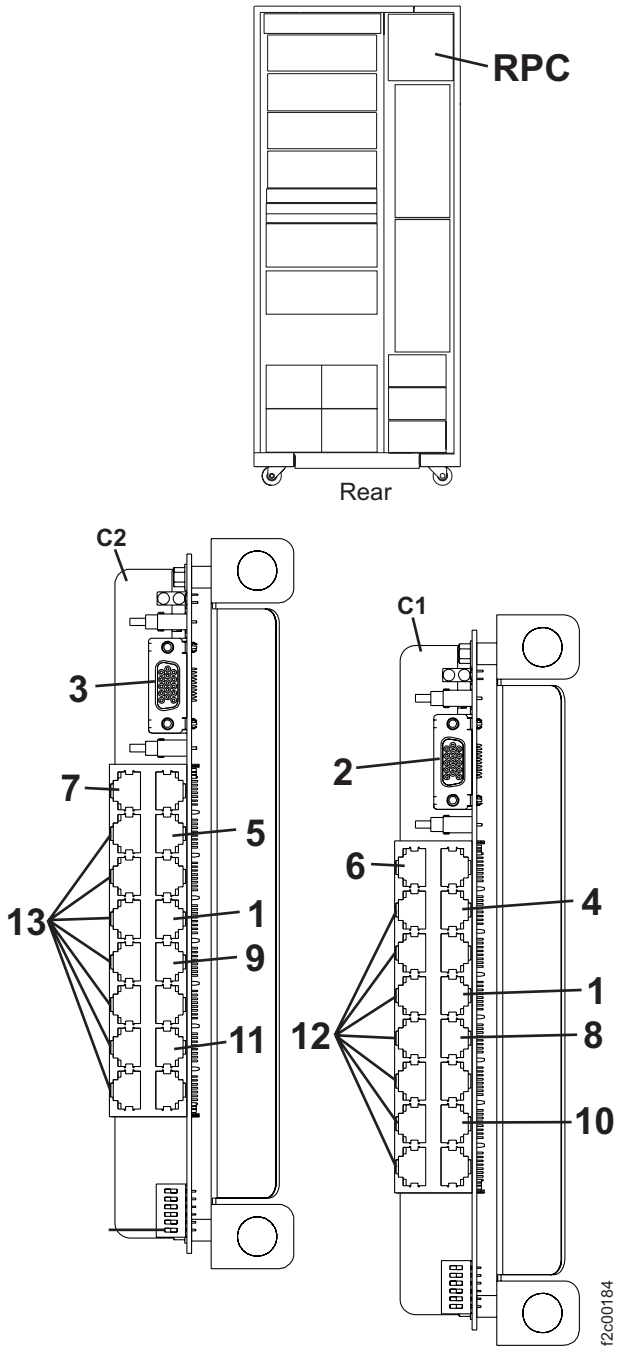


Figure 854. Rack power and cooling RPC card

Table 363. Cables for the RPC card

Index	Part name	Part number	
		Version 1	Version 2
1	Cable, RPC card -to- RPC card	22R0413	22R6138
2	Cable, RPC card -to- rack identity card	22R0418	22R6145
3	Cable, RPC card -to- rack identity card	22R0419	22R6146
4	Cable, RPC card -to- device adapter card	22R0414	22R6141
5	Cable, RPC card -to- device adapter card	22R0415	22R6142

Table 363. Cables for the RPC card (continued)

Index	Part name	Part number	
		Version 1	Version 2
6	Cable, RPC card -to- PPS	22R0420	22R6147
7	Cable, RPC card -to- PPS	22R0421	22R6148
8-9	Cable, RPC card -to- CEC enclosure	22R0416	22R6143
10-11	Cable, RPC card -to- CEC enclosure	22R0417	22R6144
12	Cable, RPC card -to- PPS rack	22R0629	22R6139
13	Cable, RPC card -to- PPS rack	22R0630	22R6140

Earthquake resistance kit part numbers

Use the following sections to locate information about earthquake resistance kit parts.

- "Earthquake resistance kit parts at the front of the rack (stiffeners)"
- "Earthquake resistance kit parts at the rear of the rack (stiffeners)" on page 1401
- "Earthquake resistance kit parts for non-raised floor (tie-downs)" on page 1403
- "Earthquake resistance kit parts for raised floor (tie-downs)" on page 1404

Notes:

- Version 1 part numbers are *not* eligible for use in European Union member states.
- Version 2 part numbers are eligible for use everywhere including European Union member states.
- Only the most recent part numbers are listed. Your DS8000 or serviceable event FRU list may contain an older part number. The parts ordering system can automatically substitute a later part number as needed.

Earthquake resistance kit parts at the front of the rack (stiffeners)

Use the figures and tables below to locate information about the earthquake resistance kit brackets (stiffeners) at the front of the rack.

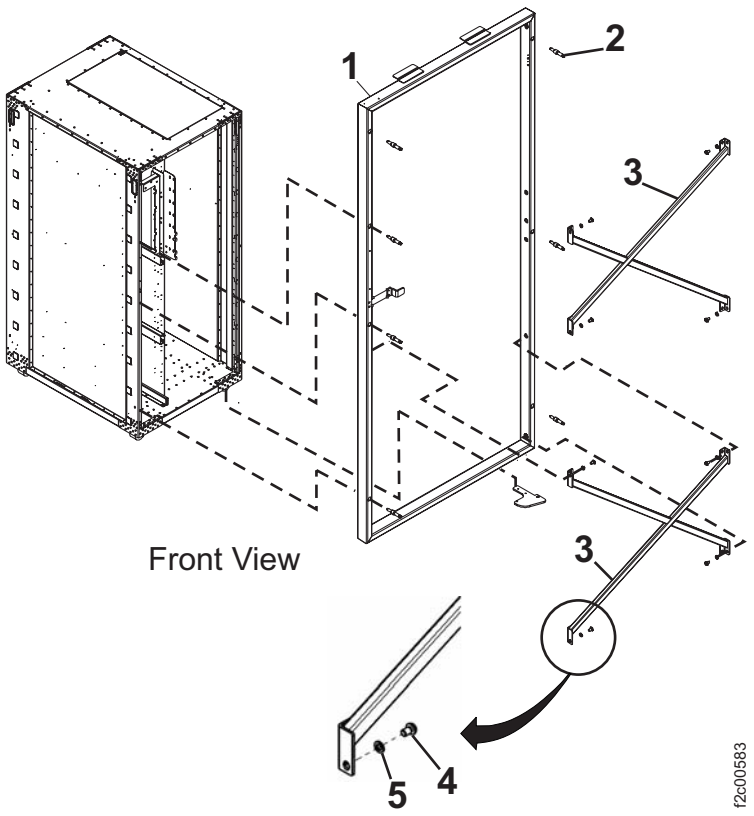


Figure 855. Earthquake resistance kit parts at the front of the rack

Table 364. Earthquake resistance kit parts (except relocation bracket for the operator panel)

Index	Part name	Part number	
		Version 1	**Version 2**
1	Brace extension frame	22R1317	22R1317
2	Screw	22R2193	22R2193
3	X-brace	22R1321	22R1321
4	Screw (20mm)	1621538	1621538
5	Washer, Lock	1622321	1622321

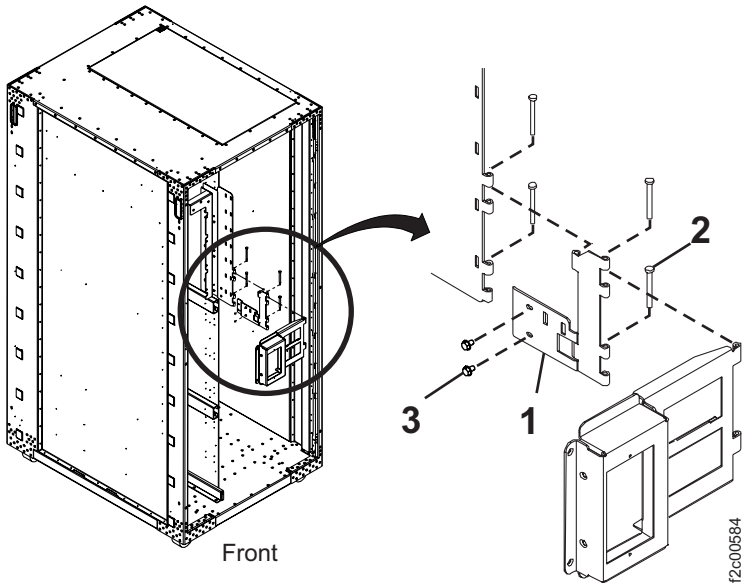


Figure 856. Earthquake resistance kit parts - Relocation bracket for the operator panel

Table 365. Earthquake resistance kit relocation bracket for the operator panel

Index	Part name	Part number	
		Version 1	Version 2
1	Bracket, relocation	22R1793	22R1793
2	Pin, pivot	22R1794	22R1794
3	Screw	1621842	1621842

Earthquake resistance kit parts CEC stiffeners

Use the figure and table that follow to locate information about the earthquake resistance kit CEC stiffeners.

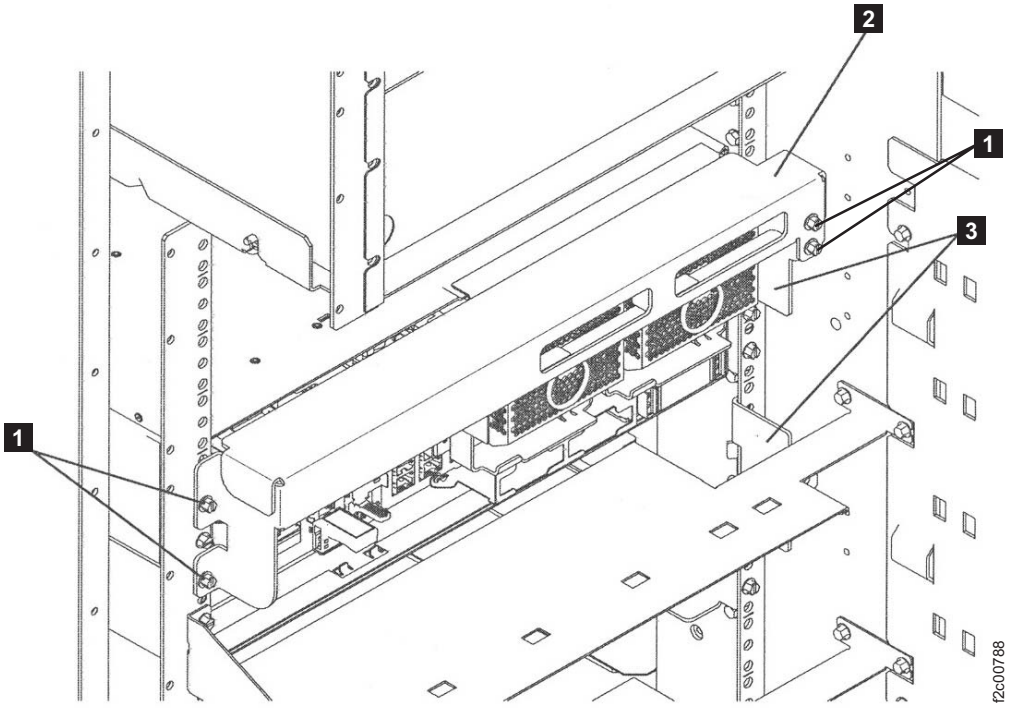


Figure 857. Earthquake resistance kit parts CEC stiffeners

Table 366. Earthquake resistance kit CEC stiffeners

Index	Part name	Part number	
		Version 1	Version 2
1	Screw	23R1520	23R1520
2	Bracket, stiffener	22R2002	22R2002
3	Bracket, mounting	17P8485	17P8485

Earthquake resistance kit parts at the rear of the rack (stiffeners)

Use the figures and tables below to locate information about the earthquake resistance kit brackets (stiffeners) at the rear of the rack.

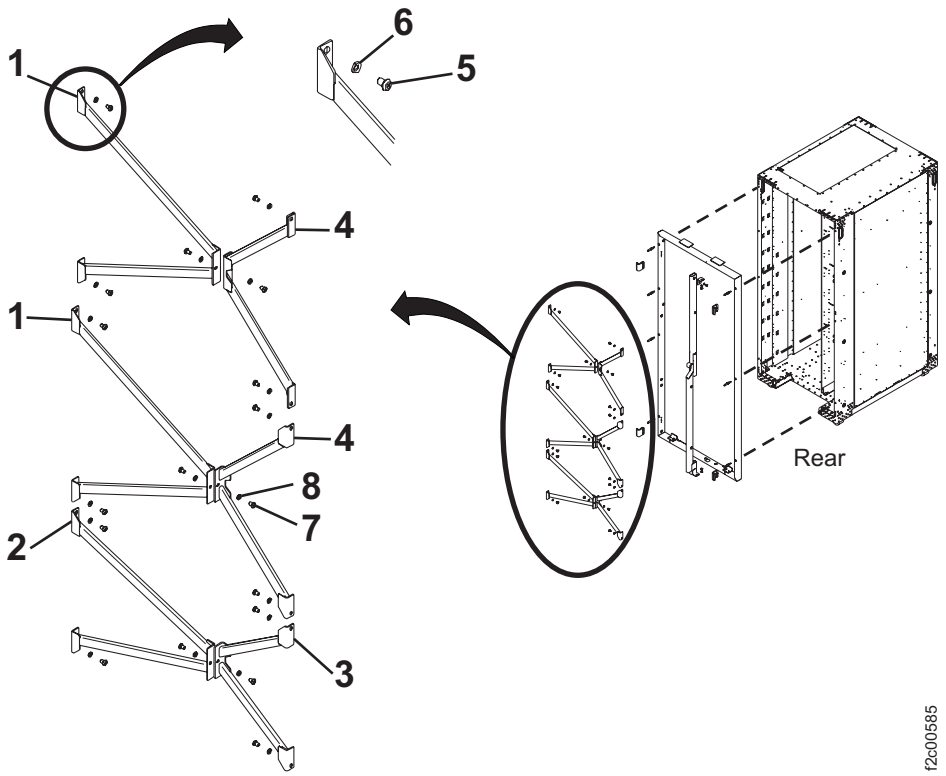


Figure 858. Earthquake resistance kit V-braces at the rear of the rack

Table 367. Earthquake resistance kit V-braces

Index	Part name	Part number	
		Version 1	**Version 2**
1	V-brace, main, upper	22R1313	22R1313
2	V-brace, main, lower	22R1315	22R1315
3	V-brace, power, lower	22R1316	22R1316
4	V-brace, power, upper	22R1314	22R1314
5	Screw (20mm)	1621538	1621538
6	Washer, Lock	1622321	1622321

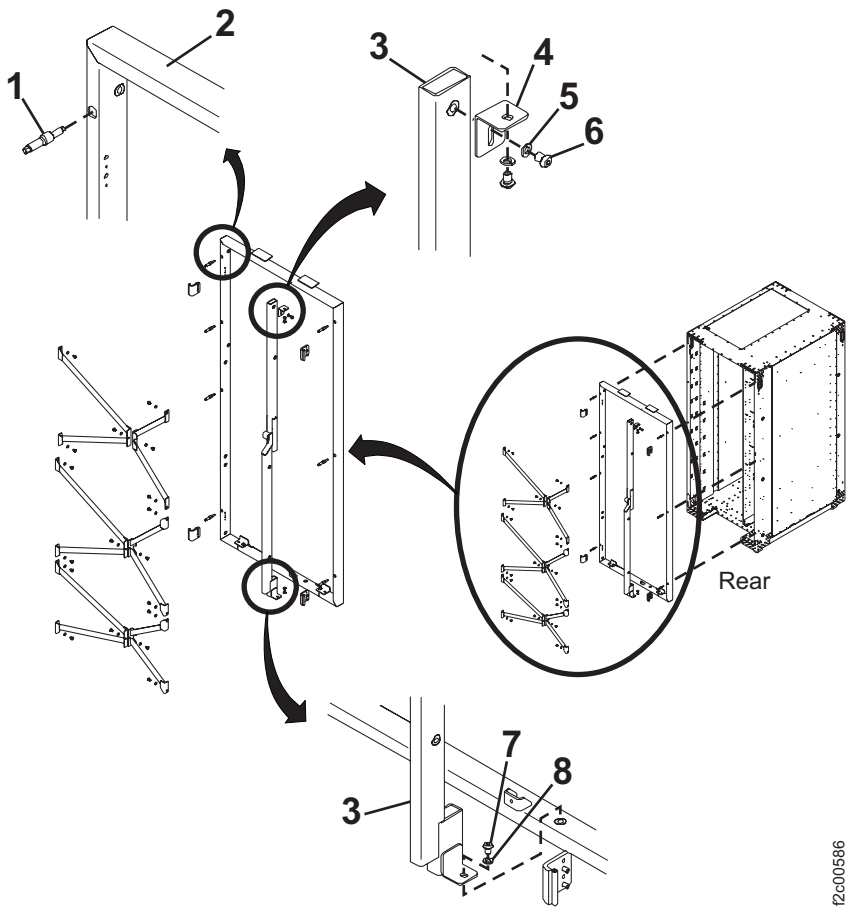


Figure 859. Earthquake resistance kit parts at the rear of the rack (except V-braces)

Table 368. Earthquake resistance kit parts (except V-braces)

Index	Part name	Part number	
		Version 1	Version 2
1	Screw	22R2193	22R2193
2	Brace extension frame	22R1303	22R1303
3	Vertical brace	22R1304	22R1304
4	Bracket, vertical brace to frame	22R1305	22R1305
5	Washer	1622321	1622321
6	Screw	1621538	1621538
7	Screw	1621538	1621538
8	Washer	1622321	1622321

Earthquake resistance kit parts for non-raised floor (tie-downs)

Use the figure and table below to locate information about the earthquake resistance kit parts that tie the rack to the non-raised floor.

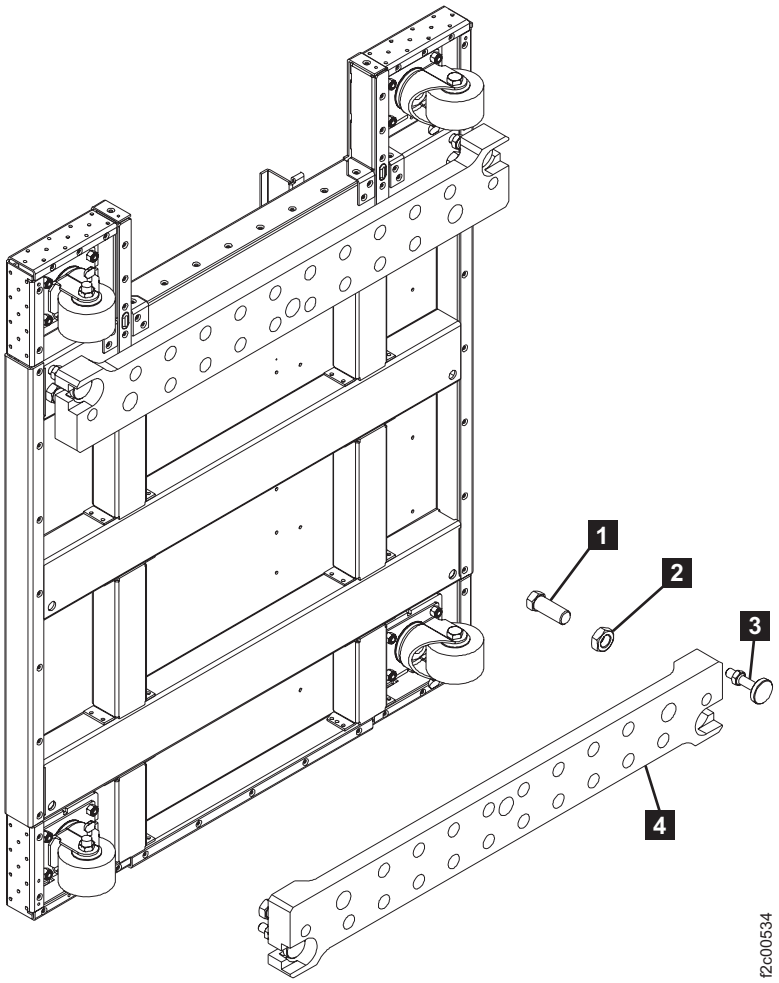


Figure 860. Floor tie-down parts of the earthquake resistance kit (non-raised floor)

Table 369. Floor tie-down parts of the earthquake resistance kit (non-raised floor)

Index	Part name[1]	Part number	
		Version 1	Version 2
1	Leveler	22R1462	22R1462
2	Jam nut	22R1463	22R1463
3	Stud	22R1461	22R1461
4	Load plate	22R1515	22R1515
Notes			
[1] - Part of the tie-down hardware kit P/N 22R1472.			

Earthquake resistance kit parts for raised floor (tie-downs)

Use the figure and table below to locate information about the earthquake resistance kit parts that tie the rack to the raised floor.

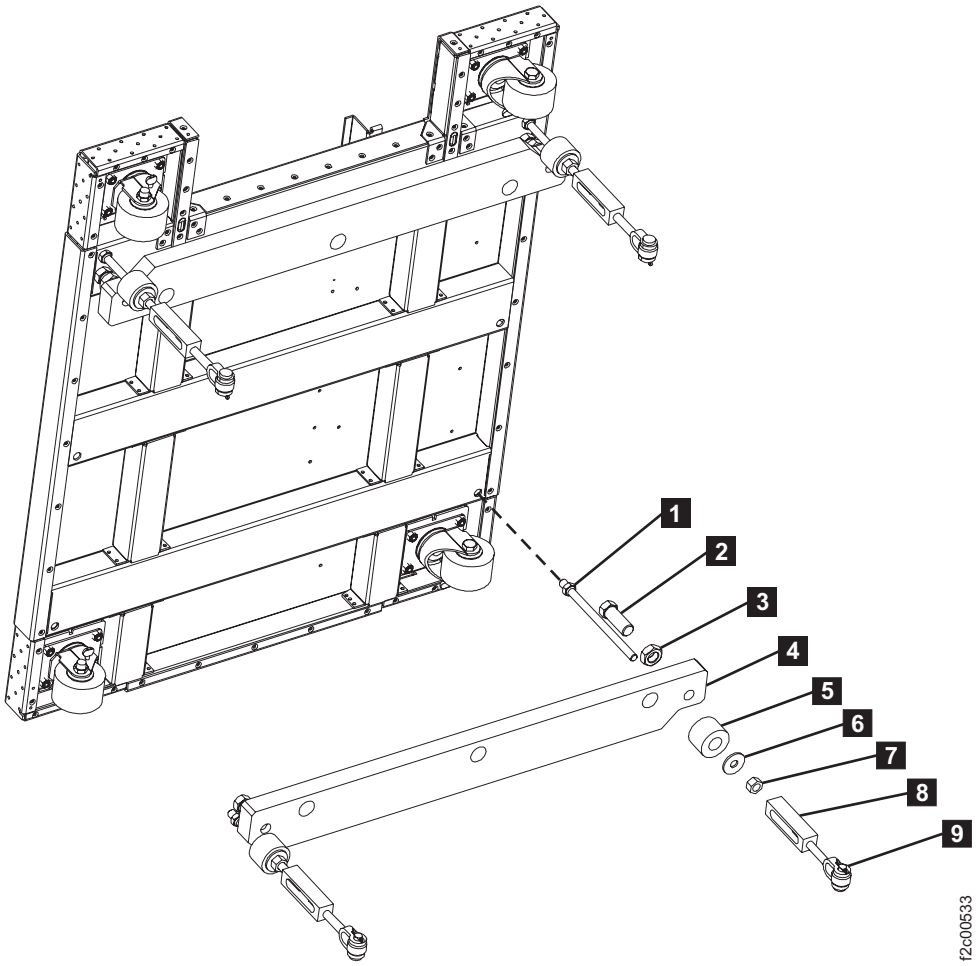


Figure 861. Floor tie-down parts of the earthquake resistance kit (raised floor)

Table 370. Floor tie-down parts of the earthquake resistance kit (raised floor)

Index	Part name	Part number	
		Version 1	**Version 2**
1	Stud, frame-to-turnbuckle	22R1464	22R1464
2	Leveler	22R1462	22R1462
3	Jam nut	22R1463	22R1463
4	Load plate	22R1301	22R1301
5	Bushing, rubber	44P2997	44P2997
6	Washer (M12)	[1]	[1]
7	Nut (M12x1.75)	[2]	[2]
8	Turnbuckle, short[3]	22R1465	22R1465
8	Turnbuckle, long[4]	22R1467	22R1467
9	Spacer, jaw-to-floor hardware	21L3667	21L3667
Notes			
[1] - McMaster-Carr P/N 91100A180 or IBM approved equivalent.			
[2] - McMaster-Carr P/N 90591A181 or IBM approved equivalent.			
[3] - Part of the short tie-down hardware kit (P/N 22R1466).			

Table 370. Floor tie-down parts of the earthquake resistance kit (raised floor) (continued)

Index	Part name	Part number	
		Version 1	Version 2
[4] - Part of the long tie-down hardware kit (P/N 22R1468).			

Service ship group part numbers

The parts in a service ship group vary depending on whether the ship group is for a base rack or an expansion rack:

"Service ship group for a base rack"

"Service ship group for an expansion rack" on page 1407

Notes:

- Version 1 part numbers are *not* eligible for use in European Union member states.
- Version 2 part numbers are eligible for use everywhere including European Union member states.
- Only the most recent part numbers are listed. Your DS8000 or serviceable event FRU list may contain an older part number. The parts ordering system can automatically substitute a later part number as needed.

Service ship group for a base rack

The parts of a ship group for a base rack are listed in the following table.

Note: For part quantities, see the bill of materials in the ship group.

Table 371. Service ship group part numbers (base rack)

Description	Part number	
	Version 1	Version 2
Cable, Ethernet, black, 31.0 m	22R1798	22R1798
Cable, Ethernet, gray, 31.0 m	22R1799	22R1799
CD-ROM, Code Bundle	[1]	[1]
CD-ROM, Customer Documents	[1]	[1]
CD-ROM, Service Documents	[1]	[1]
Label, operator panel warning, translated	22R1789	22R1789
Publication, Service Provider Start Here	22R4228	22R4228
Publication, Installation Guide	[1]	[1]
Publication, Statement of Limited Warranty	22R5940	22R6401
Publication, Waste Equipment (WEEE)	22R5822	22R5822
Tag, "Do Not Operate"	23R0280	23R0280
Tie wrap	07J6655	07J6655
Wheel chocks (set of 4)	08J5557	08J5557
Wrap plug, ESCON	05N6767	12R9312
Wrap plug, Ethernet	00G2380	03N6070
Wrap plug, Fibre Channel, copper (device adapter)	23R0856	23R0856

Table 371. Service ship group part numbers (base rack) (continued)

Description	Part number	
	Version 1	**Version 2**
Wrap plug, Fibre Channel, optic (host adapter)	12R9314	12R9314
Notes: 1. The part number changes with each release. Call the next level of support.		

Service ship group for an expansion rack

The parts of a ship group for an expansion rack are listed in the following table.

Note: For part quantities, see the bill of materials in the ship group.

Table 372. Service ship group part numbers (expansion rack)

Description	Part number	
	Version 1	**Version 2**
Bolt, M8 x 20, interrack spacer	1621545	1621545
Cable, Ethernet, black, 31.0 m	22R1798	22R1798
Cable, Ethernet, gray, 31.0 m	22R1799	22R1799
CD-ROM, Code Bundle	[1]	[1]
CD-ROM, Customer Documents	[1]	[1]
CD-ROM, Service Documents	[1]	[1]
Cover, interrack decorative, side (one-piece)	22R4964	22R4964
Cover, interrack decorative, side (two-piece, hinged)[2]	23R1050[2]	23R1050[2]
Cover, interrack decorative, top	22R4962	22R4962
Drawing, interrack spacer stud	22R5481	22R5481
Label, operator panel warning, translated	22R1789	22R1789
Publication, Service Provider Start Here	22R4228	22R4228
Publication, Installation Guide	[1]	[1]
Publication, Installing an Expansion Rack	[1]	[1]
Publication, Statement of Limited Warranty	22R5940	22R6401
Publication, Waste Equipment (WEEE)	22R5822	22R5822
Spacer stud, interrack	22R5046	22R5046
Tag, "Do Not Operate"	23R0280	23R0280
Tie wrap	07J6655	07J6655
Washer, M8, interrack spacer	84X5850	84X5850
Wheel chocks (set of 4)	08J5557	08J5557
Notes: 1. The part number changes with each release. Call the next level of support. 2. A bracket (23R2044) and two nuts (84X4841) secure the two pieces at the hinge.		

Storage enclosure part numbers

Information about storage enclosure parts is listed below. Use Table 373 as a directory.

Notes:

- Version 1 part numbers are *not* eligible for use in European Union member states.
- Version 2 part numbers are eligible for use everywhere including European Union member states.
- Only the most recent part numbers are listed. Your DS8000 or serviceable event FRU list may contain an older part number. The parts ordering system can automatically substitute a later part number as needed.

Table 373. Start here

Part name	Figure
Cables, Fibre Channel interface card (FCIC)	Figure 863 on page 1411
Cables, storage enclosure backplane	Figure 865 on page 1413
Disk drive dummy module	Figure 862 on page 1409
Disk drive module (DDM)	Figure 862 on page 1409
Fibre channel interface card (FCIC)	Figure 862 on page 1409
Storage enclosure backplane	Figure 862 on page 1409
All other parts	(Find the appropriate figure below)

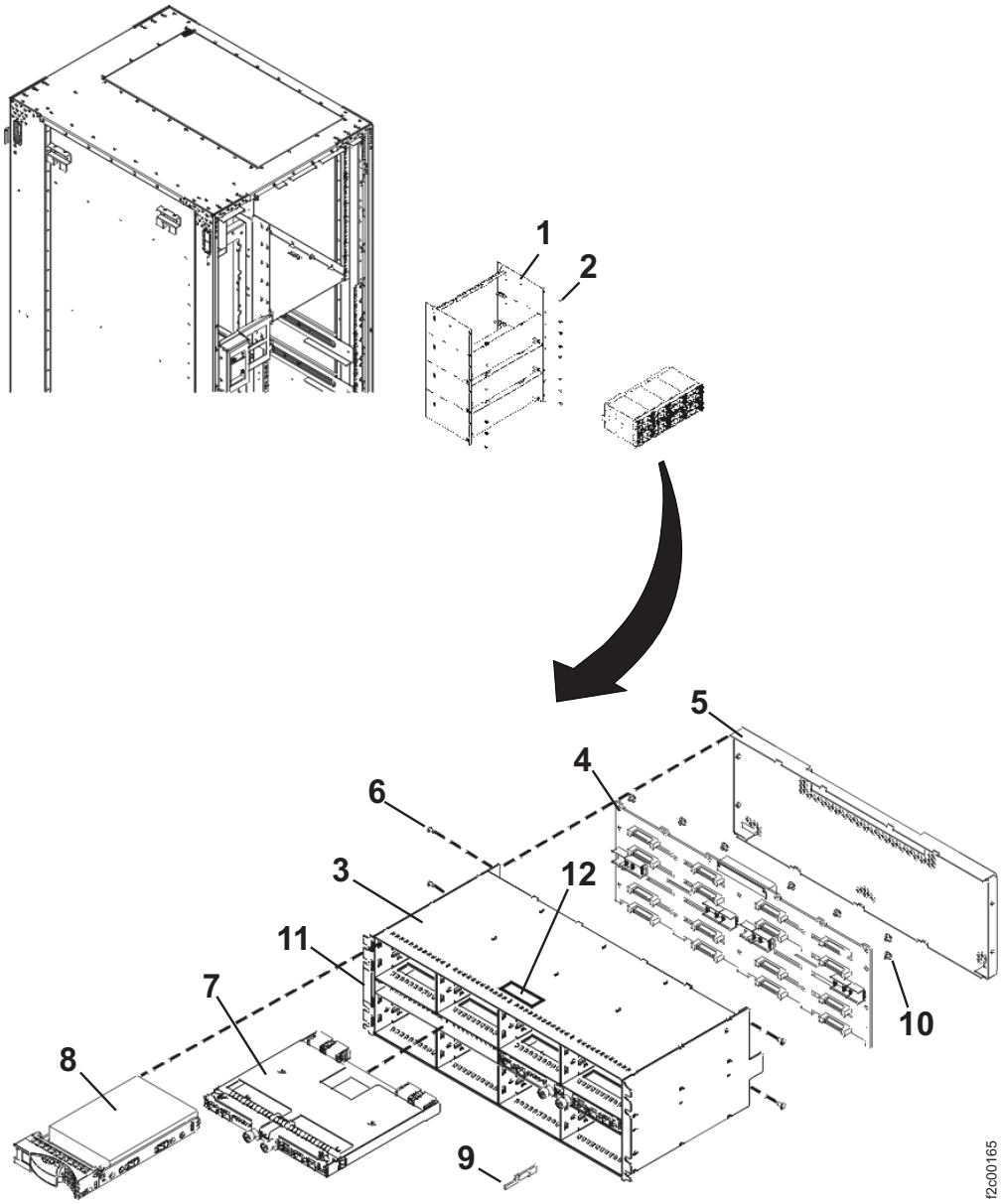


Figure 862. Storage enclosure parts

Table 374. Storage enclosure parts

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
1	Storage enclosure wrapper		17P7686	
2	Screw		77G0599	
3	Chassis[2]		22R5011	22R4844
4	Storage enclosure backplane	SEBP	24R1062	95P1961
5	Cover		22R5194	22R5194
6	Screw (M3x6)		05J7942	
7	Fibre channel interface card (FCIC)	FCIC	24R1058	95P1960

Table 374. Storage enclosure parts (continued)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
8	Disk drive dummy module (slot baffle)	SBFL	24R1485	22R2805
8	Disk drive module (DDM), 73 GB 15K RPM, version 1 (replace with same version)	D07C (DDM)	22R1770	23R0828
8	Disk drive module (DDM), 73 GB 15K RPM, version 2 (replace with same version)	D07C (DDM)	22R5488	23R0828
8	Disk drive module (DDM), 146 GB 10K RPM, version 1 (replace with same version)	D15B (DDM)	22R1558	23R0829
8	Disk drive module (DDM), 146 GB 10K RPM, version 2 (replace with same version)	D15B (DDM)	22R5489	23R0829
8	Disk drive module (DDM), 146 GB 15K RPM	D15C (DDM)	22R5492	23R0830
8	Disk drive module (DDM), 300 GB 10K RPM, standard version (replace with same version)	D30C (DDM)	22R1559	23R0831
8	Disk drive module (DDM), 300 GB 10K RPM, RPQ version[5] (replace with same version)	D30C (DDM)	22R5491	23R0831
8	Disk drive module (DDM), 500 GB 7.2K RPM	N50A		22R5950
9	Key, Fibre Channel		22R2678	22R2678
10	Screw		05J7942	05J7942
11	Label, serial number		44F0924	44F0924
12	Label, safety > 35 lbs		5423461	5423461

Notes:

1. Important, read this entire paragraph as there are exceptions to what part number to order. The custom card identification number (CCIN) identifies the physical features and logical behavior of a part. If two parts appear physically identical but have different CCINs, they are not interchangeable unless stated elsewhere in the maintenance package or by the next level of support. If two parts have different part numbers and yet have the same CCIN, they are interchangeable. When you order a part number (P/N) reported in a serviceable event or call home record, please check if the parts ordering system has a conditional substitute for DS8000. CCINs that are in parentheses are reported by earlier levels of the LIC code bundle.
2. The enclosure chassis is a special order item. The chassis to be replaced has bar code labels with the specific MTMS (machine type model serial number) information. Contact next level of support to determine if the label can be moved to the new chassis. The MTMS should stay the same as there is not an HMC menu option to change it. The MTMS on the bar code label must match the MTMS in the code, as the enclosure serial number is used in serviceable event FRU list and exchange part lists.

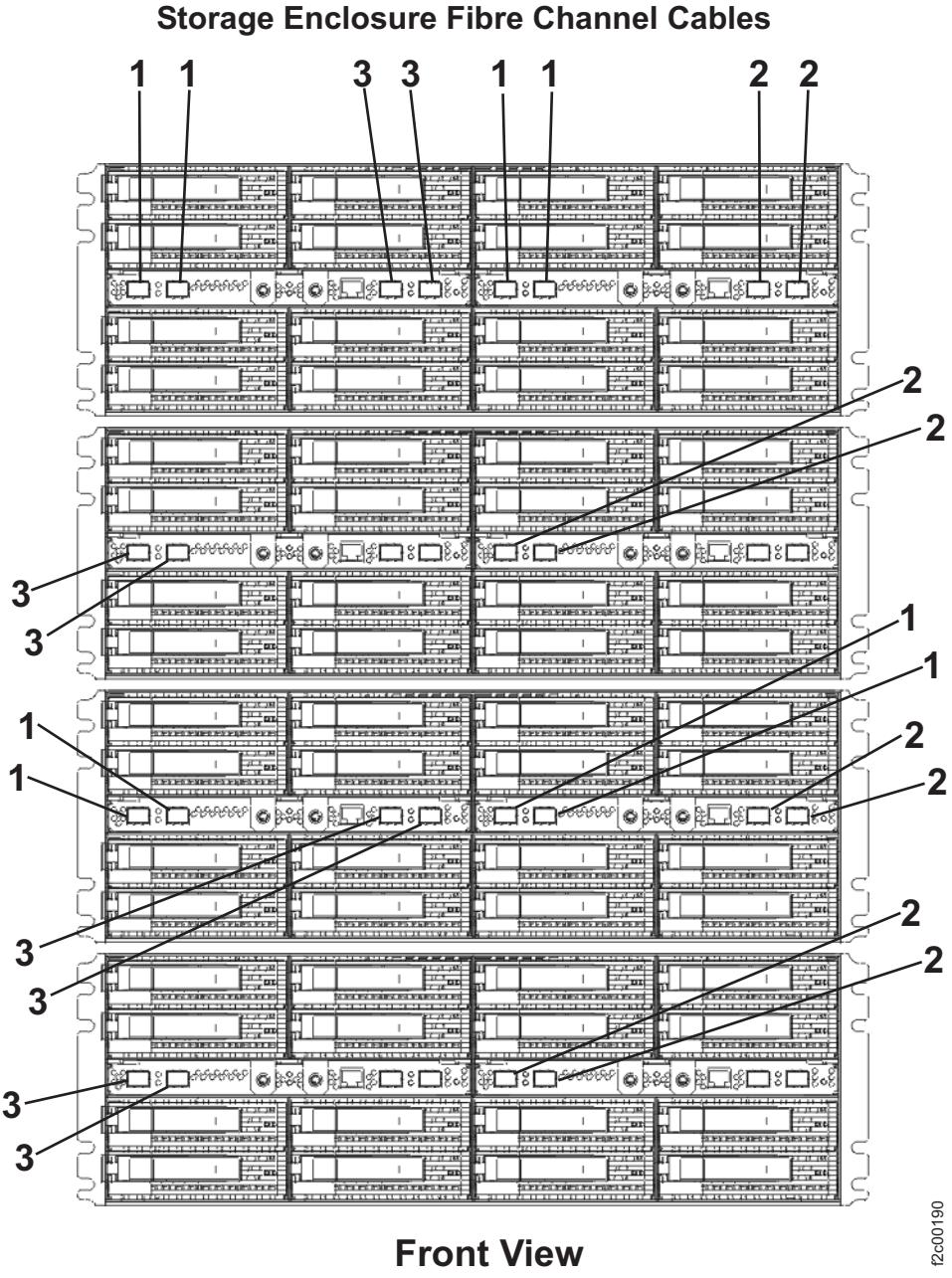


Figure 863. Storage enclosure cables (front)

IBM PART NUMBER
EC NUMBER
MANUFACTURER'S NAME OR CODE
COUNTRY OF ORIGIN
DATE OF MANUFACTURE (WEEK AND YEAR, ex: 26-2004)

f2c00562

Figure 864. The format of information on a cable bundle label

CAUTION:
Cables must only be replaced one at a time using the appropriate guided maintenance procedure.

Table 375. Storage enclosure cables (front)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
1-3	Cable, Fibre Channel	FCBL[2]	[3]	[3]

Notes:

1. Important, read this entire paragraph as there are exceptions to what part number to order. The custom card identification number (CCIN) identifies the physical features and logical behavior of a part. If two parts appear physically identical but have different CCINs, they are not interchangeable unless stated elsewhere in the maintenance package or by the next level of support. If two parts have different part numbers and yet have the same CCIN, they are interchangeable. When you order a part number (P/N) reported in a serviceable event or call home record, please check if the parts ordering system has a conditional substitute for DS8000.
2. Later levels of the LIC code bundle report this CCIN. Earlier levels do not report a CCIN.
3. Use the following information to order a cable:
   - Cable bundles have a P/N label. See Figure 864 on page 1411.
   - Individual cables within a bundle do NOT have a P/N label; individual replacement cables DO have a P/N label.
   - Cable bundles are not field-stocked. They must be special ordered.
   - There are only four individual replacement cables that are field-stocked:
     - P/N 17P8059 (version 1 P/N) or 22R5251 (version 2 P/N): 0.6 meters (2 ft.)
     - P/N 17P8060 (version 1 P/N) or 22R5252 (version 2 P/N): 2.5 meters (8 ft. 2 in.)
     - P/N 17P8061 (version 1 P/N) or 22R5253 (version 2 P/N): 5.5 meters (18 ft.)
     - P/N 17P8062 (version 1 P/N) or 22R5254 (version 2 P/N): 9.0 meters (29 ft. 6 in.)
   - To receive an individual replacement cable of the proper length, enter the P/N of the cable bundle in the parts ordering system. The system will automatically substitute an individual cable that is the same length or longer than the cable that you are exchanging.

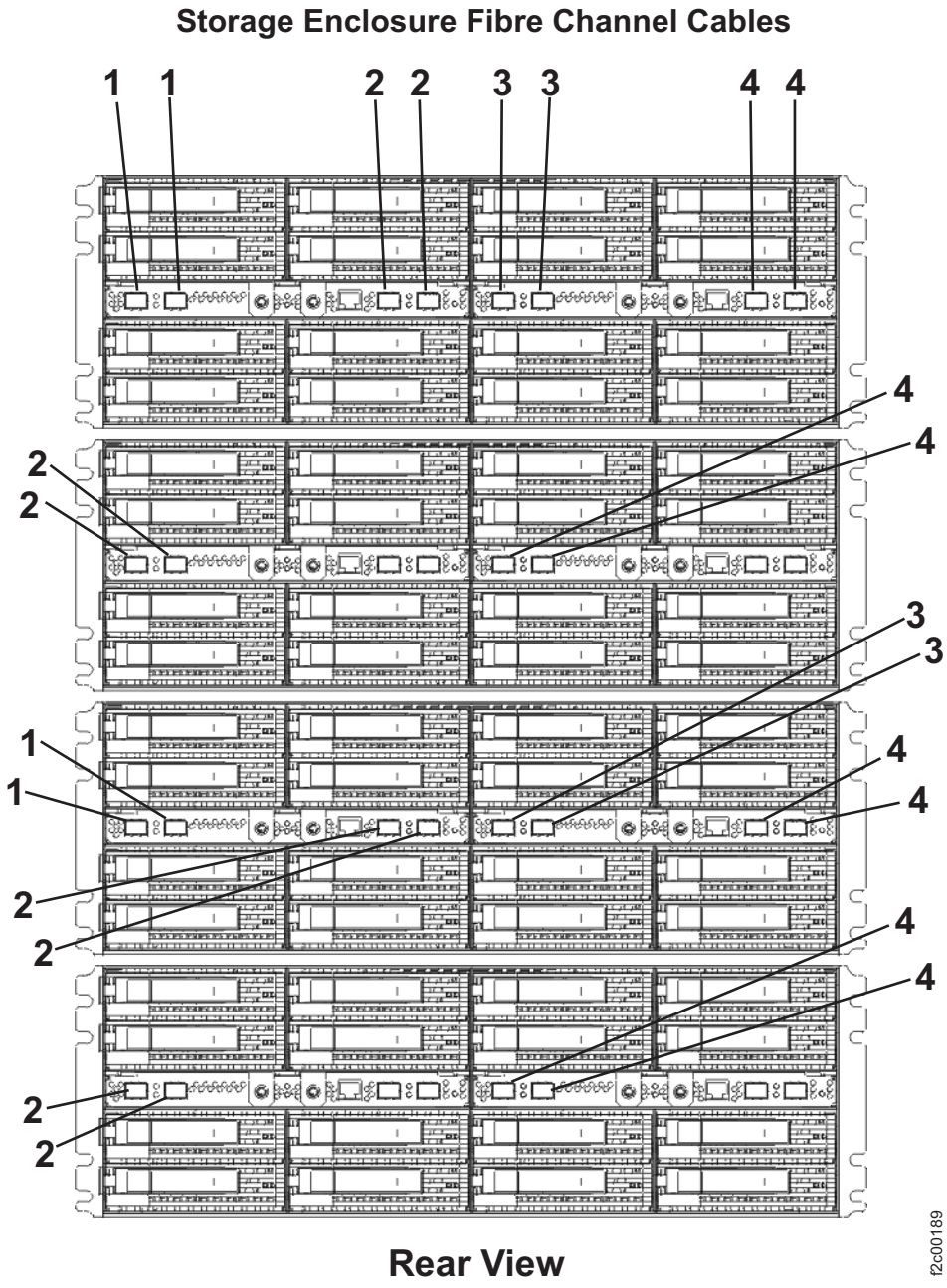


Figure 865. Storage enclosure cables (rear)

CAUTION:
Cables must only be replaced one at a time using the appropriate guided maintenance procedure.

Table 376. Storage enclosure cables (rear)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2
1-4	Cable, Fibre Channel	FCBL[2]	[3]	[3]

Table 376. Storage enclosure cables (rear) (continued)

Index	Part name	CCIN[1]	Part number	
			Version 1	Version 2

Notes:

1. Important, read this entire paragraph as there are exceptions to what part number to order. The custom card identification number (CCIN) identifies the physical features and logical behavior of a part. If two parts appear physically identical but have different CCINs, they are not interchangeable unless stated elsewhere in the maintenance package or by the next level of support. If two parts have different part numbers and yet have the same CCIN, they are interchangeable. When you order a part number (P/N) reported in a serviceable event or call home record, please check if the parts ordering system has a conditional substitute for DS8000.
2. Later levels of the LIC code bundle report this CCIN. Earlier levels do not report a CCIN.
3. Use the following information to order a cable:
   - Cable bundles have a P/N label. See Figure 864 on page 1411.
   - Individual cables within a bundle do NOT have a P/N label; individual replacement cables DO have a P/N label.
   - Cable bundles are not field-stocked. They must be special ordered.
   - There are only four individual replacement cables that are field-stocked:
     - P/N 17P8059 (version 1 P/N) or 22R5251 (version 2 P/N): 0.6 meters (2 ft.)
     - P/N 17P8060 (version 1 P/N) or 22R5252 (version 2 P/N): 2.5 meters (8 ft. 2 in.)
     - P/N 17P8061 (version 1 P/N) or 22R5253 (version 2 P/N): 5.5 meters (18 ft.)
     - P/N 17P8062 (version 1 P/N) or 22R5254 (version 2 P/N): 9.0 meters (29 ft. 6 in.)
   - To receive an individual replacement cable of the proper length, enter the P/N of the cable bundle in the parts ordering system. The system will automatically substitute an individual cable that is the same length or longer than the cable that you are exchanging.

Chapter 44. Location codes in serviceable events

This section contains information about location codes that are in serviceable events. For information about physical location codes that are in the MES/Install instructions, see Chapter 45, "Location codes in MES/Install instructions," on page 1439.

How to translate a location code

For details, see "MAP1245 Finding FRUs using location codes" on page 514.

CEC enclosure location codes

The list below summarizes the CEC enclosure assembly with figures and related tables that contain location code information. For part numbers, see "CEC enclosure part numbers" on page 1323.

Table 377.

Assembly	Reference
CEC enclosure front overview	Figure 866
CEC enclosure front locations	Figure 867 on page 1416
CEC enclosure rear overview	Figure 868 on page 1417
CEC enclosure rear locations	Figure 869 on page 1418
CEC enclosure memory DIMM locations	Figure 870 on page 1420
CEC enclosure PCI bridge sets and PCI slot locations	Table 380 on page 1419

CEC enclosure front overview

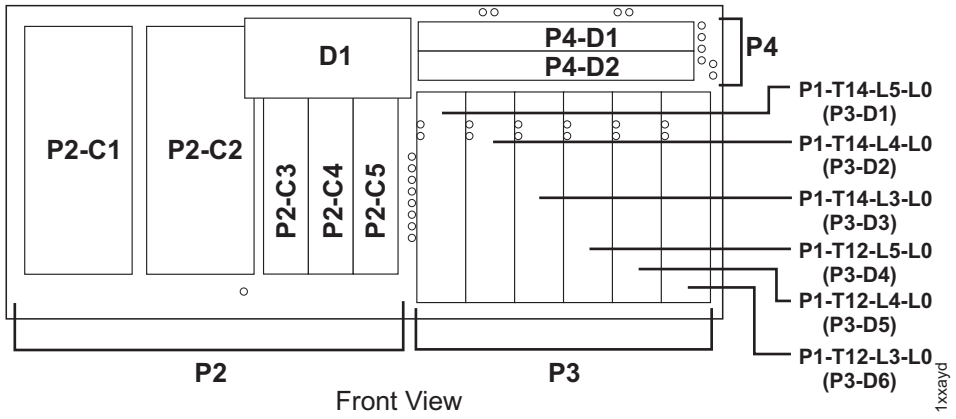


Figure 866. CEC enclosure locations (front overview)

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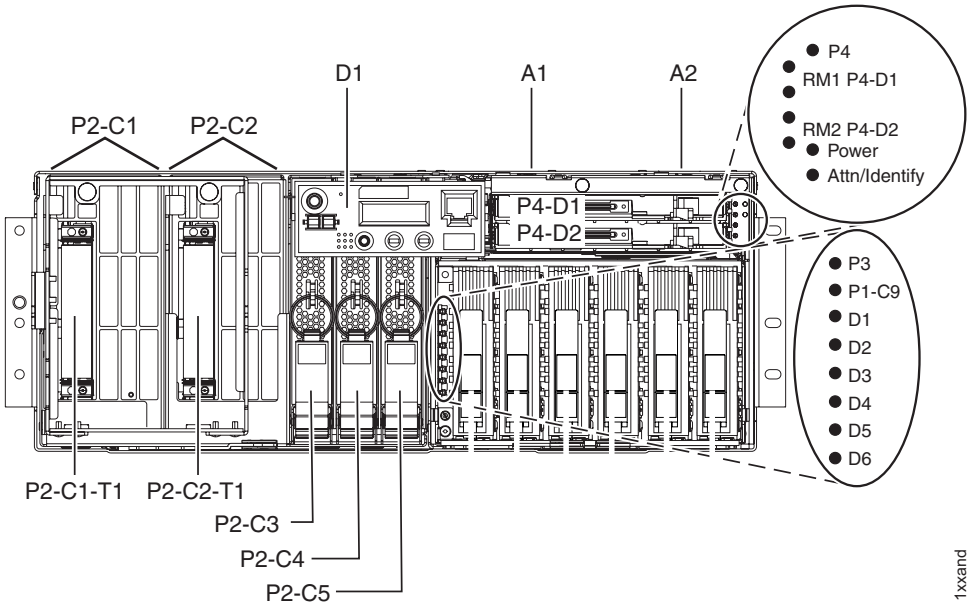


Figure 867. CEC enclosure locations (front)

Table 378. Location codes for the CEC enclosure (front)

Location code	Part name	Connector
U7879.001.sssssss-A1	Fan inside CEC enclosure power supply	
U7879.001.sssssss-A2	Fan inside CEC enclosure power supply	
U7879.001.sssssss-D1	CEC enclosure control panel	
U7879.001.sssssss-P2	System processor backplane assembly	
U7879.001.sssssss-P2-C1	System processor card 1.5 GHz 1.9 GHz nominal voltage 1.9 GHz high voltage	
U7879.001.sssssss-P2-C1-T1		SMP V-bus
U7879.001.sssssss-P2-C1-Cx (x = slot 1-8, top to bottom)	Memory DIMM (2-, 4-, or 8 GB)	
U7879.001.sssssss-P2-C2	System processor card 1.5 GHz 1.9 GHz nominal voltage 1.9 GHz high voltage	
U7879.001.sssssss-P2-C2-T1		SMP V-bus
U7879.001.sssssss-P2-C2-Cx (x = slot 1-8, top to bottom)	Memory DIMM (2-, 4-, or 8 GB)	
U7879.001.sssssss-P2-C3	System processor voltage card	
U7879.001.sssssss-P2-C4	System processor voltage card	
U7879.001.sssssss-P2-C5	System processor voltage card	
U7879.001.sssssss-P3	CEC disk drive backplane assembly	
U7879.001.sssssss-P1-T14-L5-L0 (P3-D1 on label in front of drives)	Disk drive	

Table 378. Location codes for the CEC enclosure (front) (continued)

Location code	Part name	Connector
U7879.001.sssssss-P1-T14-L4-L0 (P3-D2 on label in front of drives)	Disk drive	
U7879.001.sssssss-P1-T14-L3-L0 (P3-D3 on label in front of drives)	Disk drive	
U7879.001.sssssss-P1-T12-L5-L0 (P3-D4 on label in front of drives)	Disk drive	
U7879.001.sssssss-P1-T12-L4-L0 (P3-D5 on label in front of drives)	Disk drive	
U7879.001.sssssss-P1-T12-L3-L0 (P3-D6 on label in front of drives)	Disk drive	
U7879.001.sssssss-P4	Media backplane assembly	
U7879.001.sssssss-P4-D1	DVD-RAM drive (top)	
U7879.001.sssssss-P4-D2	not used (bottom)	

CEC enclosure rear overview

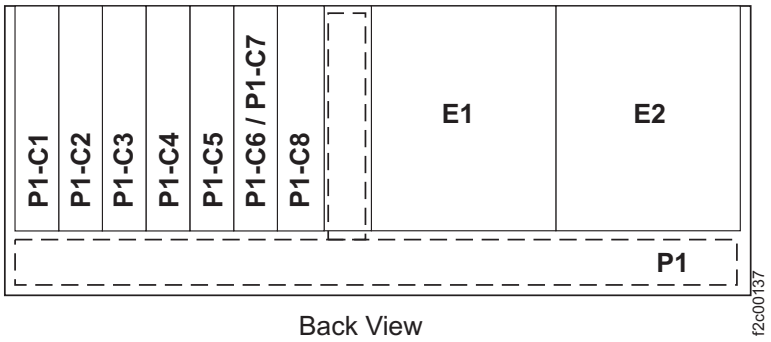


Figure 868. CEC enclosure locations (rear overview)

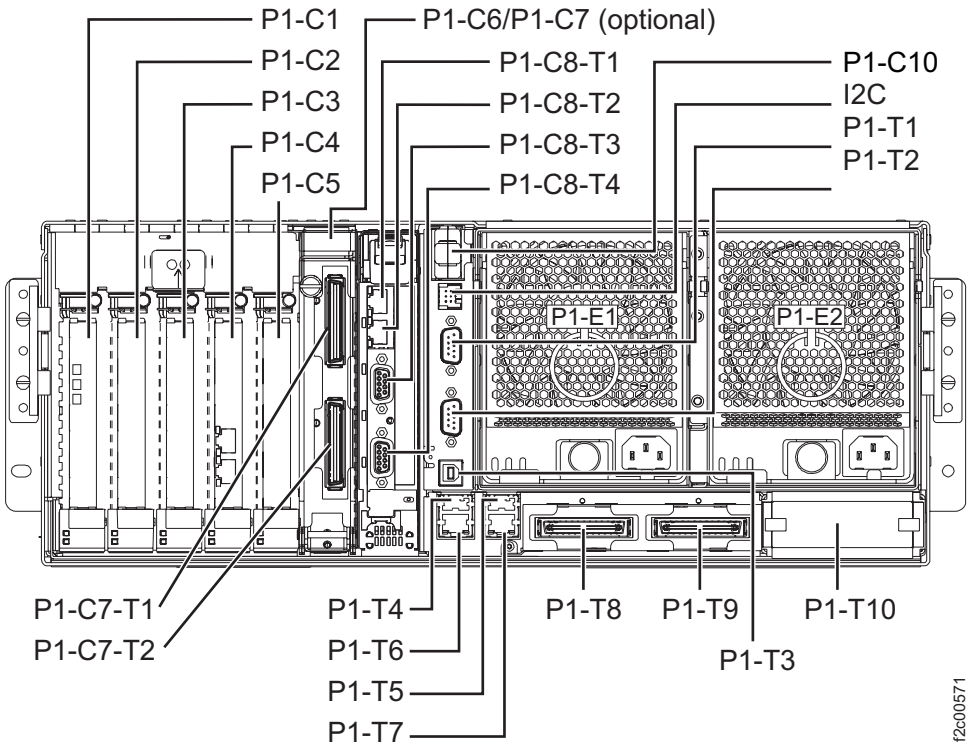


Figure 869. Location codes for the CEC enclosure (rear)

Table 379. Location codes for the CEC enclosure (rear) - Except PCI bridge sets

Location code	Part name	Connector
U7879.001.sssssss-P1[1]	CEC enclosure I/O backplane assembly	
U7879.001.sssssss-P1-I2C (printed on card sheetmetal)		I2C to RPC cards
U7879.001.sssssss-P1-T1		System port 2
U7879.001.sssssss-P1-T2		System port 1
U7879.001.sssssss-P1-T3		Rack ID
U7879.001.sssssss-P1-T4		USB 1
U7879.001.sssssss-P1-T5		USB 2
U7879.001.sssssss-P1-T6		Ethernet 1
U7879.001.sssssss-P1-T7		Ethernet 2
U7879.001.sssssss-P1-T8		HSL/RIO 0
U7879.001.sssssss-P1-T9		HSL/RIO 1
U7879.001.sssssss-P1-T10		System connector
U7879.001.sssssss-P1-T12	SCSI controller 1 - bus 0, on I/O backplane	
U7879.001.sssssss-P1-T13	SCSI controller 1 - bus 1, on I/O backplane	
U7879.001.sssssss-P1-T14	SCSI controller 2 - bus 0, on I/O backplane	
U7879.001.sssssss-P1-T15	IDE controller, on I/O backplane	

Table 379. Location codes for the CEC enclosure (rear) - Except PCI bridge sets (continued)

Location code	Part name	Connector
U7879.001.sssssss-P1-C1	NVC card or Ethernet card **Note:** In newer machines, the NVC card has been eliminated.	
U7879.001.sssssss-P1-C2	not used	
U7879.001.sssssss-P1-C3	not used	
U7879.001.sssssss-P1-C4	Ethernet card (optional)	
U7879.001.sssssss-P1-C4-T1		(top connector)
U7879.001.sssssss-P1-C4-T2		(bottom connector)
U7879.001.sssssss-P1-C5	NVC card or Ethernet card **Note:** In newer machines, the NVC card has been eliminated.	
U7879.001.sssssss-P1-C7	CEC enclosure RIO card (optional)	
U7879.001.sssssss-P1-C7-T1		HSL/RIO 0
U7879.001.sssssss-P1-C7-T2		HSL/RIO 1
U7879.001.sssssss-P1-C8	Service processor card	
U7879.001.sssssss-P1-C8-E1	Time-of-day battery on service processor card	
U7879.001.sssssss-P1-C8-T1		Ethernet
U7879.001.sssssss-P1-C8-T2		Ethernet
U7879.001.sssssss-P1-C8-T3		SPCN 0
U7879.001.sssssss-P1-C8-T4		SPCN 1
U7879.001.sssssss-P1-C10	VPD card	
U7879.001.sssssss-E1	CEC enclosure power supply	
U7879.001.sssssss-E2	CEC enclosure power supply	
Notes: 1. For the location codes of PCI bridge sets (multi-adapter bridge domain), see Table 380.		

Table 380. Location codes for the CEC enclosure (rear) - Multi-adapter bridge domain / Peripheral Component Interconnect (PCI) bridge set

Location code[1]	Part name	Connector
U7879.001.sssssss-P1 (Planar)	PCI bridge set 1 (on the CEC enclosure I/O backplane assembly)	
U7879.001.sssssss-P1 (Planar) U7879.001.sssssss-P1-C1 (PCI slot) U7879.001.sssssss-P1-C2 (PCI slot)	PCI bridge set 2 (on the CEC enclosure I/O backplane assembly)	

Table 380. Location codes for the CEC enclosure (rear) - Multi-adapter bridge domain / Peripheral Component Interconnect (PCI) bridge set (continued)

Location code[1]	Part name	Connector
U7879.001.sssssss-P1 (Planar) U7879.001.sssssss-P1-C3 (PCI slot) U7879.001.sssssss-P1-C4 (PCI slot) U7879.001.sssssss-P1-C5 (PCI slot) U7879.001.sssssss-P1-C6 (PCI slot)	PCI bridge set 3 (on the CEC enclosure I/O backplane assembly)	
Notes: 1. See Figure 866 on page 1415.		

CEC enclosure memory DIMM location codes

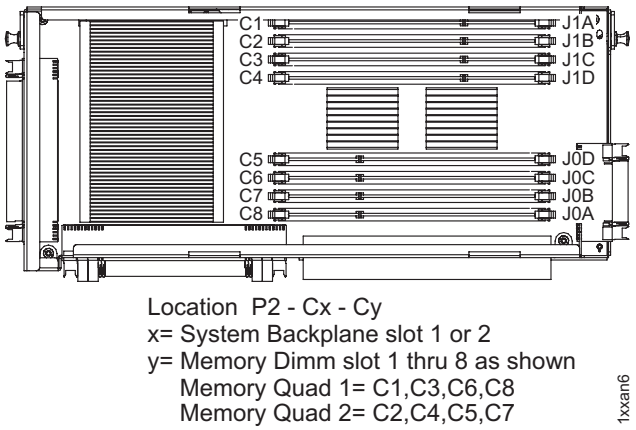


Figure 870. CEC memory DIMM card locations

Table 381. Location codes for the CEC enclosure memory DIMM

Location code	Part name
P2-Cx-Cy x = System backplane slot 1 or 2 y = Memory DIMM slot 1 - 8 as shown	Memory DIMM (2-, 4-, or 8 GB)

I/O enclosure location codes

Use this section to find location codes for parts on the I/O enclosure. For part numbers, see "I/O enclosure part numbers" on page 1343.

Table 382. I/O enclosure locations (front)

Part	See
I/O enclosure fan	Figure 871 on page 1421
I/O enclosure power supply, left	Figure 871 on page 1421
I/O enclosure power supply, right	Figure 871 on page 1421

Table 383. I/O enclosure locations (rear)

Assembly	Reference
Device adapter card	Figure 873 on page 1422
ESCON host card	Figure 874 on page 1423
Fibre channel host card	Figure 875 on page 1423
I/O enclosure backplane	Figure 872 on page 1422
I/O enclosure RIO card	Figure 872 on page 1422

I/O enclosure locations (front)

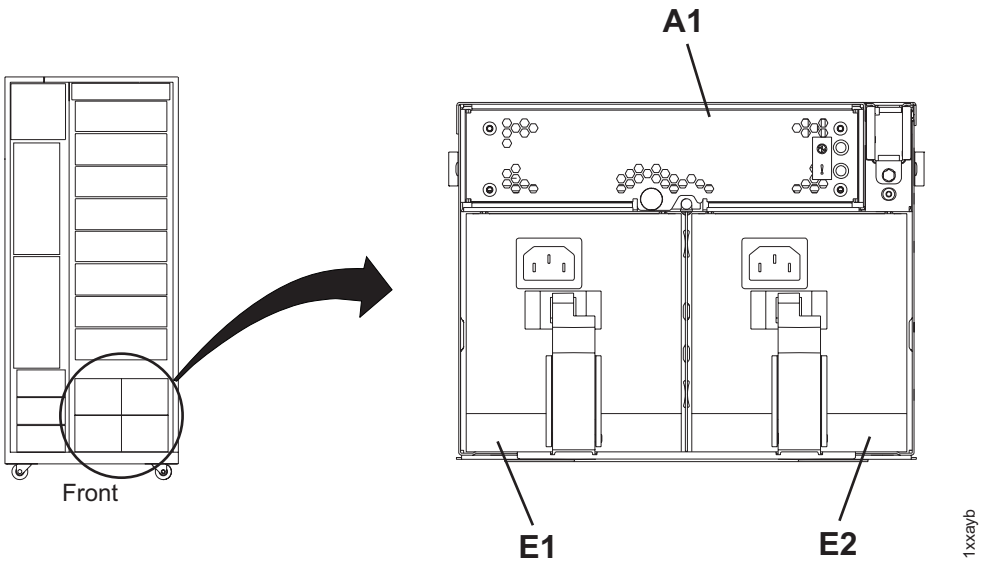


Figure 871. I/O enclosure locations (front)

Table 384. Location codes for the I/O enclosure (front)

Location code	Part name	Connector
U1300.001.sssssss-A1	I/O enclosure fan	
U1300.001.sssssss-E1	I/O enclosure power supply	
U1300.001.sssssss-E2	I/O enclosure power supply	

I/O enclosure locations (rear)

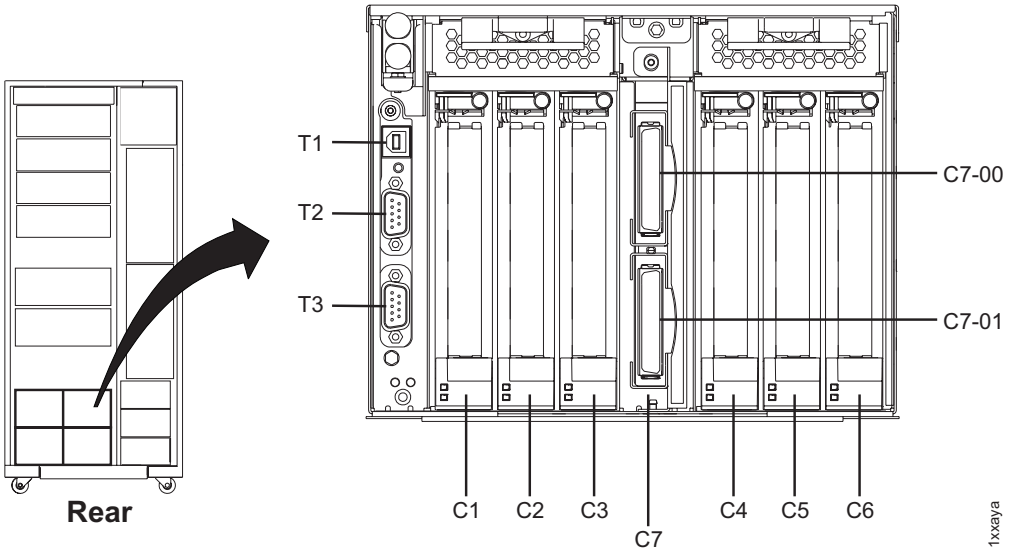


Figure 872. I/O enclosure locations (rear)

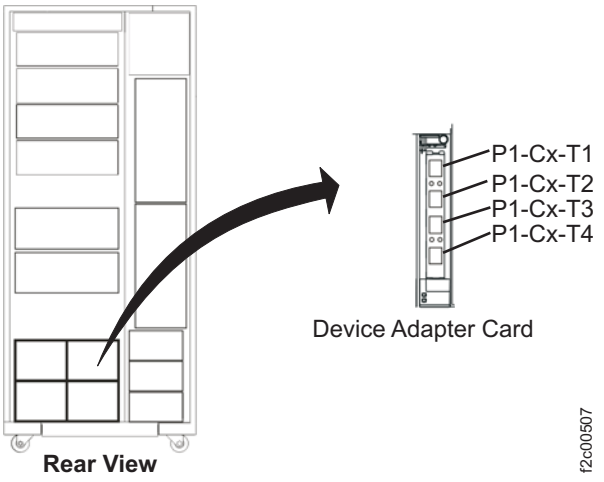


Figure 873. Location codes for the device adapter card

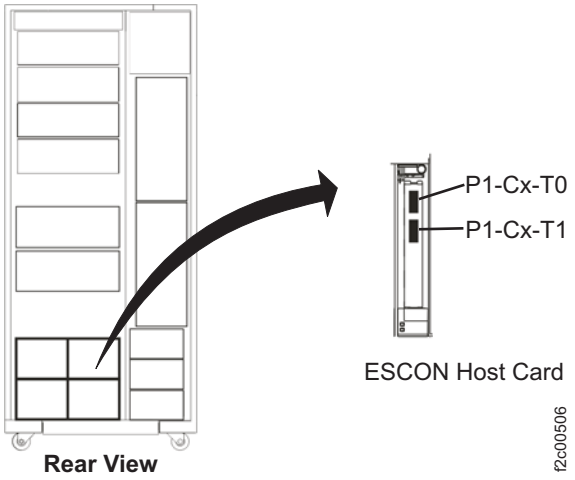


Figure 874. Location codes for the ESCON host card

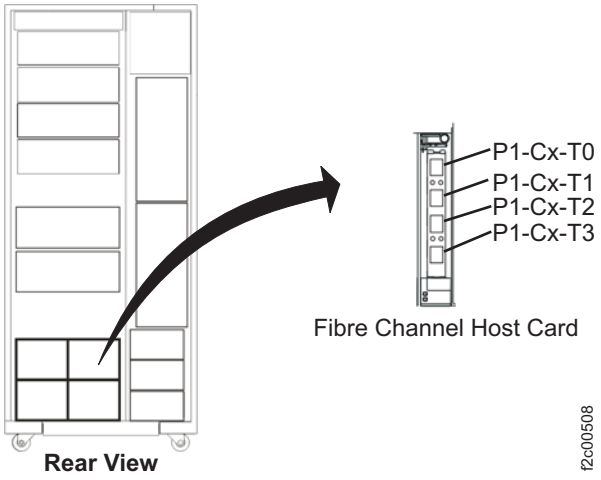


Figure 875. Location codes for the Fibre channel host card

Table 385. Location codes for the I/O enclosure (rear)

Location code	Part name	Connector
U1300.001.sssssss	I/O enclosure	
U1300.001.sssssss-P1	I/O enclosure backplane	
U1300.001.sssssss-P1-Cx (x = 1, 2, 4, 5)	ESCON host card	
U1300.001.sssssss-P1-Cx-Ty (x = 1, 2, 4, 5) (y = 0, 1, 2, 3 top to bottom)[1]		Customer ESCON cable
U1300.001.sssssss-P1-Cx (x = 1, 2, 4, 5)	Fibre channel host card (short wave, long wave)	
U1300.001.sssssss-P1-Cx-Ty (x = 1, 2, 4, 5) (y = 0, 1, 2, 3 top to bottom)[1]		Customer Fibre cable
U1300.001.sssssss-P1-Cx (x = 3, 6)	Device adapter card	

Table 385. Location codes for the I/O enclosure (rear) (continued)

Location code	Part name	Connector
U1300.001.sssssss-P1-Cx-Ty (x = 3, 6) (y = 1, 2, 3, 4 top to bottom)[1]		FC-AL cable
U1300.001.sssssss-P1-C7	I/O enclosure RIO card	
U1300.001.sssssss-P1-C7-00		RIO (top)
U1300.001.sssssss-P1-C7-01		RIO (bottom)
U1300.001.sssssss-P1-T1		Rack identity card cable
U1300.001.sssssss-P1-T2		SPCN 0
U1300.001.sssssss-P1-T3		SPCN 1

Notes:

1. Some physical location codes begin with zero and count upwards, others begin with one and count upwards. The storage facility uses parts from different hardware platforms. Most microcode and firmware logical resources identifiers begin with zero and count upwards.

Management console (MC) server location codes

Figure 876 (X335 server), Figure 877 on page 1425 (X336 server), and Table 386 on page 1425 contain location code information for the management console (MC) server. For part numbers, see "Management console (MC) part numbers" on page 1352.

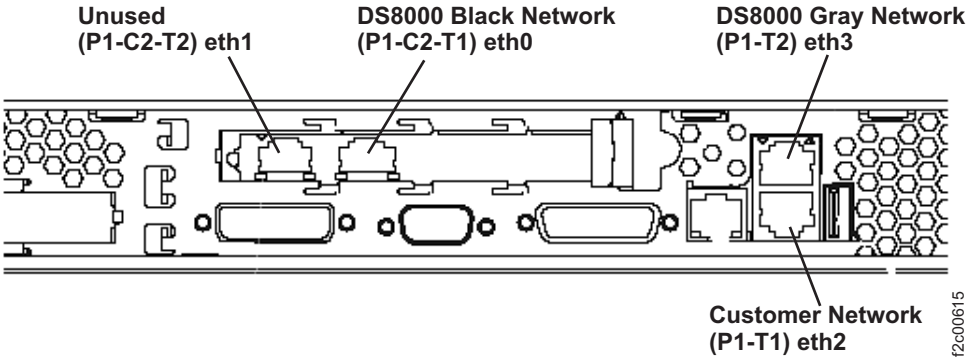


Figure 876. Ethernet connectors on the rear of the X335 management console server

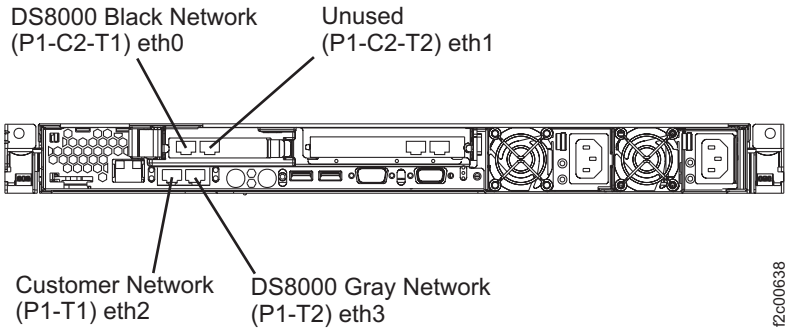


Figure 877. Ethernet connectors on the rear of the X336 management console server

Table 386. Location codes for the Management Console (HMC) server

Location code	Part name	Connected to
8676.mmm.sssssss-P1-C2-T1	Ethernet card	Ethernet
8676.mmm.sssssss-P1-C2-T2	Ethernet card	(not used)
8676.mmm.sssssss-P1-T1	System board[1]	Ethernet
8676.mmm.sssssss-P1-T2	System board[1]	Ethernet

Notes:

1. For more information, see the appropriate *Hardware Maintenance Manual and Troubleshooting Guide* (X335 or X336), chapter 7. The guide is on the DS8000 documentation CD (the CD is part of the ship group).

Rack power and cooling location codes

Use the following table to find the part of the rack power and cooling system for which you seek location code information. For part numbers, see "Rack power and cooling part numbers" on page 1374.

Part	See
Locations overview Base rack Expansion rack	 Figure 878 on page 1426 Figure 879 on page 1427
Battery module set	Figure 884 on page 1432
DASD fan tray assembly	Figure 885 on page 1433
Fan sense card	Figure 886 on page 1434
Local remote switch card	Figure 887 on page 1435
Primary power supply (PPS) Front 208VDC base module Fans PFC module Rear 5/12V DDM power module AC input power module Booster power module Sequencer module	 Figure 880 on page 1428 Figure 881 on page 1429
Rack identity card	Figure 888 on page 1435
RPC card	Figure 889 on page 1436

Part	See
System z local remote switch card	Figure 890 on page 1437

Overview of locations (base rack)

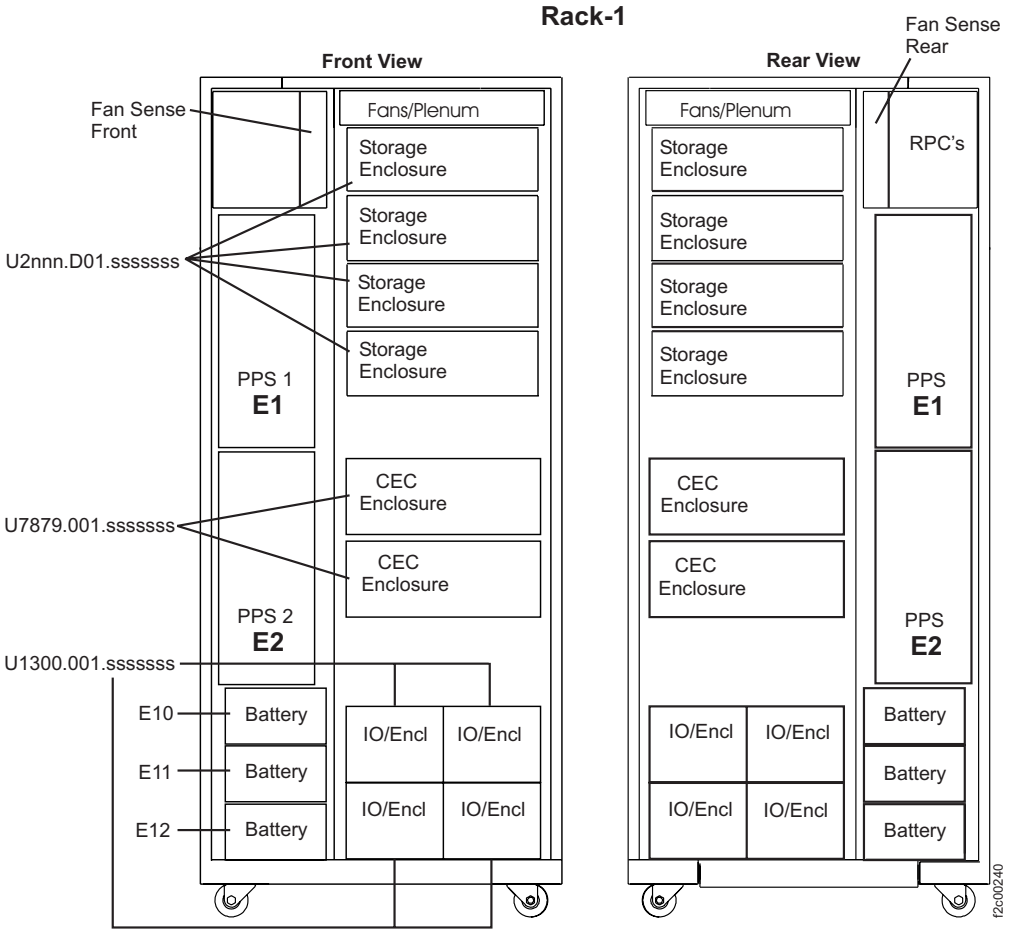


Figure 878. Primary power supply rack locations (overview)

Table 387. Location codes for a base rack

Location code	Part name
E10 thru E12	Battery module chassis
E1 and E2	Primary power supply
U7879.001.*ssssss*	CEC enclosure
U1300.001.*sssssss*	I/O enclosure
U2*nnn*.D01.*sssssss*	Storage enclosure

Overview of locations (expansion rack)

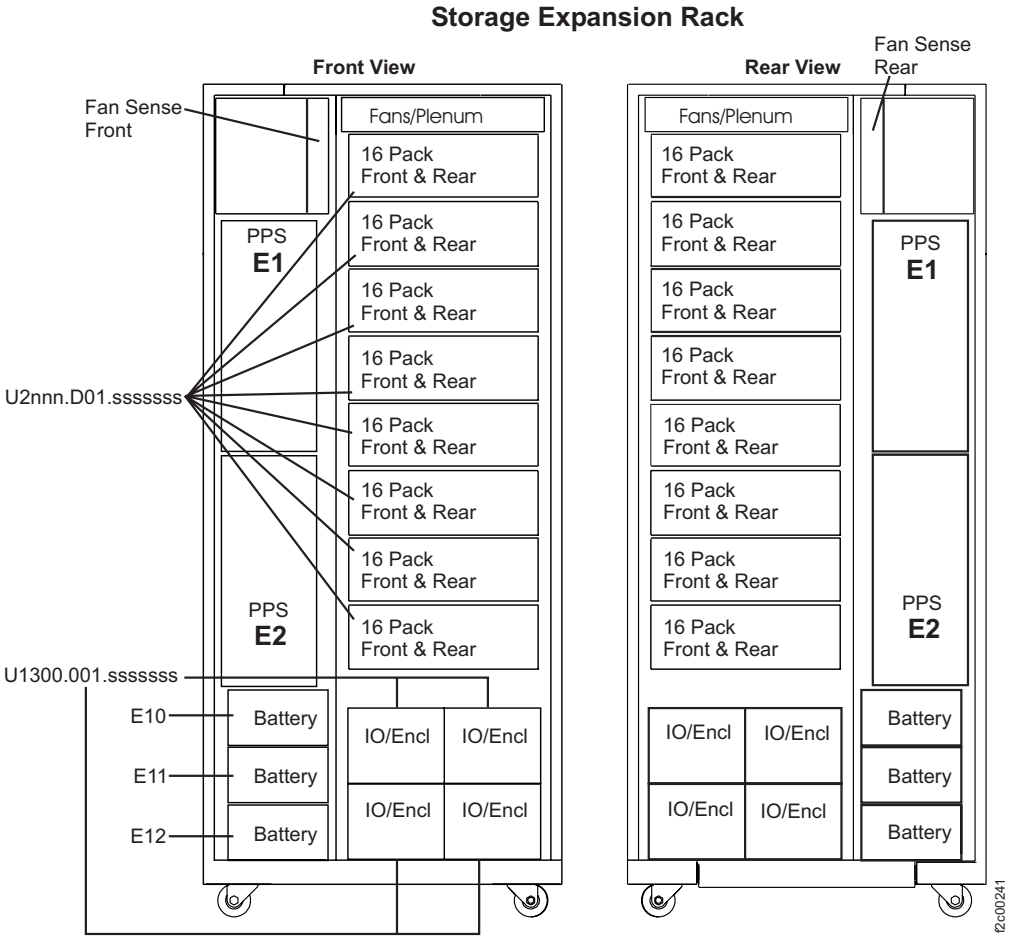


Figure 879. Storage expansion rack locations

Table 388. Location codes for an expansion rack

Location code	Part name
E10 thru E12	Battery module
E1 and E2	Primary power supply
U1300.001.*sssssss*	I/O enclosure
U2*nnn*.D01.*sssssss*	Storage enclosure

PPS locations (front)

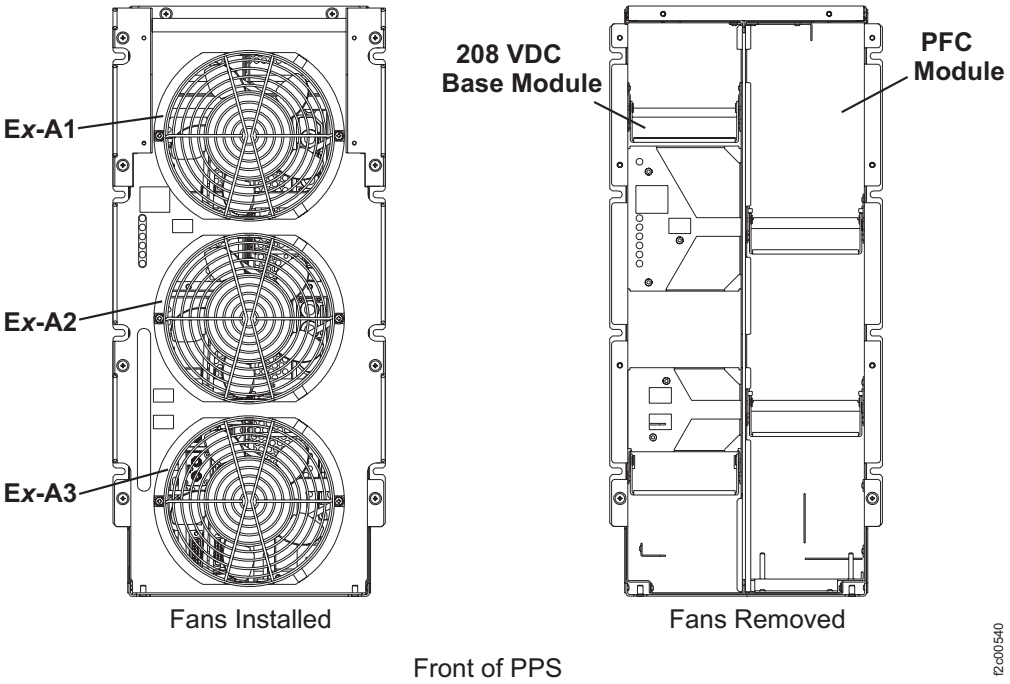


Figure 880. Location codes for the PPS (front)

Table 389. PPS locations (front)

Location code	Part name	Connector
U2*nnn*.mmm.sssssss-E*x*[1]	Primary power supply (PPS)	
U2*nnn*.mmm.sssssss-E*x*-A1	PPS fan (top)	Power/signal
U2*nnn*.mmm.sssssss-E*x*-A2	PPS fan (middle)	Power/signal
U2*nnn*.mmm.sssssss-E*x*-A3	PPS fan (bottom)	Power/signal
[2]	208VDC base module	
[2]	PFC module	

Notes:

1. Where *x* is 1 = top PPS; where *x* is 2 = bottom PPS.
2. A code is not associated with the location of this part. The part is shown only for reference.

PPS locations (rear)

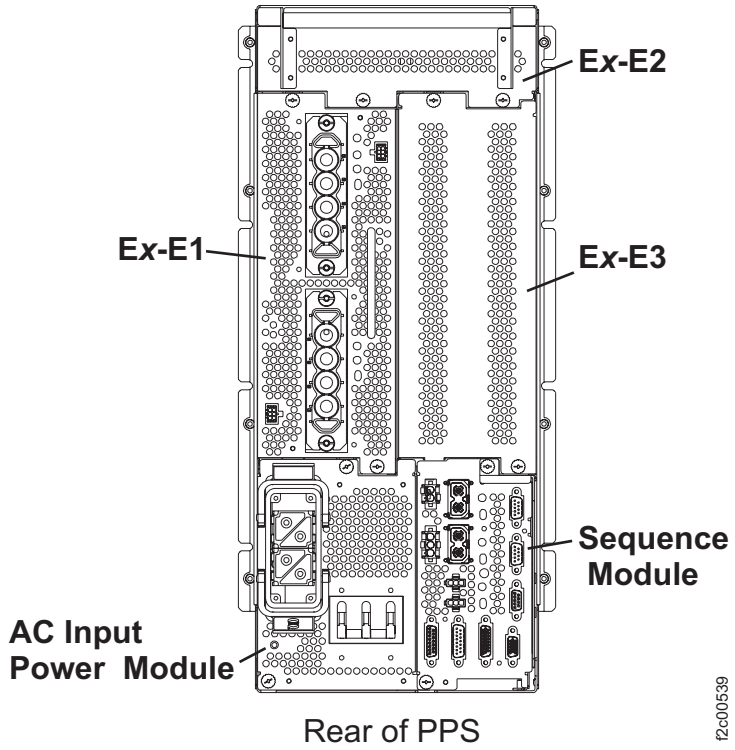


Figure 881. Location codes for the PPS (rear)

Table 390. PPS locations (rear)

Location code	Part name	Connector
U2*nnn.mmm.sssssss*-E*x*[1]	Primary power supply (PPS)	
U2*nnn.mmm.sssssss*-E*x*-E1	5/12V DDM power module	
U2*nnn.mmm.sssssss*-E*x*-E2	Booster power module (optional)	
U2*nnn.mmm.sssssss*-E*x*-E3	5/12V DDM power module (optional)[2]	
[3]	AC input power module[4]	
[3]	Sequencer module[5]	

Notes:

1. Where *x* is 1 = top PPS; where *x* is 2 = bottom PPS.
2. Expansion rack with room for 16 storage enclosures.
3. A code is not associated with the location of this part. The part is shown only for reference.
4. For details, see Figure 882 on page 1430.
5. For details, see Figure 883 on page 1431.

AC input power module locations

A code is not associated with the location of the parts on the AC input power module. These parts are shown only for reference.

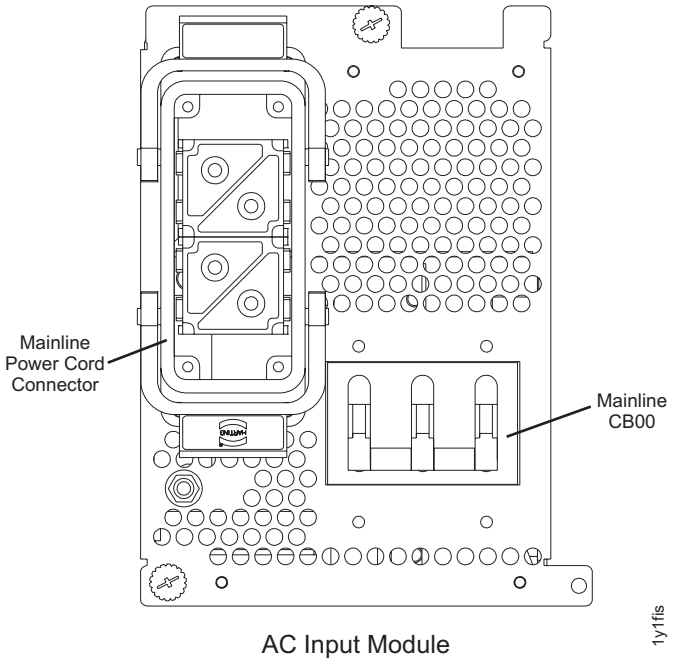


Figure 882. Location codes for the AC input power module

Sequencer module locations

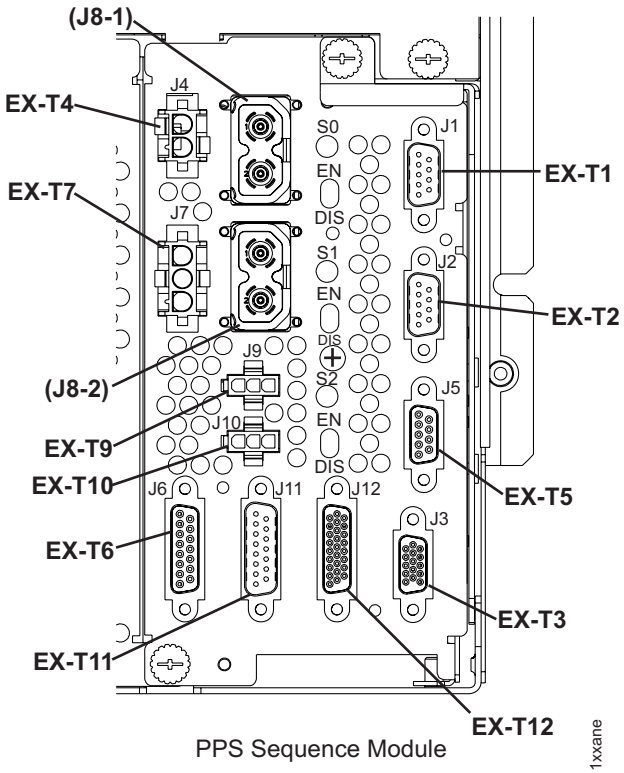


Figure 883. Location codes for the sequencer module

Table 391. Sequencer module locations

Location code	Part name	Connector
U2*nnn.mmm.sssssss*-E*x*	Sequencer module	
U2*nnn.mmm.sssssss*-E*x*-T1		RPC 1 communication
U2*nnn.mmm.sssssss*-E*x*-T2		RPC 2 communication
U2*nnn.mmm.sssssss*-E*x*-T3		PPS to PPS communication
U2*nnn.mmm.sssssss*-E*x*-T4		UEPO loop
U2*nnn.mmm.sssssss*-E*x*-T5		Rack identity card
U2*nnn.mmm.sssssss*-E*x*-T6		Battery backup unit interface
U2*nnn.mmm.sssssss*-E*x*-T7		Battery backup unit charge
U2*nnn.mmm.sssssss*-E*x*-T11		Fan sense card
U2*nnn.mmm.sssssss*-E*x*-T12		Fan sense card

Battery module set rear locations

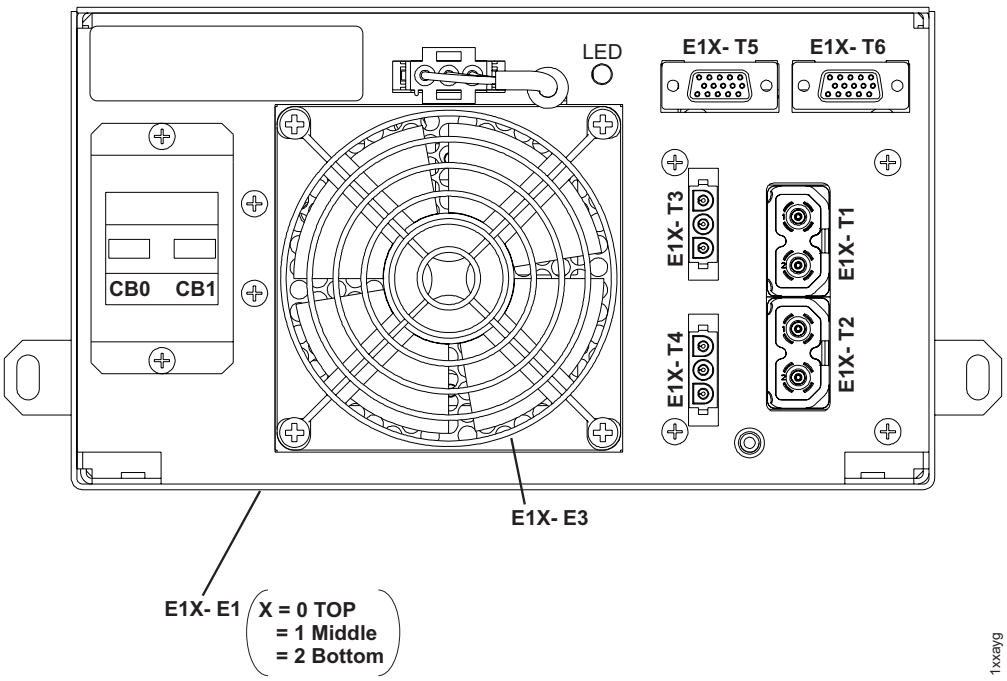


Figure 884. Battery module set locations (rear)

Table 392. Battery module set rear locations

Location code	Part name	Connector
U2*nnn.mmm.sssssss*-E1*x*-E1 *x* = 0 (top position) *x* = 1 (middle position) *x* = 2 (bottom position)	Battery module chassis	
U2*nnn.mmm.sssssss*-E1*x*-E2	Battery module set (3 battery modules)	
U2*nnn.mmm.sssssss*-E1*x*-T1		208VDC bus bar
U2*nnn.mmm.sssssss*-E1*x*-T2		208VDC bus bar
U2*nnn.mmm.sssssss*-E1*x*-T3		PPS charging
U2*nnn.mmm.sssssss*-E1*x*-T4		PPS charging
U2*nnn.mmm.sssssss*-E1*x*-T5		PPS control interface
U2*nnn.mmm.sssssss*-E1*x*-T6		PPS control interface
U2*nnn.mmm.sssssss*-E1*x*-A1	Battery module chassis fan	

DASD fan tray assembly

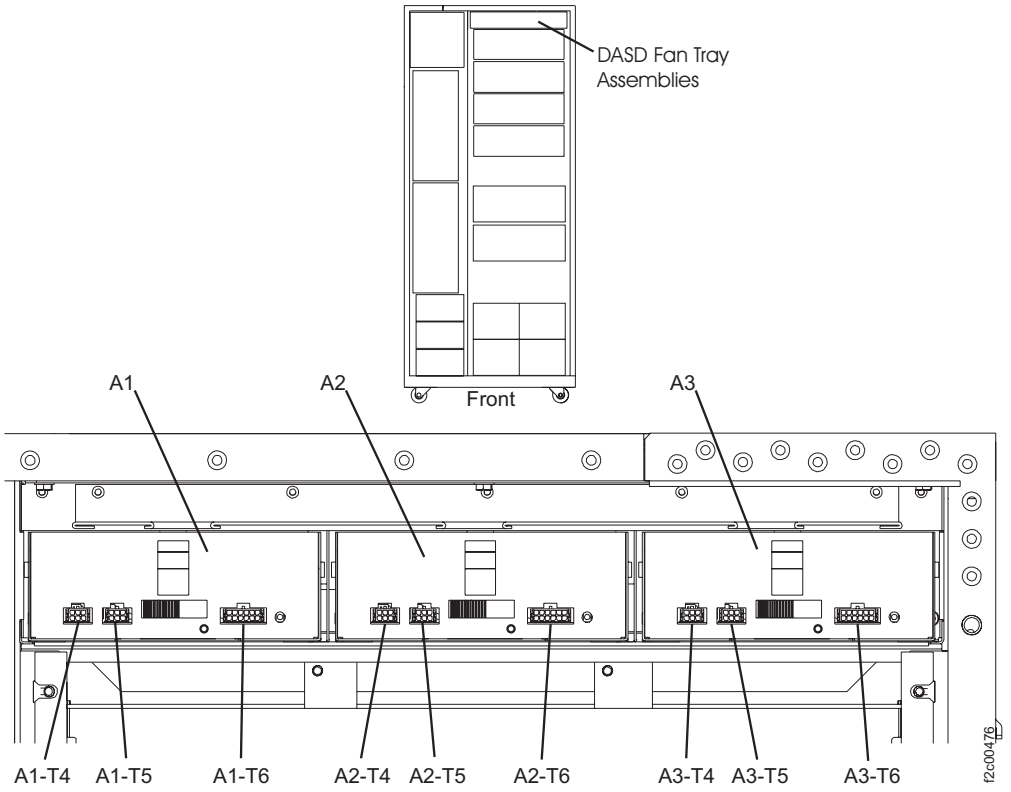


Figure 885. Location codes for the DASD fan tray assemblies

Table 393. Location codes for the DASD fan tray assemblies

Location code	Part name	Connector
U2*nnn.mmm.sssssss*-A1	DASD fan tray assembly	
U2*nnn.mmm.sssssss*-A1-T4		5/12V power
U2*nnn.mmm.sssssss*-A1-T5		5/12V power
U2*nnn.mmm.sssssss*-A1-T6		Control interface
U2*nnn.mmm.sssssss*-A2	DASD fan tray assembly	
U2*nnn.mmm.sssssss*-A2-T4		5/12V power
U2*nnn.mmm.sssssss*-A2-T5		5/12V power
U2*nnn.mmm.sssssss*-A2-T6		Control interface
U2*nnn.mmm.sssssss*-A3	DASD fan tray assembly	
U2*nnn.mmm.sssssss*-A3-T4		5/12V power
U2*nnn.mmm.sssssss*-A3-T5		5/12V power
U2*nnn.mmm.sssssss*-A3-T6		Control interface

Fan sense card locations

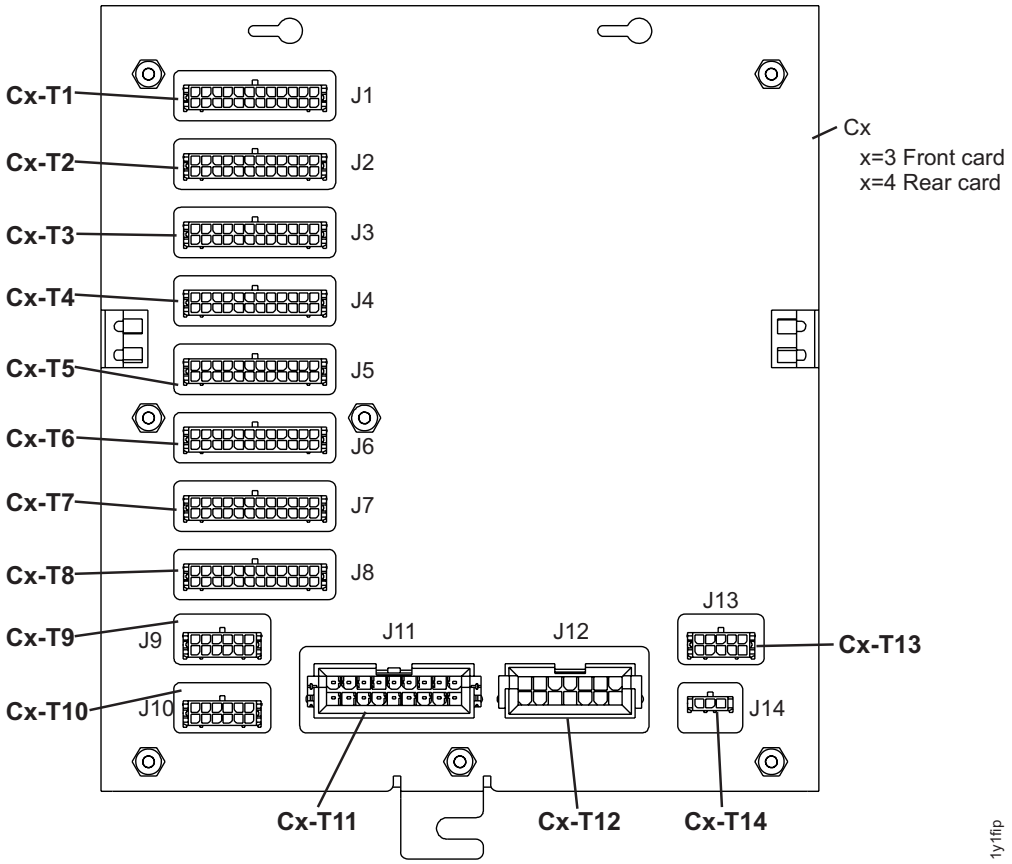


Figure 886. Location codes for the fan sense card

Table 394. Fan sense card locations

Location code	Part name	Connector
U2*nnn.mmm.sssssss*-C*x* (*x* = 3, front of rack) (*x* = 4, rear of rack)	Fan sense card	
U2*nnn.mmm.sssssss*-C*x*-T1		Storage enclosure
U2*nnn.mmm.sssssss*-C*x*-T2		Storage enclosure
U2*nnn.mmm.sssssss*-C*x*-T3		Storage enclosure
U2*nnn.mmm.sssssss*-C*x*-T4		Storage enclosure
U2*nnn.mmm.sssssss*-C*x*-T5		Storage enclosure
U2*nnn.mmm.sssssss*-C*x*-T6		Storage enclosure
U2*nnn.mmm.sssssss*-C*x*-T7		Storage enclosure
U2*nnn.mmm.sssssss*-C*x*-T8		Storage enclosure
U2*nnn.mmm.sssssss*-C*x*-T9		DASD fan tray
U2*nnn.mmm.sssssss*-C*x*-T10		DASD fan tray
U2*nnn.mmm.sssssss*-C*x*-T11		PPS 1
U2*nnn.mmm.sssssss*-C*x*-T12		PPS 2
U2*nnn.mmm.sssssss*-C*x*-T13		Fan sense card to fan sense card

Table 394. Fan sense card locations (continued)

Location code	Part name	Connector
U2*nnn.mmm.sssssss*-C*x*-T14		Rack identity card

Local remote switch card locations

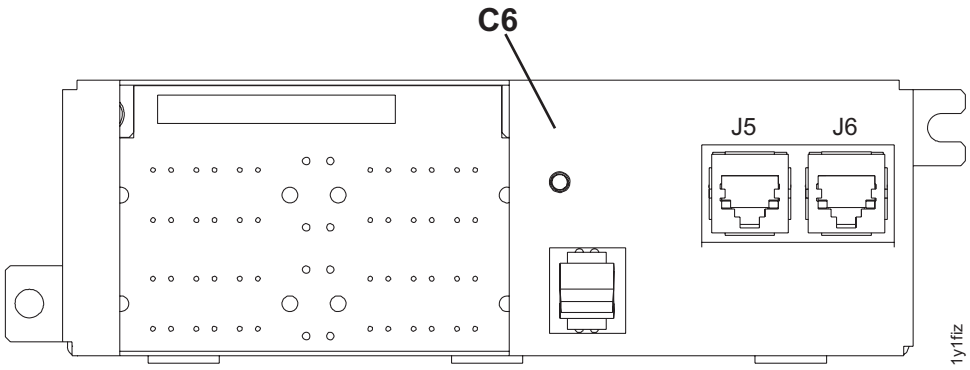


Figure 887. Location codes for the local remote switch card

Table 395. Local remote switch card locations

Location code	Part name	Connector
U2*nnn.mmm.sssssss*-C6	Local remote switch card	

Rack identity card locations

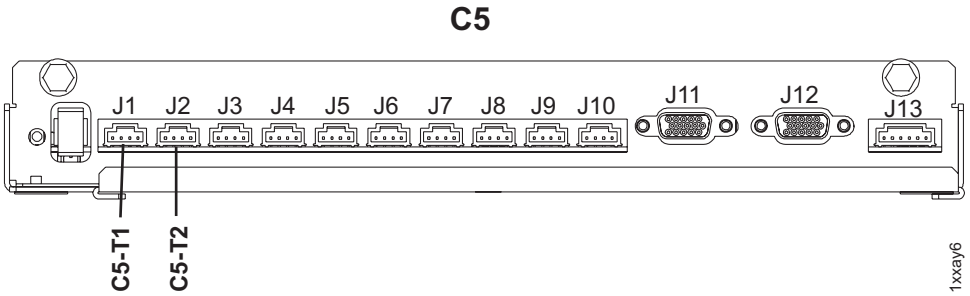


Figure 888. Location codes for the rack identity card

Table 396. Rack identity card locations

Location code	Part name	Connector
U2*nnn.mmm.sssssss*-C5	Rack identity card (right from rear view)	
U2*nnn.mmm.sssssss*-C5-T1		Fan sense card, front
U2*nnn.mmm.sssssss*-C5-T2		Fan sense card, rear

RPC card locations

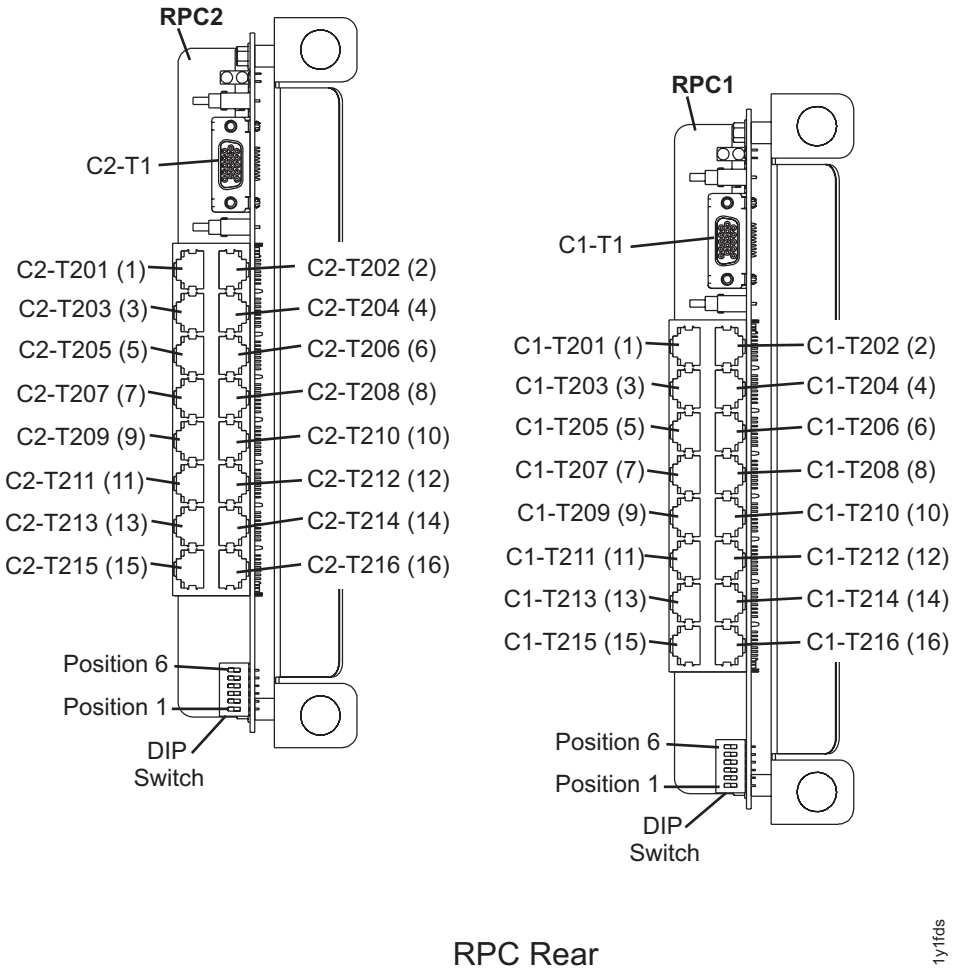


Figure 889. Location codes for the RPC card

Table 397. RPC card locations

Location code	Part name	Connector
U2*nnn.mmm.sssssss*-C1	RPC card (right from rear view)	
U2*nnn.mmm.sssssss*-C2	RPC card (left from rear view)	
U2*nnn.mmm.sssssss*-C*x*-T1		Rack identity card
U2*nnn.mmm.sssssss*-C*x*-T201		PPS rack 1
U2*nnn.mmm.sssssss*-C*x*-T202		reserved
U2*nnn.mmm.sssssss*-C*x*-T203		PPS rack 2
U2*nnn.mmm.sssssss*-C*x*-T204		Local remote switch card
U2*nnn.mmm.sssssss*-C*x*-T205		PPS rack 3
U2*nnn.mmm.sssssss*-C*x*-T206		reserved
U2*nnn.mmm.sssssss*-C*x*-T207		reserved
U2*nnn.mmm.sssssss*-C*x*-T208		RPC card to RPC card
U2*nnn.mmm.sssssss*-C*x*-T209		reserved
U2*nnn.mmm.sssssss*-C*x*-T210		CEC enclosure 1

Table 397. RPC card locations (continued)

Location code	Part name	Connector
U2*nnn.mmm.sssssss*-C*x*-T211		reserved
U2*nnn.mmm.sssssss*-C*x*-T212		reserved
U2*nnn.mmm.sssssss*-C*x*-T213		reserved
U2*nnn.mmm.sssssss*-C*x*-T214		CEC enclosure 2
U2*nnn.mmm.sssssss*-C*x*-T215		reserved
U2*nnn.mmm.sssssss*-C*x*-T216		not used

System z local remote switch card locations

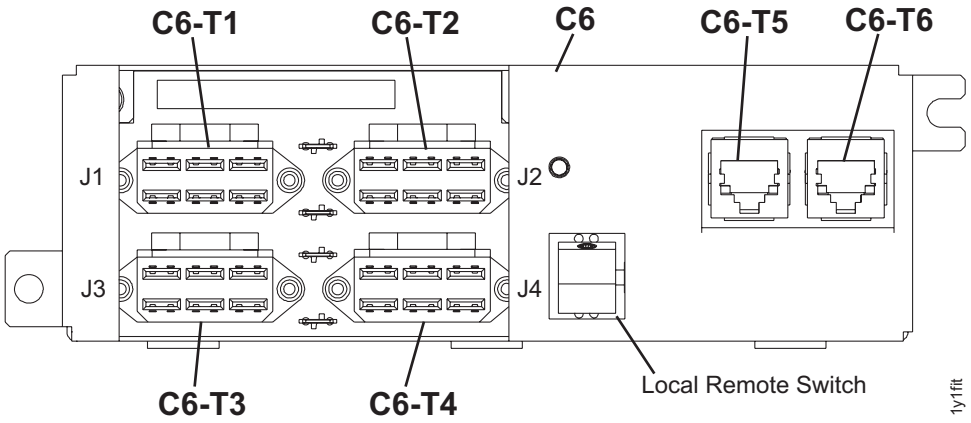


Figure 890. Location codes for the zSeries local remote switch card

Table 398. System z local remote switch card locations

Location code	Part name	Connector
U2*nnn.mmm.sssssss*-C6	System z local remote switch card	

Storage enclosure location codes

For storage enclosure location codes, see Figure 891 on page 1438 and Figure 892 on page 1438. For storage enclosure part numbers, see “Storage enclosure part numbers” on page 1408.

Location codes for parts except DDMs

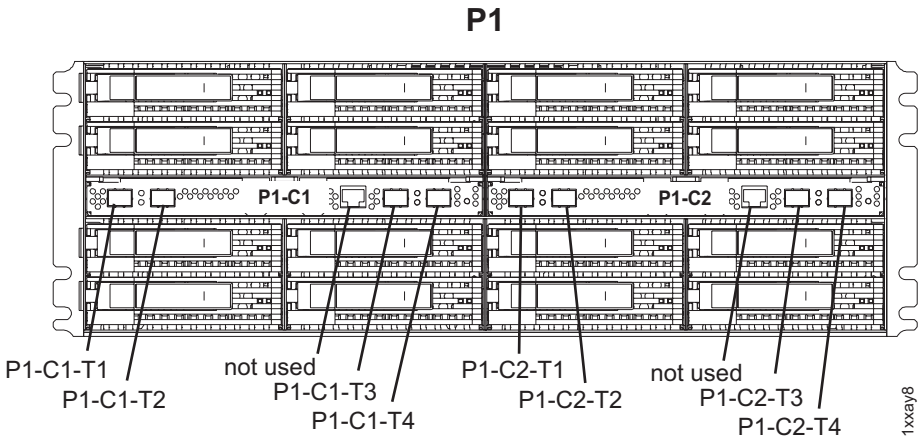


Figure 891. Storage enclosure locations

Table 399. Location codes for parts except DDMs

Location code	Part name
U2*nnn*.D01.sssssss	Storage enclosure
U2*nnn*.D01.sssssss-P1	Storage enclosure backplane
U2*nnn*.D01.sssssss-P1-C1	Fibre channel interface card (FCIC)
U2*nnn*.D01.sssssss-P1-C1-Tx (x = 1-4 left to right)	(Connector on FCIC)
U2*nnn*.D01.sssssss-P1-C2	Fibre channel interface card (FCIC)
U2*nnn*.D01.sssssss-P1-C2-Tx (x = 1-4 left to right)	(Connector on FCIC)

Location codes for DDMs

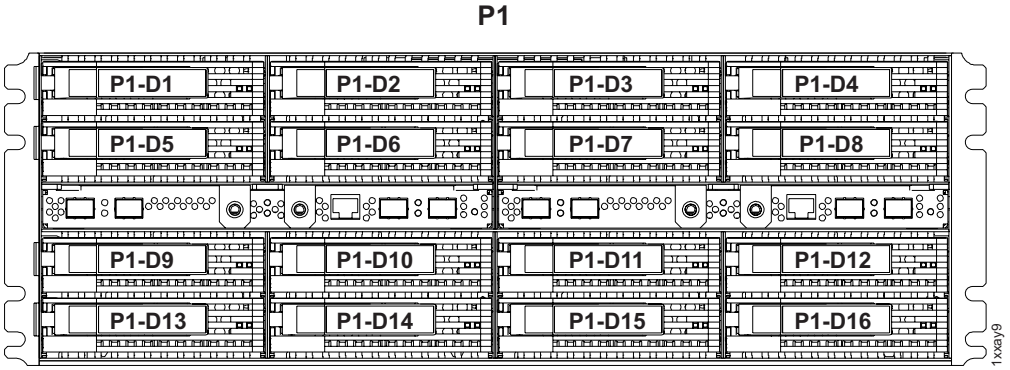


Figure 892. Storage enclosure locations (continued)

Table 400. Location codes for DDMs

Location code	Part name
U2*nnn*.D01.sssssss-P1-Dx (x = 1-16)	Disk drive module 73 GB 15K RPM DDM 146 GB 10K RPM DDM 146 GB 15K RPM DDM 300 GB 10K RPM DDM

Chapter 45. Location codes in MES/Install instructions

Physical location codes are used in the MES/Install instructions. To determine the physical location code for a part, see the appropriate Figure:

Rack	See
Rack-1	Figure 893
Expansion rack	Figure 894 on page 1440

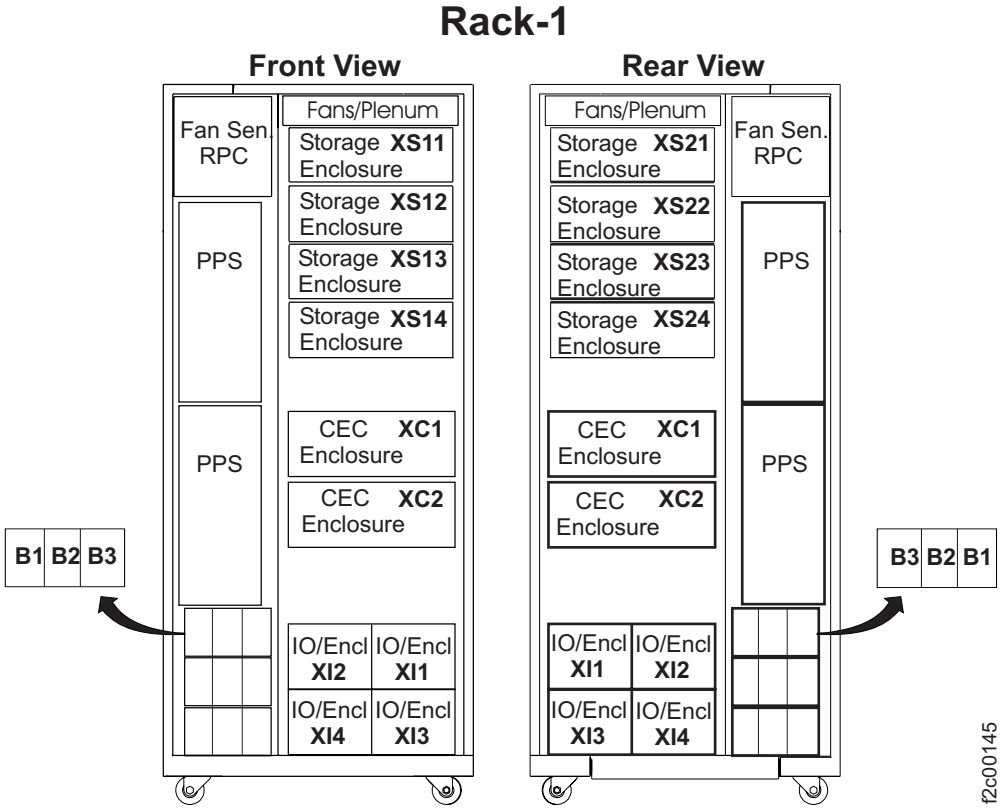


Figure 893. Physical location codes (Rack-1)

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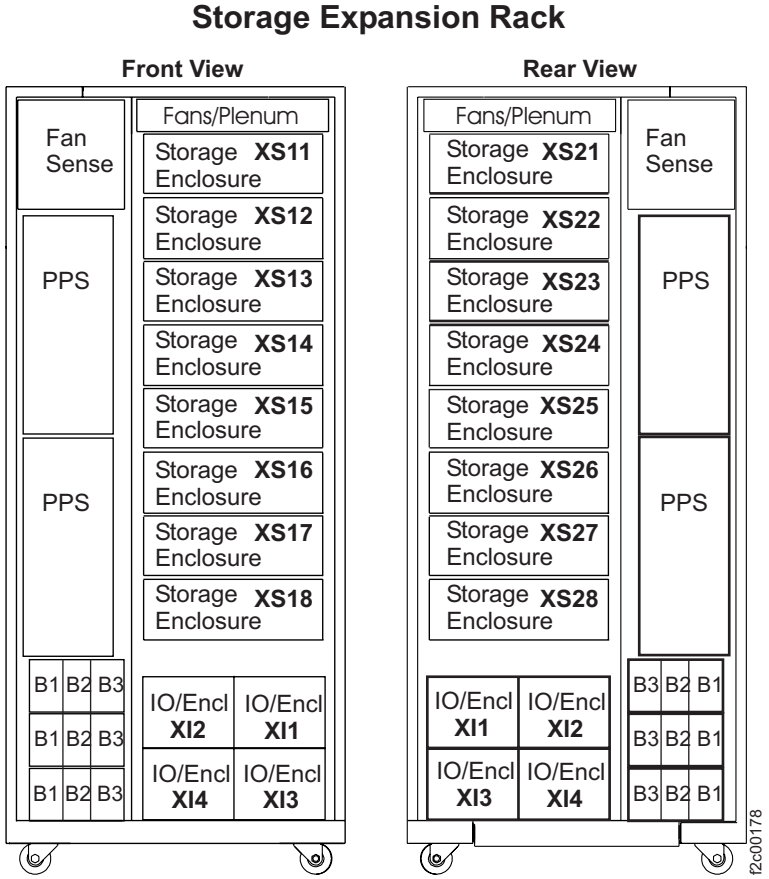


Figure 894. Physical location codes (expansion rack)

Chapter 46. Light indicators (LEDs)

This section contains FRUs that have LED indicators. Each assembly is shown with a description of its LEDs. This section is for reference only, because although LED indicators may indicate a failure, they should not be used as a starting point for a repair.

CEC enclosure light indicators

Table 401 lists the CEC enclosure assemblies with LED descriptions that are defined in this document. While LED indicators may indicate a failure, they should not be used as a starting point for a repair.

Table 401. List of CEC enclosure assemblies with LEDs

Assembly	**Reference**
CEC enclosure (front)	Figure 895 on page 1442
CEC enclosure (left rear)	Figure 896 on page 1444
CEC enclosure power supply (rear right)	Figure 897 on page 1445
Ethernet card (PCI)	Figure 898 on page 1446
Service processor card	Figure 899 on page 1447

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CEC Enclosure LEDs (Front)

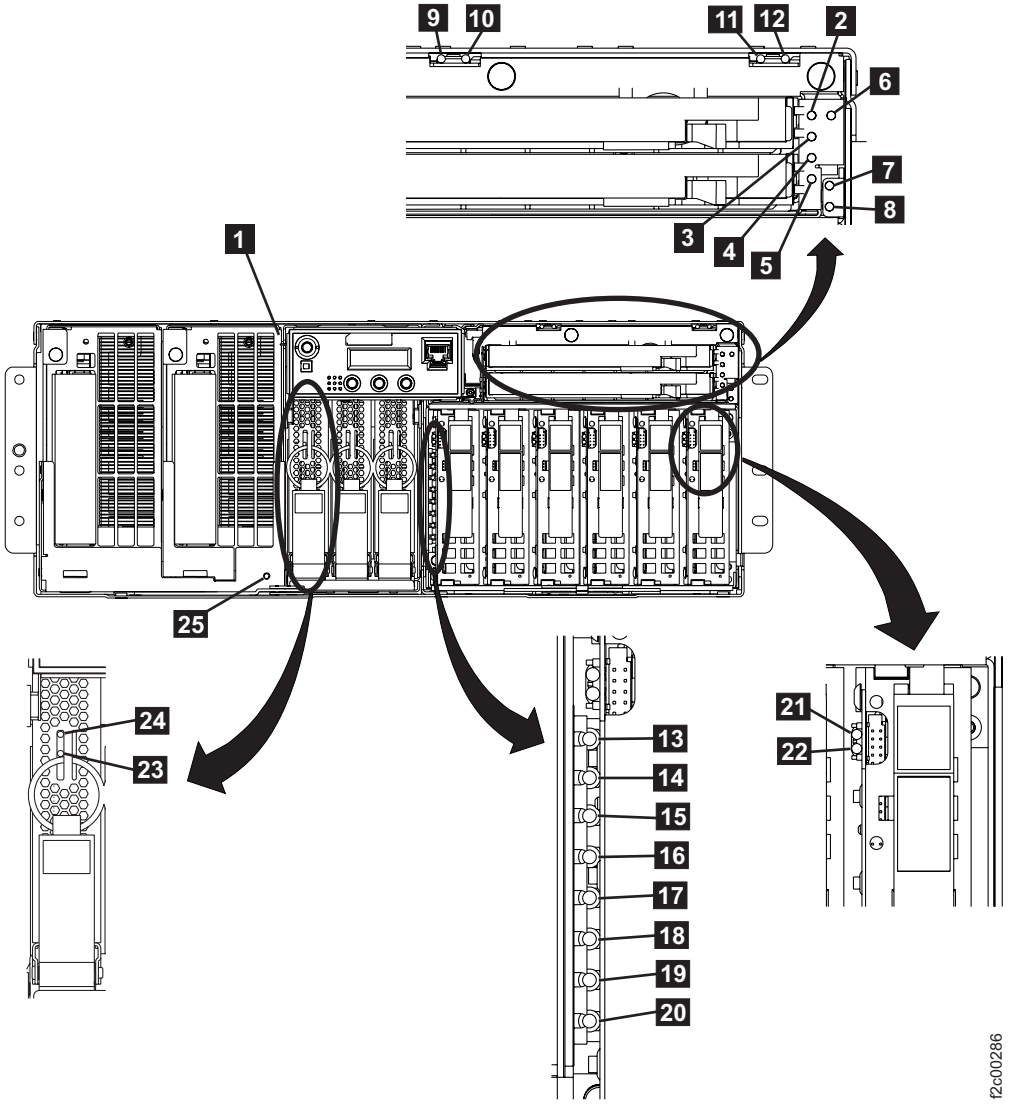


Figure 895. LED CEC enclosure front

Table 402. Interpreting the LEDs on the CEC enclosure (front)

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Power for CEC enclosure	MTMS	Green	power off	power on	n/a
2	Power for Removable media upper slot	P4-D1	Green	power off	power on	n/a
3	Identify for Removable media upper slot	P4-D1	Amber	normal	action	identify
4	Power for Removable media lower slot	P4-D2	Green	power off	power on	n/a

Table 402. Interpreting the LEDs on the CEC enclosure (front) (continued)

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
5	Identify for Removable media lower slot	P4-D2	Amber	normal	action	identify
6	Identify for media backplane assembly	P4	Amber	normal	action	identify
7	Power for media back plane assembly	P4	Green	power off	power on	n/a
8	Attention and identify for CEC enclosure		Amber	normal	attention	identify
9	Identify for CEC Enclosure Fan	A1	Amber	normal	action	identify
10	Power for CEC Enclosure Fan	A1	Green	power off	power on	n/a
11	Identify for CEC Enclosure Fan	A2	Amber	normal	action	identify
12	Power for CEC Enclosure Fan	A2	Green	power off	power on	n/a
13	Identify for disk drive backplane assembly	P3	Amber	normal	action	identify
14	Identify for optional card not used in DS8000					
15	Power for CEC disk drive	P3-D1	Green	power off	power on	n/a
16	Power for CEC disk drive	P3-D2	Green	power off	power on	n/a
17	Power for CEC disk drive	P3-D3	Green	power off	power on	n/a
18	Power for CEC disk drive	P3-D4	Green	power off	power on	n/a
19	Power for CEC disk drive	P3-D5	Green	power off	power on	n/a
20	Power for CEC disk drive	P3-D6	Green	power off	power on	n/a
21	Activity for CEC disk drive	P3-Dx	Green	not active	n/a	Identify
22	Identify for CEC disk drive	P3-Dx	Amber	normal	action	identify
23	Identify for system processor voltage card	P2-Cx	Amber	normal	action	identify
24	Power for system processor voltage card	P2-Cx	Green	power off	power on	n/a

Table 402. Interpreting the LEDs on the CEC enclosure (front) (continued)

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
25	Identify for system processor backplane assembly	P2	Amber	normal	action	identify

CEC enclosure (left rear)

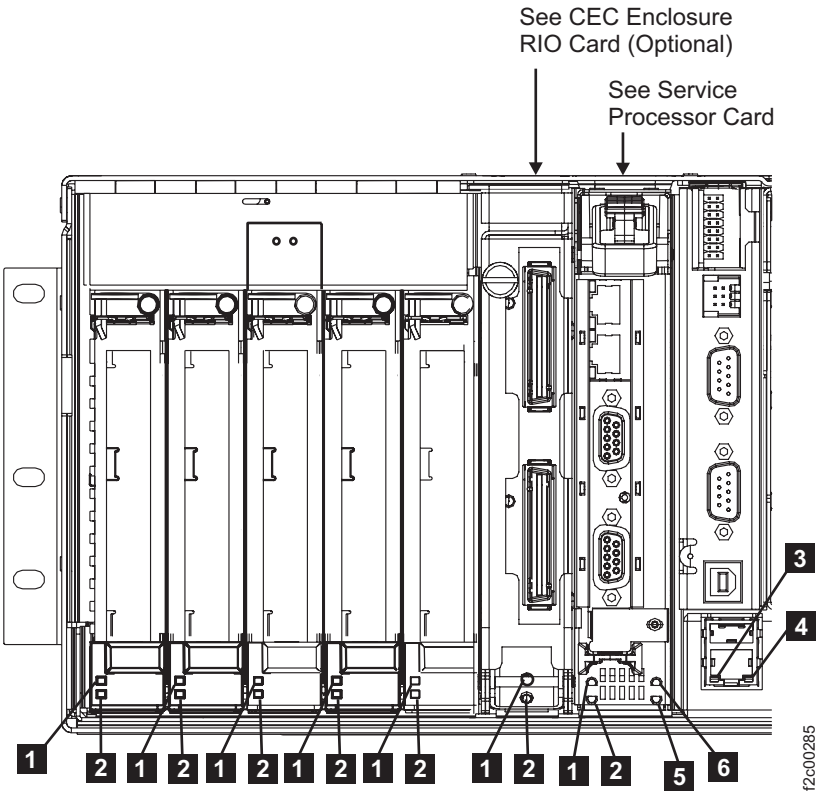


Figure 896. LED CEC enclosure left rear

Table 403. Interpreting the LEDs on the CEC enclosure (rear left)

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Power for CEC enclosure PCI slots 1-7	P1-Cx	Green	power off	power on	n/a
2	Identify for CEC enclosure PCI slots 1-7	P1-Cx	Amber	power off	power on	n/a
3	Link for Ethernet port	T6	Green	link bad	link OK	n/a
4	Activity for Ethernet port	T6	Green	no activity	link is bad	activity

CEC enclosure power supply (rear right)

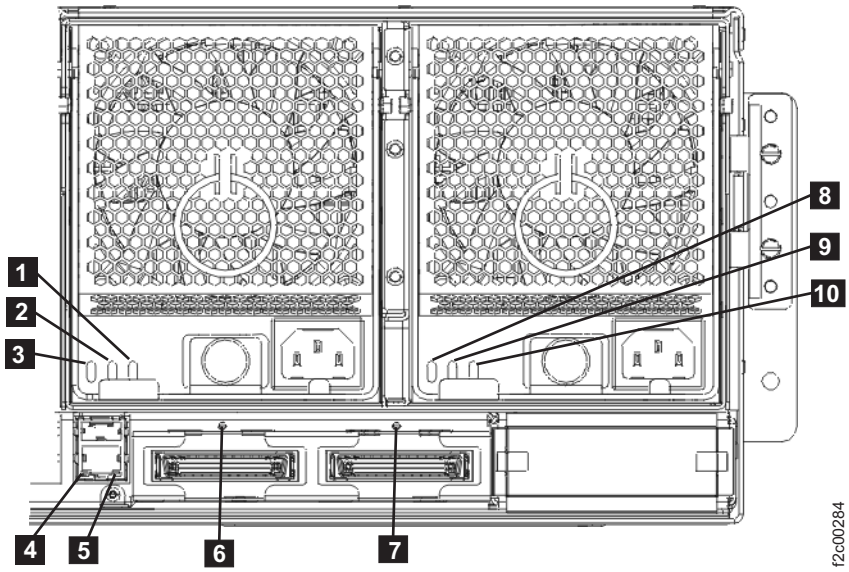


Figure 897. LED CEC enclosure right rear

Table 404. Interpreting the LEDs on the CEC enclosure power supply

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Identify for CEC enclosure power supply	E1	Amber	normal	n/a	fast: identify slow: com fail
2	Output power for CEC enclosure power supply	E1	Green	standby off	output on	standby
3	Input power for CEC enclosure power supply	E1	Green	no input	input good	n/a
4	Link for Ethernet port	T7	Green	link bad	link OK	n/a
5	Activity for Ethernet port	T7	Green	no activity	link bad	activity
6	Identify for RIO port	T8	Amber	normal	n/a	identify
7	Identify for RIO port	T9	Amber	normal	n/a	identify

Table 404. Interpreting the LEDs on the CEC enclosure power supply (continued)

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
8	Input power for CEC enclosure power supply	E2	Green	no input	input good	n/a
9	Output power for CEC enclosure power supply	E2	Green	standby off	output on	standby
10	Identify for CEC enclosure power supply	E2	Amber	normal	n/a	fast: identify slow: com fail

Ethernet card (PCI)

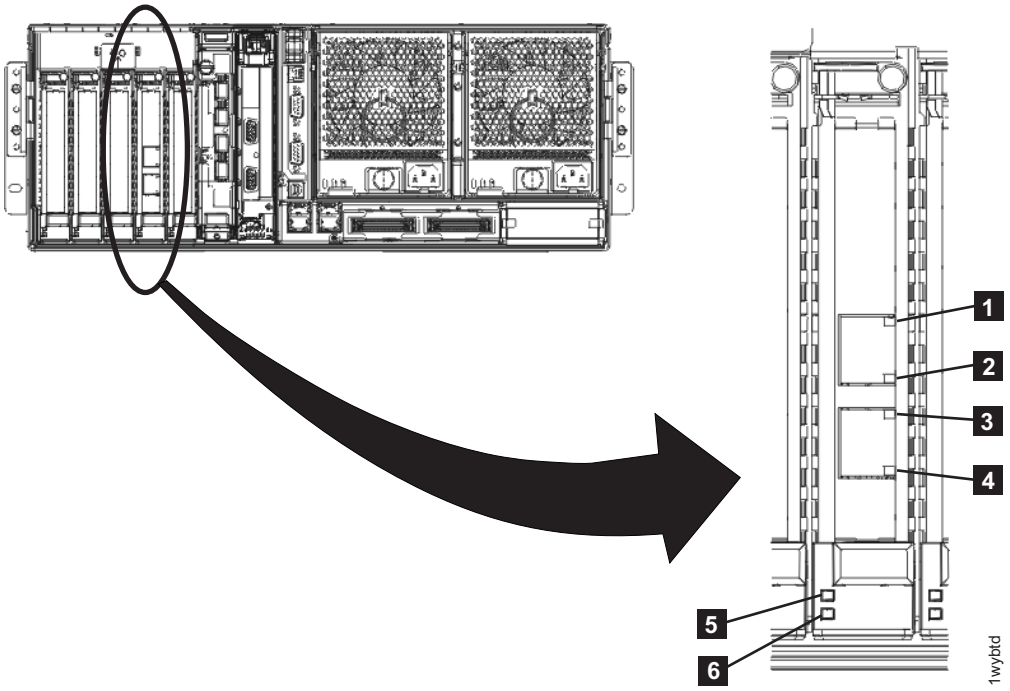


Figure 898. LED CEC enclosure Ethernet PCI card

Table 405. Interpreting the LEDs on the Ethernet card (PCI)

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Link for Ethernet port	P1-C4-T1	Green	link bad	link OK	n/a
2	Activity for Ethernet port	P1-C4-T1	Green	no activity	link is bad	activity
3	Link for Ethernet port	P1-C4-T2	Green	link bad	link OK	n/a
4	Activity for Ethernet port	P1-C4-T2	Green	no activity	link is bad	activity

Table 405. Interpreting the LEDs on the Ethernet card (PCI) (continued)

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
5	Power for CEC enclosure PCI slots 4	P1-C4	Green	power off	power on	n/a
6	Identify for CEC enclosure PCI slots 4	P1-C4	Amber	normal	n/a	identify

Service processor card

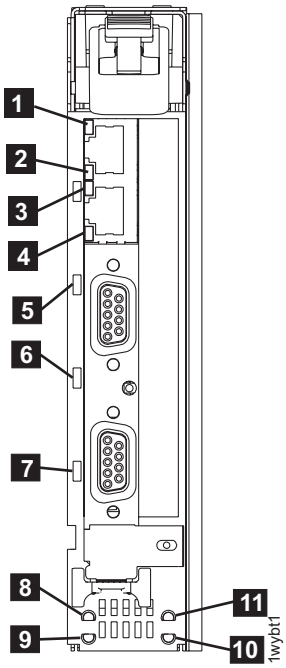


Figure 899. LED CEC enclosure service processor card

Table 406. Interpreting the LEDs on the service processor card

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Link for Ethernet port	P1-C8-T1	Green	link bad	link OK	n/a
2	Activity for Ethernet port	P1-C8-T1	Green	no activity	link bad	activity
3	Link for Ethernet port	P1-C8-T2	Green	link bad	link OK	n/a
4	Activity for Ethernet port	P1-C8-T2	Green	no activity	link bad	activity
5	Identify for service processor card SPCN port	P1-C8-T3	Amber	normal	n/a	identify

Table 406. Interpreting the LEDs on the service processor card (continued)

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
6	Identify for service processor card	P1-C8	Amber	normal	n/a	identify
7	Identify for service processor card SPCN port	P1-C8-T4	Amber	normal	n/a	identify
8	Power for CEC enclosure RIO card	P1-C7	Green	power off	power on	n/a
9	Identify for CEC enclosure RIO card	P1-C7	Amber	normal	n/a	identify
10	Attention for CEC enclosure	MTMS	Amber	normal	attention	identify
11	Identify for CEC enclosure I/O backplane assembly	P1	Amber	normal	n/a	identify

I/O enclosure light indicators

This section contains FRUs that have LED indicators. Each listed assembly is shown with a description of its LEDs. Do not use LEDs as a starting point for diagnosing a problem.

I/O enclosure FRUs with LEDs

Table 407 lists the assemblies with LED descriptions that are defined in this document.

Table 407. List of I/O enclosure assemblies with LEDs

Assembly	Reference
I/O enclosure (front)	Figure 900 on page 1449
I/O enclosure and RIO card (rear)	Figure 901 on page 1450

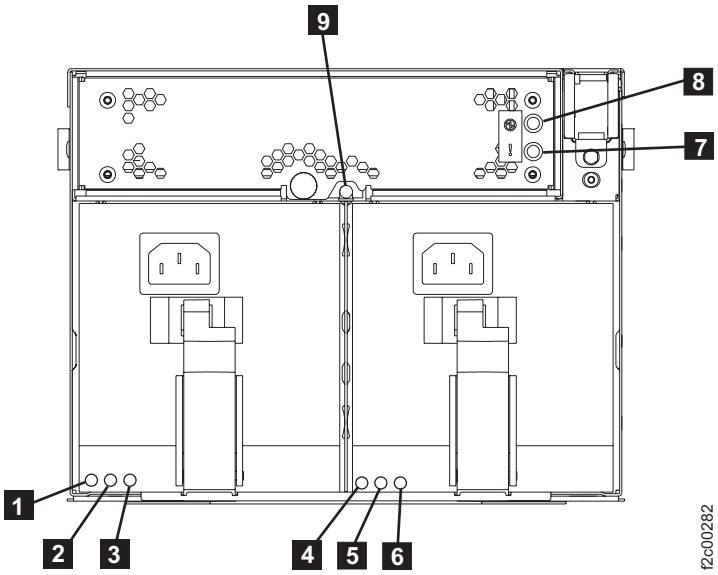


Figure 900. LEDs on the I/O enclosure (front)

Table 408. Interpreting the LEDs on the I/O enclosure (front)

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Input power for I/O enclosure power supply	E1	Green	no input	input good	n/a
2	Output power for I/O enclosure power supply	E1	Green	standby off	output on	standby
3	Identify for I/O enclosure power supply	E1	Amber	normal	n/a	fast = identify, slow = com fail
4	Input power for I/O enclosure power supply	E2	Green	no input	input good	n/a
5	Output power for I/O enclosure power supply	E2	Green	standby off	output on	standby
6	Identify for I/O enclosure power supply	E2	Amber	normal	n/a	fast = identify, slow = com fail
7	Identify for I/O enclosure fan	P1-A1	Amber	normal	n/a	identify
8	Power I/O enclosure fan	P1-A1	Green	power off	power on	n/a
9	Identify for I/O enclosure	P1	Amber	normal	n/a	identify

I/O enclosure rear

This enclosure also contains the I/O enclosure RIO card.

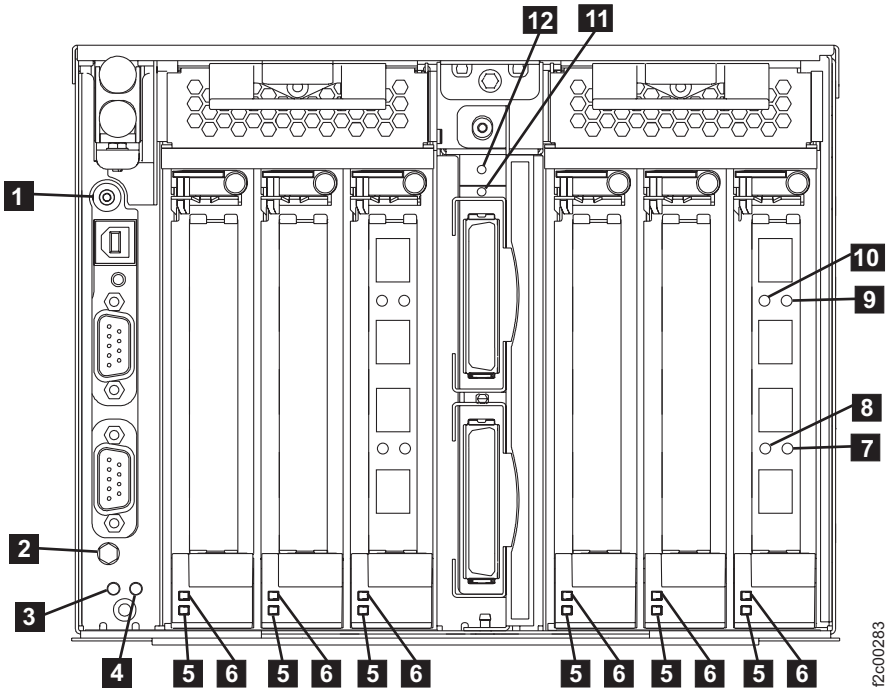


Figure 901. LEDs on the I/O enclosure (rear) and RIO card

Table 409. Interpreting the LEDs on the I/O enclosure (rear) and RIO card

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Identify for I/O enclosure SPCN connector	P1-T2	Amber	normal	n/a	identify
2	Identify for I/O enclosure SPCN connector	P1-T3	Amber	normal	n/a	identify
3	Power for I/O enclosure	P1	Green	power off	power on	n/a
4	Identify for I/O enclosure	P1	Amber	normal	n/a	identify
5	Identity for I/O enclosure PCI slot	P1-Cx	Amber	normal	n/a	identify
6	Power for I/O enclosure PCI slot	P1-Cx	Green	power off	power on	n/a
7	Activity for device adapter card	P1-Cx-T3	Green	Note 1 on page 1451	Note 2 on page 1451	Note 3 on page 1451

Table 409. Interpreting the LEDs on the I/O enclosure (rear) and RIO card (continued)

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
8	Activity for device adapter card	P1-Cx-T2	Amber	normal	n/a	identify
9	Activity for device adapter card	P1-Cx-T1	Green	Note 1	Note 2	Note 3
10	Activity for device adapter card	P1-Cx-T0	Amber	normal	n/a	identify
11	Identity for I/O enclosure RIO card connector	P1-Cx-T0	Amber	normal	n/a	identify
12	Identity for I/O enclosure RIO card connector	P1-C7-T1	Amber	normal	n/a	identify

Notes:

1. LED off indicates port above and port below LED are both not “Ready”.
2. LED on solid indicates port above and port below LED are both “Ready” (operational).
3. If LED is blinking 0.75 sec ON and 0.25 sec OFF, then only the port above the LED is “Ready”.
   If LED is blinking 0.25 sec ON and 0.75 sec OFF, then only the port below the LED is failing.

Management console (MC) server light indicators

This section contains information about LEDs that are on the management console (MC) server. Although the condition of LEDs might indicate a failure, the LEDs should not be used as a starting point for a repair.

X335 management console server light indicators

This section contains information about LEDs that are on the X335 management console server. Although the condition of LEDs might indicate a failure, the LEDs should not be used as a starting point for a repair.

LEDs on the front of the X335 server

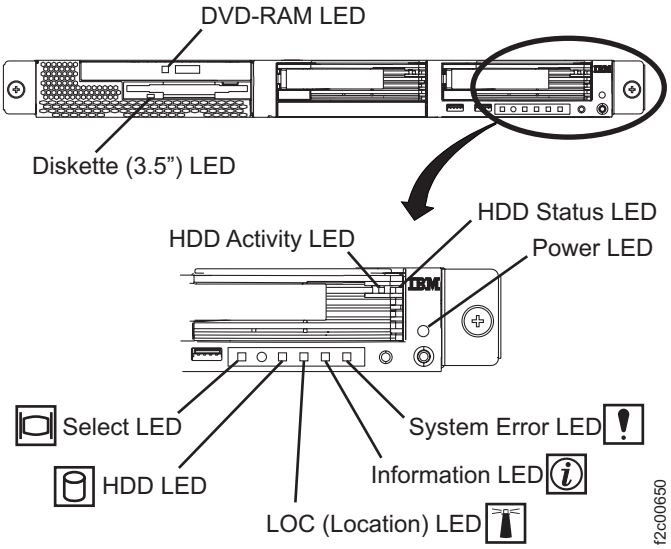


Figure 902. LEDs on the front of the X335 management console server

- **Diskette (3.5″) LED**: On = The diskette drive is in use.
- **DVD-RAM LED**: On = The DVD-RAM drive is in use.
- **HDD Activity LED**: On = The hard disk drive is in use.
- **HDD Status LED**: On = The hard disk drive has failed. If an optional RAID adapter is installed in the server and the LED flashes slowly (one flash per second), the drive is being rebuilt. If the LED flashes rapidly (three flashes per second), the controller is identifying the drive.
- **HDD LED** (Panel): On = Either of the hard disk drives is in use.
- **Information LED**: On = A non-critical event has occurred and is identified in the error log.
- **LOC (Location) LED**: Use this blue LED to visually locate the server if it is in a location with numerous other servers. You can use IBM Director to light this LED remotely. (Not used on the DS8000.)
- **Power LED**: On = Input power (ac) and output power (dc) are present in the server. Flashing = The server is in Standby mode. Off = Input power is not present, the power supply has failed, or the LED itself has failed. A power LED is also on the rear of the server.

  Note: To remove all electrical power from the server, you must disconnect the power cord from the electrical outlet.
- **Select LED**: The C2T chain uses special cables to allow two or more X335 servers to share one keyboard/display. The DS8000 does not use this feature, so this LED should always be lit. A select LED is also on the rear of the server.
- **System Error LED**: On = A system error has occurred. An LED on the Light Path Diagnostics panel on the system board is also lit to help isolate the error. A system error LED is also on the front of the server.

LEDs on the rear of the X335 server

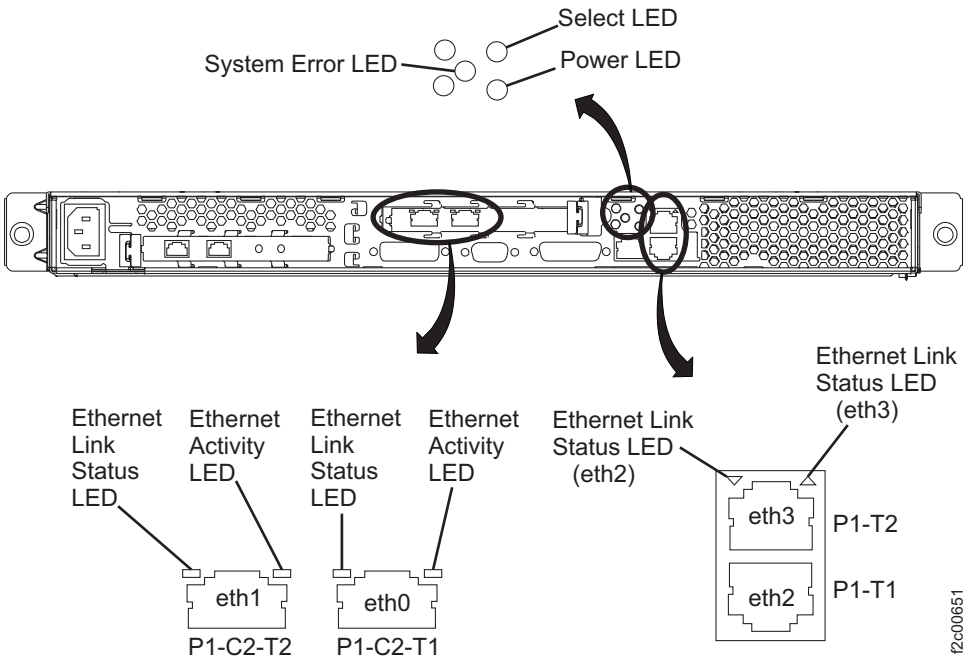


Figure 903. LEDs on the rear of the X335 management console server

- **Ethernet Activity LED**: On = The Ethernet link is bad. Off = Ethernet activity is not occurring. Flashing = Ethernet activity is occurring.
- **Ethernet Link Status LED**: On = The Ethernet link is okay. Off = The Ethernet link is bad.
- **Power LED**: On = Input power (ac) and output power (dc) are present in the server. Flashing = The server is in Standby mode. Off = Input power is not present, the power supply has failed, or the LED itself has failed. A power LED is also on the front of the server.

  Note: To remove all electrical power from the server, you must disconnect the power cord from the electrical outlet.
- **Select LED**: The C2T chain uses special cables to allow two or more X335 servers to share one keyboard/display. The DS8000 does not use this feature, so this LED should always be lit. A select LED is also on the front of the server.
- **System Error LED**: On = A system error has occurred. An LED on the Light Path Diagnostics panel on the system board is also lit to help isolate the error. A system error LED is also on the front of the server.

X336 management console server light indicators

This section contains information about LEDs that are on the X336 management console server. Although the condition of LEDs might indicate a failure, the LEDs should not be used as a starting point for a repair.

LEDs on the front of the X336 server

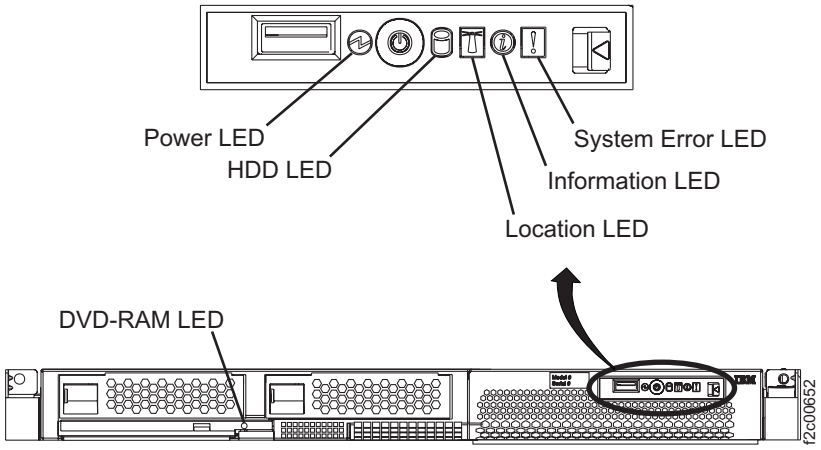


Figure 904. LEDs on the front of the X336 management console server

- **DVD-RAM LED**: On = The DVD-RAM drive is in use.
- **Information LED**: On = A non-critical event has occurred and is identified in the error log.
- **Location LED**: Use this blue LED to visually locate the server if it is in a location with numerous other servers. You can use IBM Director to light this LED remotely.
- **Power LED**: On = Input power (ac) and output power (dc) are present in the server. Flashing = The server is in Standby mode. Off = Input power is not present, the power supply has failed, or the LED itself has failed. A power LED is also on the rear of the server.

  Note: To remove all electrical power from the server, you must disconnect the power cord from the electrical outlet.
- **System Error LED**: On = A system error has occurred. An LED on the Light Path Diagnostics panel on the system board is also lit to help isolate the error. A system error LED is also on the front of the server.

LEDs on the rear of the X336 server

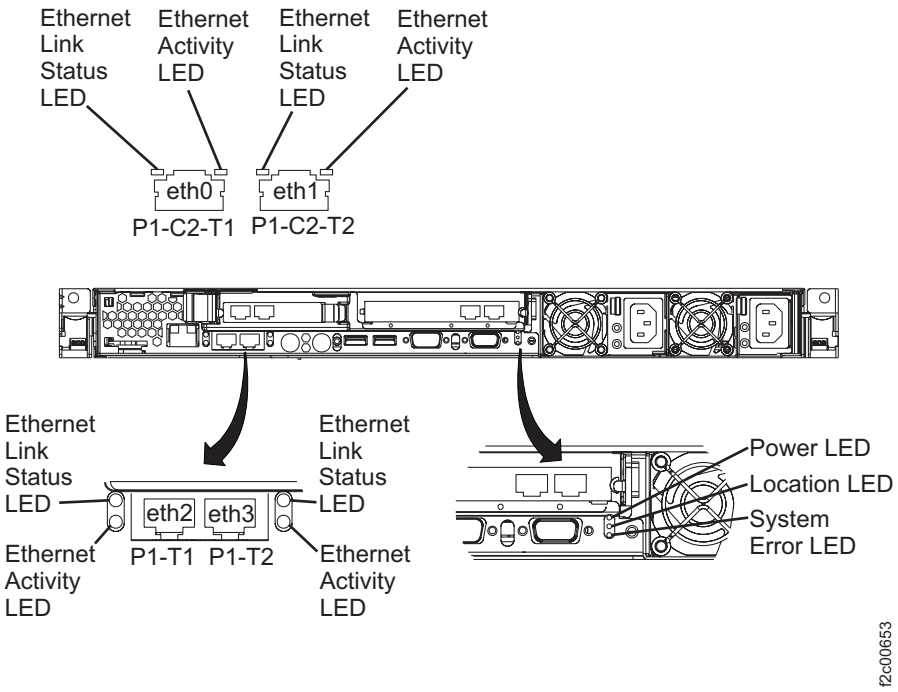


Figure 905. LEDs on the rear of the X336 management console server

- **Ethernet Activity LED**: On = The Ethernet link is bad. Off = Ethernet activity is not occurring. Flashing = Ethernet activity is occurring.
- **Ethernet Link Status LED**: On = The Ethernet link is okay. Off = The Ethernet link is bad.
- **Location LED**: Use this blue LED to visually locate the server if it is in a location with numerous other servers. You can use IBM Director to light this LED remotely. (Not used on the DS8000.)
- **Power LED**: On = Input power (ac) is present at the server. Off = Input power (ac) is not present, the power supply has failed, or the LED itself has failed. A power LED is also on the front of the server.

  Note: To remove all electrical power from the server, you must disconnect the power cord from the electrical outlet.
- **Power Input LED**: On = Input power (ac) is present at the server. Off = Input power is not present at the server. A power LED is also on the front of the server.
- **Power Output LED**: On = The power supply is providing output power (dc) to the server. Off = The power supply is not providing output power (dc) to the server.
- **System Error LED**: On = A system error has occurred. An LED on the Light Path Diagnostics panel on the system board is also lit to help isolate the error. A system error LED is also on the front of the server.

Rack power and cooling light indicators

This section contains rack power and cooling FRUs that have LED indicators. Each listed assembly is shown with a description of its LEDs. Although LED indicators may indicate a failure, they should not be used as a starting point for a repair.

Rack power and cooling FRUs with LEDs

Table 410 lists the assemblies with LED descriptions that are defined in this document.

Table 410. Parts of the rack power and cooling assembly that contain LEDs

Assembly	Reference
DASD fan tray assembly	Figure 911 on page 1461
Fan sense card	Figure 912 on page 1462
PPS Overview (front) 208VDC power module 5/12V DDM power module Booster power module Sequencer module	 Figure 906 Figure 907 on page 1457 Figure 908 on page 1458 Figure 909 on page 1459 Figure 910 on page 1460
Rack identity card	Figure 913 on page 1462
Rack operator panel UEPO switch assembly	Figure 914 on page 1463
RPC card	Figure 915 on page 1464

LEDs on the primary power supply (front)

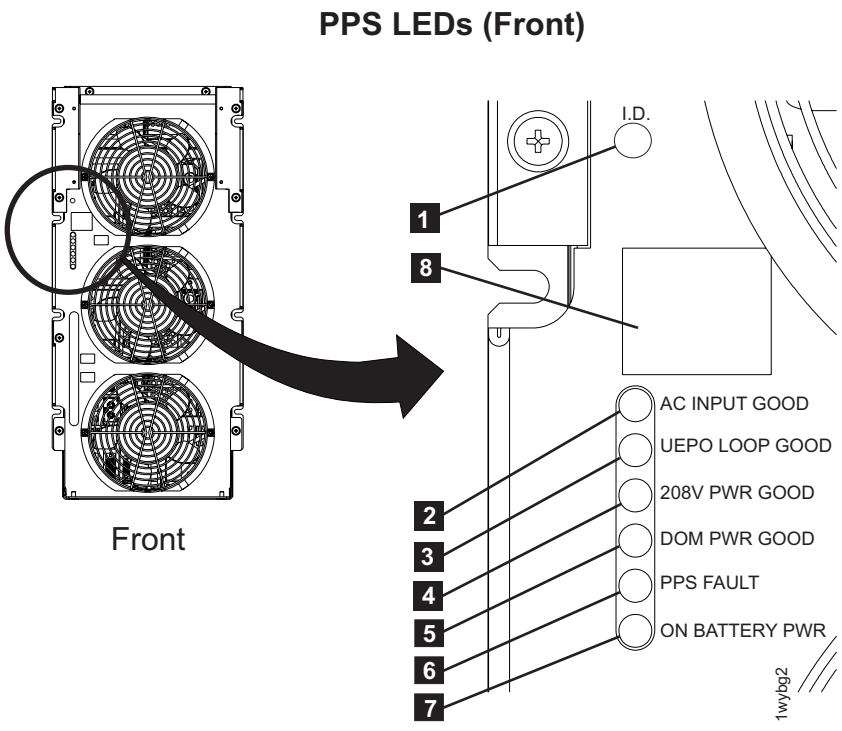


Figure 906. LEDs on the PPS (front)

Table 411. Interpreting LEDs on the primary power supply (front)

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Identify for primary power supply		Amber	normal	n/a	Identify

Table 411. Interpreting LEDs on the primary power supply (front) (continued)

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
2	AC input good		Green	missing input or CB00 off	normal	n/a
3	UEPO loop good		Green	PPS off or UEPO switch is tripped	normal	n/a
4	208VDC output power good		Green	PPS off	normal	n/a
5	DDM output power good		Green	PPS off	normal	n/a
6	PPS fault		Amber	normal	n/a	Identify
7	On battery		Amber	normal	n/a	Identify
8	Status display (see MAP2340)		n/a	n/a	n/a	n/a

LEDs on the 208VDC power module

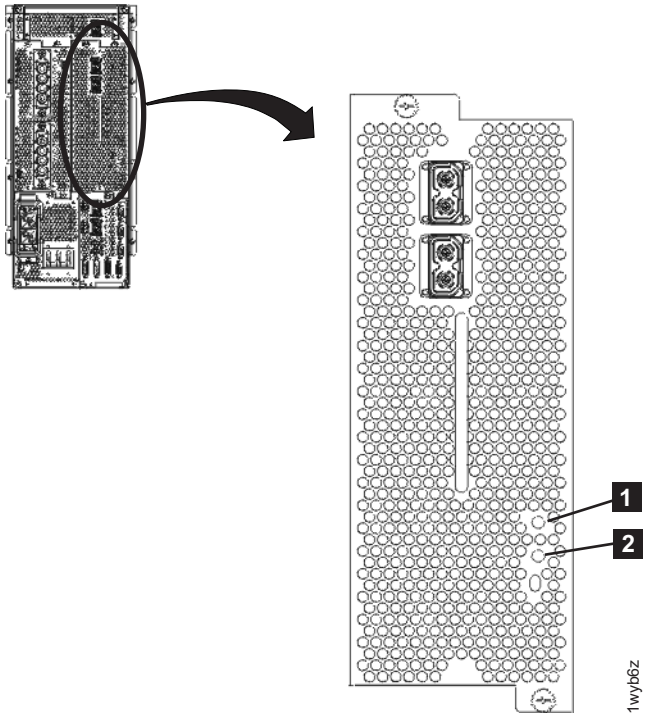


Figure 907. LEDs on the 208VDC power module

Table 412. Interpreting LEDs on the 208 VDC power module

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Identify		Amber	normal	n/a	Identify
2	208VDC output		Green Amber	PPS off	normal fault	n/a

LEDs on the 5/12V DDM power module

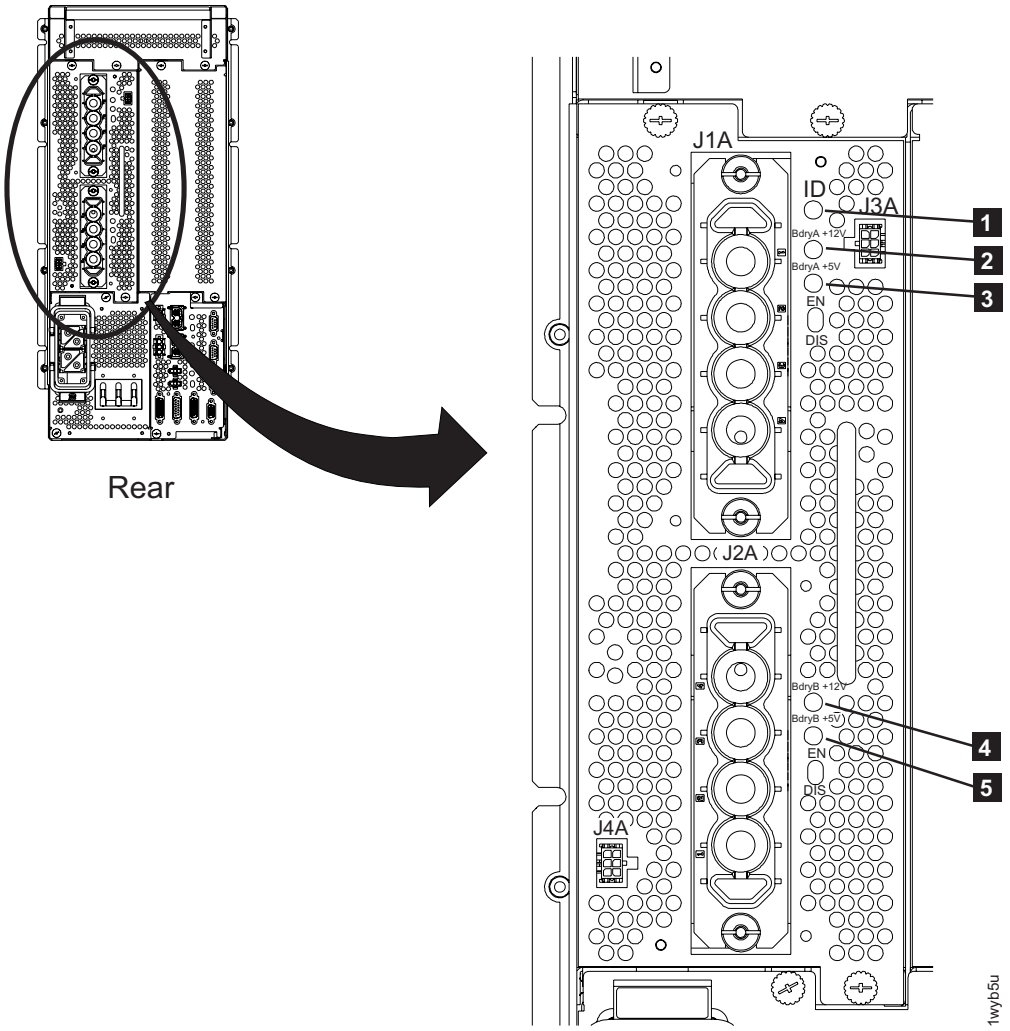


Figure 908. LEDs on the 5/12V DDM power module

Table 413. Interpreting LEDs on the 5/12V DDM power module

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Identify		Amber	normal	n/a	Identify
2	Boundary A +12V output		Green Amber	PPS off	normal fault	n/a
3	Boundary A +5V output		Green Amber	PPS off	normal fault	n/a
4	Boundary B +12V output		Green Amber	PPS off	normal fault	n/a
5	Boundary B +5V output		Green Amber	PPS off	normal fault	n/a

LEDs on the booster power module

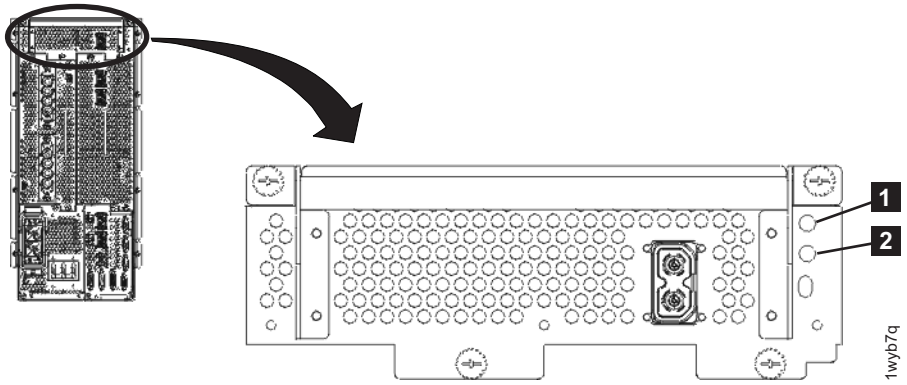


Figure 909. LEDs on the booster power module

Table 414. Interpreting LEDs on the booster power module

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Identify		Amber	normal	n/a	Identify
2	Booster		Green Amber	PPS off	normal fault	n/a

LEDs on the sequencer module

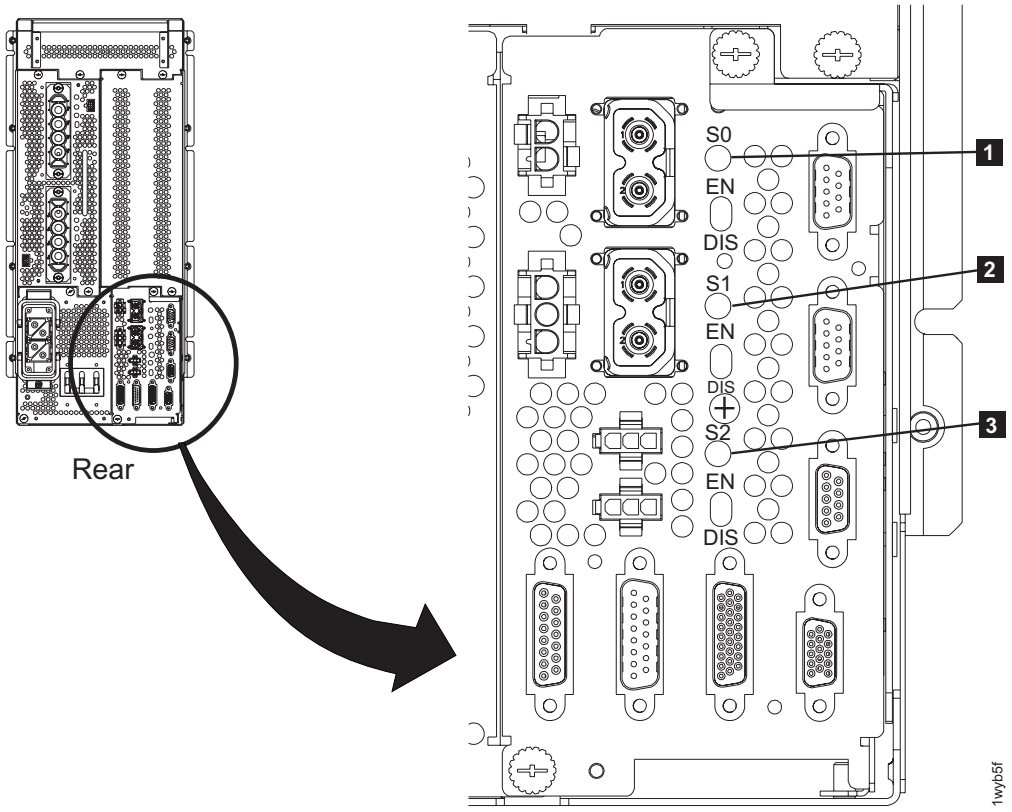


Figure 910. LEDs on the sequencer module

Table 415. Interpreting LEDs on the sequencer module

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Main 208VDC output		Green Amber	PPS off	normal fault	n/a
2	Protected 208 VDC output 0		Green Amber	PPS off	normal fault	n/a
3	Protected 208 VDC output 1		Green Amber	PPS off	normal fault	n/a

LEDs on the DASD fan tray

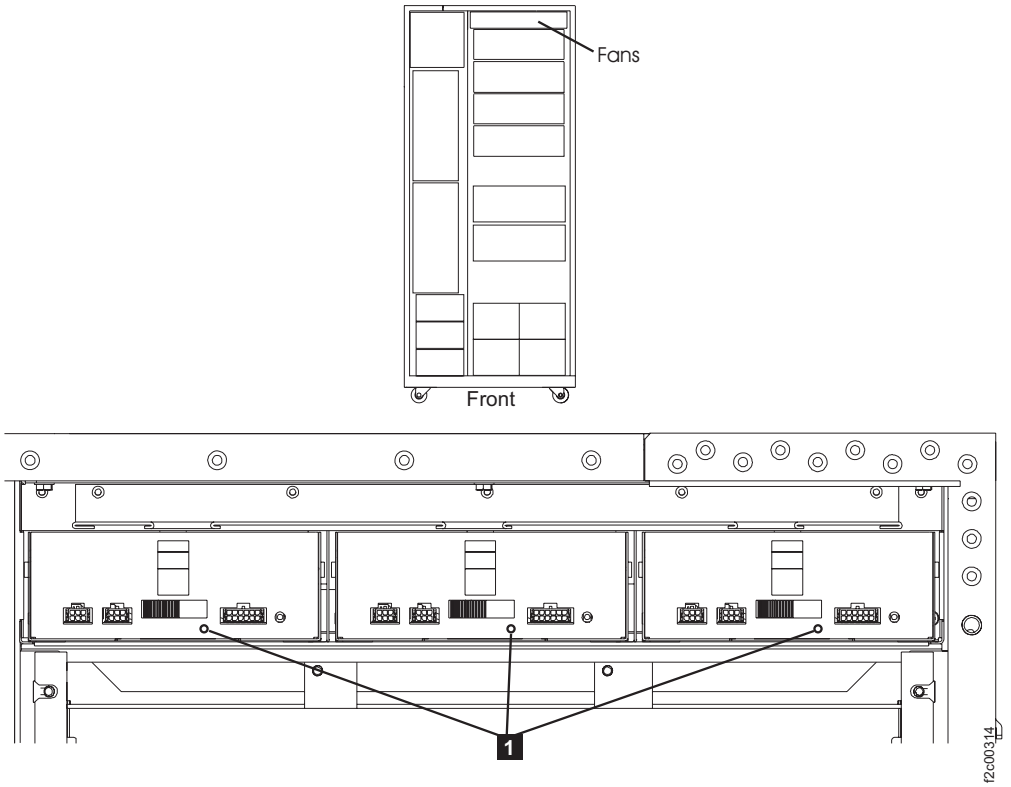


Figure 911. The "Identify" indicator (LED) for a DASD fan tray

Table 416. Interpreting LEDs on the DASD fan tray

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Identify		Amber	Normal	n/a	Identify

LEDs on the fan sense card

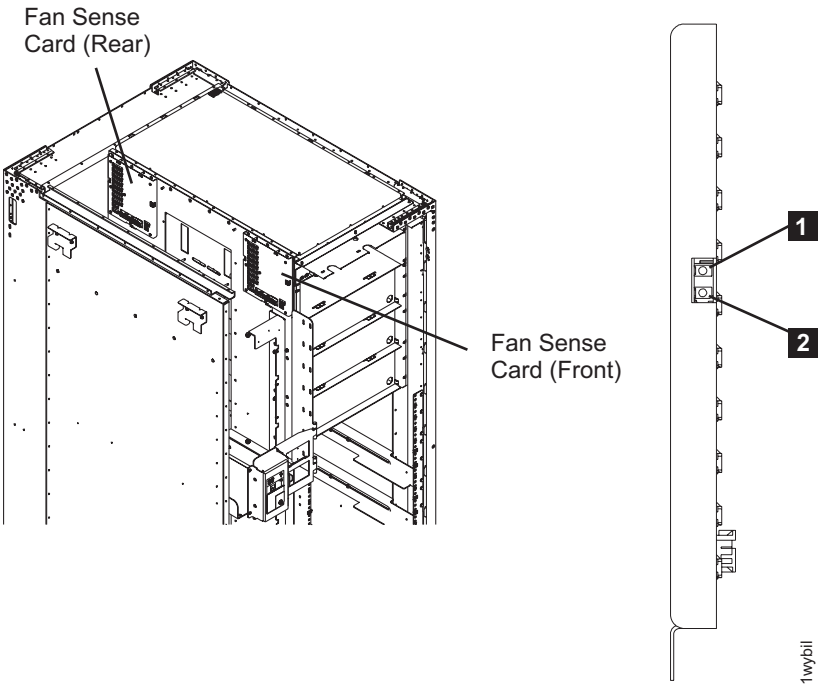


Figure 912. LEDs on the fan sense cards

Table 417. Interpreting LEDs on the fan sense card

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Operational	C1	Green	fenced or no input power	operational	n/a
2	Identify	C2	Amber	normal	n/a	Identify

LEDs on the rack identity card

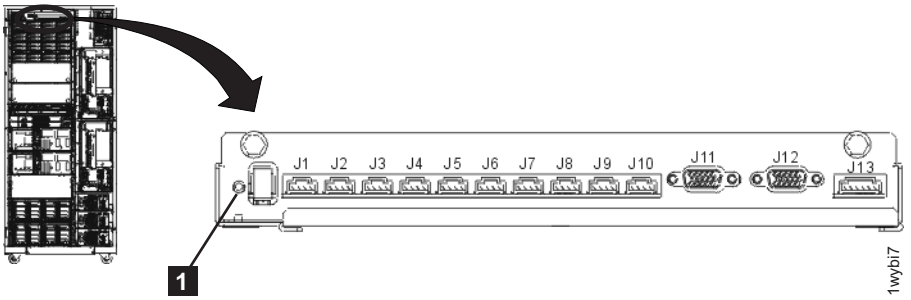


Figure 913. LEDs on the rack identity card

Table 418. Interpreting LEDs on the rack identity card

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Identify	C2	Amber	normal	n/a	Identify

LEDs on the rack operator panel UEPO switch assembly

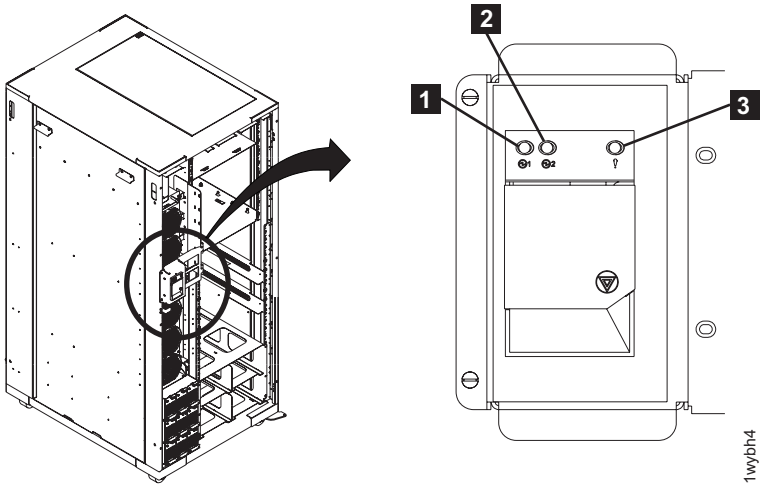


Figure 914. LEDs on the rack operator panel

Table 419. Interpreting LEDs on the rack operator panel UEPO switch assembly

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Line cord 1		Green	[1]	[2]	[3]
2	Line cord 2		Green	[1]	[2]	[3]
3	Identify or System Attention		Amber	normal	Attention[4]	Identify[4]

Notes:

1. Off under any of the following conditions:
   - customer power is not present
   - standby power is present and the Remote Force Power Off is not active
   - the corresponding RPC or PPS is fenced
   - the LED is broken
2. On solid when PPS DDM Power is on.
3. Flashes slow (1 flash per 2 seconds) when a PPS is in Standby, a PPS is not fenced, or the Remote Force Power Off switch is active. Flashes rapidly (2 flashes per second) during the PPS power ON, power OFF, and Force Power OFF sequences.
4. Identify is valid for any rack. Attention is only valid for Rack-1. If both conditions are present, Identify (flash) overrides Attention (on solid).

LEDs on the RPC cards

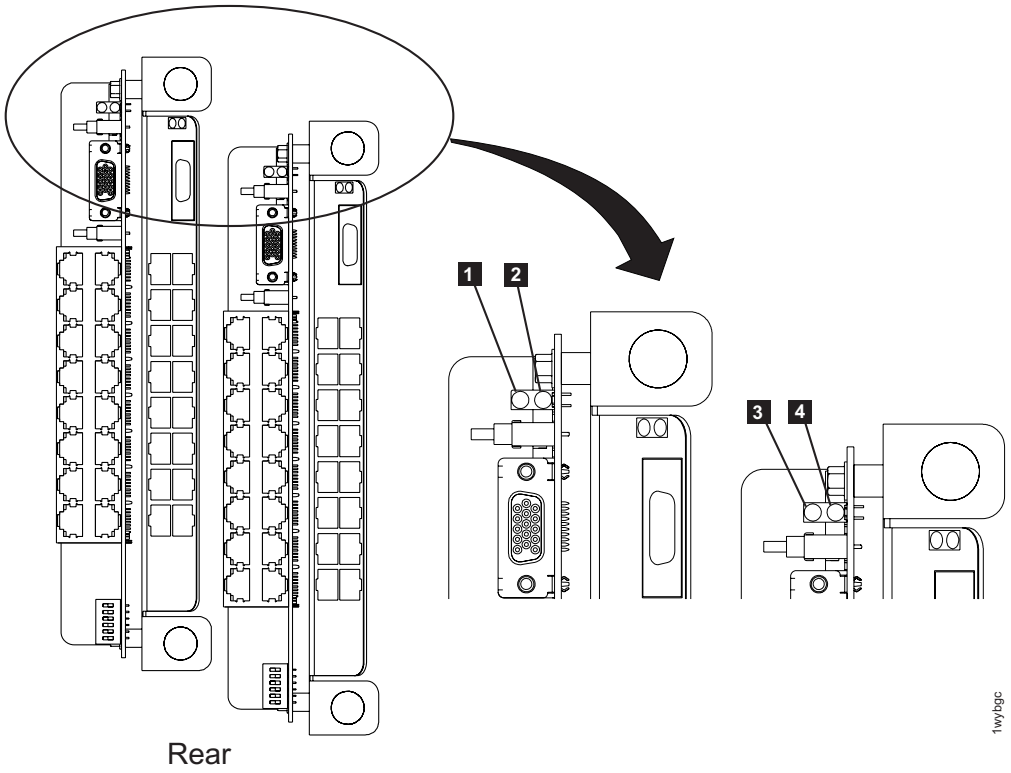


Figure 915. LEDs on the RPC cards

Table 420. Interpreting LEDs on the RPC cards

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Operational	C2	Green	fenced, not booted, or no input power	operational	n/a
2	Identify	C2	Amber	normal	[1]	Identify
3	Operational	C1	Green	fenced, not booted, or no input power	operational	n/a
4	Identify	C1	Amber	normal	[1]	Identify

Notes:

1. When this LED is on solid, the flash memory in the other RPC card is corrupted.

Storage enclosure light indicators

This section contains storage enclosure FRUs that have LED indicators. Each listed assembly is shown with a description of its LEDs. While LED indicators may indicate a failure, they should not be used as a starting point for a repair.

Storage enclosure FRUs with LEDs

Table 421 lists parts of the storage enclosure that have LEDs on them.

Table 421. Parts of the storage enclosure that contain LEDs

Part name	Reference
Fibre channel interface card (FCIC)	Figure 916
Disk drive module (DDM)	Figure 917 on page 1466

LEDs on the Fibre Channel interface card (FCIC)

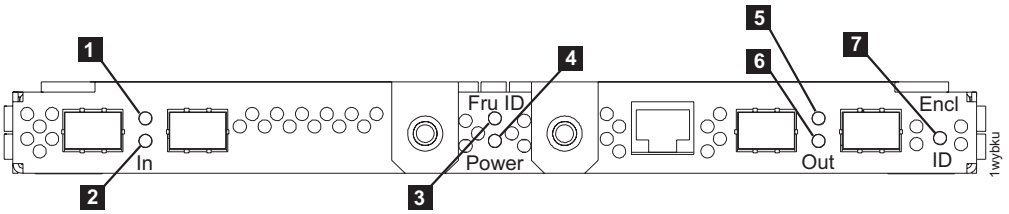


Figure 916. LEDs on a fibre channel interface card (at a storage enclosure)

Table 422. Interpreting LEDs on the Fibre Channel interface card (FCIC)

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	Status FCIC card port In	P1-Cx-T1	Green	[1]	normal	n/a
2	Status FCIC card port In	P1-Cx-T2	Green	[1]	normal	n/a
3	Identify FCIC card FRU	P1-Cx	Amber	normal	n/a	identify
4	Power FCIC card power	P1-Cx	Green	no power	normal	n/a
5	Status FCIC port Out	P1-Cx-T3	Green	[1]	normal	n/a
6	Status FCIC port Out	P1-Cx-T4	Green	[1]	normal	n/a
7	Identify Storage enclosure (not FCIC FRU)	P1-Cx	Amber	normal	n/a	identify

Notes:

1. If an FC-AL cable is not connected to the FCIC, LED Off is normal. If an FC-AL cable is connected to the FCIC, LED Off indicates an error.

LEDs on disk drive modules (DDMs)

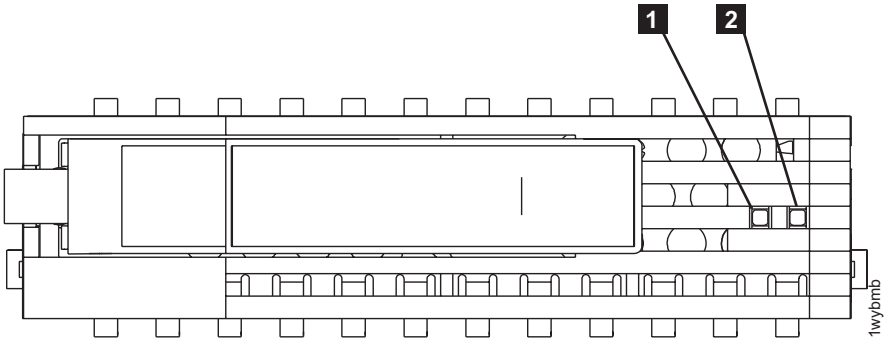


Figure 917. LEDs on a disk drive module (DDM)

Table 423. Interpreting LEDs on the disk drive modules (DDMs)

Index	LED Function	Location	Color	LED Off	LED On	LED Flash
1	DDM status		Green	[1]	normal	[2]
2	Identify DDM		Amber	normal	n/a	Identify

Notes:

1. The DDM has failed or is not receiving power.
2. After power on, a slow flash for 20 seconds followed by a fast flash for 5 seconds means normal.

Chapter 47. Messages and codes

This section lists the messages and codes and describes how to use them.

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Chapter 48. Entry table for all messages and codes

Code example	Code type	Go to:
000	Crash code, if part of an 888 code sequence on the CEC enclosure control panel	"Crash codes" on page 1627
0c*x*	AIX dump progress indicators, if part of an 888 code sequence on the CEC enclosure control panel	"Dump progress indicators (Dump status codes)" on page 1626
2*xx* through 800	Crash codes, if part of an 888 code sequence on the CEC enclosure control panel	"Crash codes" on page 1627
2E*x* through D*xx*	AIX configuration program progress codes, if displayed during CEC enclosure power-on code load	"AIX configuration program progress codes" on page 1612
888	Diagnostic code on the CEC enclosure control panel	"MAP4240 888 error code on HMC LPAR virtual control panel" on page 678
c*xx*	AIX diagnostics load-progress codes, if displayed during CEC enclosure power on	"AIX diagnostics load-progress codes" on page 1625
F*xx*	AIX diagnostic load-progress codes, if displayed during CEC enclosure power on	"AIX diagnostics load-progress codes" on page 1625
xxx	Failing function code (FFC), if listed in SRN tables	"Failing function code list" on page 1843
2000 through 2D01	AIX configuration program progress codes, if displayed during CEC enclosure power-on code load	"AIX configuration program progress codes" on page 1612
25*xx*	Failing function code (FFC), if listed in SRN tables	"Failing function code list" on page 1843
E*xxx*	System firmware progress codes	"(Exxx) System firmware progress codes" on page 1658
0*x*0*xxx*	HMC connection error codes	"0*xxxxx* connection error codes" on page 1471
0*x*1*xxx*	HMC connection error codes	"0*xxxxx* connection error codes" on page 1471
101-000 through A25-*xxx*	Service request number (SRN) listed in a serviceable event	Chapter 51, "Service request numbers (SRNs) and failing function codes (FFCs)," on page 1665
2512-101 through *xxxx-xxx*	Service request number (SRN) listed in a serviceable event	Chapter 51, "Service request numbers (SRNs) and failing function codes (FFCs)," on page 1665

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Code example	Code type	Go to:
1*xxxxxxx* through B*xxxxxxx*	System reference code (SRC) listed in a serviceable event	Chapter 52, “System reference codes (SRCs) and firmware codes,” on page 1849
C1*xxxxxx*	Service processor progress codes	“(C1*xxxxxx*) Service processor progress codes (checkpoints)” on page 1628
C2*xxxxxx*	Virtual service processor progress codes	“(C2*xxxxxx*) Virtual service processor progress codes” on page 1633
C3*xxxxxx*	IPL status progress codes	“C3*xxxxxx* IPL status progress codes” on page 1636
C5*xxxxxx*	IPL status progress codes	“C5*xxxxxx* IPL status progress codes” on page 1637
C6*xxxxxx*	IPL status progress codes	“C6*xxxxxx* IPL status progress codes” on page 1637
C7*xxxxxx*	Server firmware IPL status progress codes	“(C7*xxxxxx*) Server firmware IPL status progress codes” on page 1641
C9*xxxxxx*	IPL status progress codes	“C9*xxxxxx* IPL status progress codes” on page 1643
CA*xxxxxx*	Partition firmware progress codes	“(CA*xxxxxx*) Partition firmware progress codes” on page 1644
D1*xxxxxx*	Service processor dump status codes, platform dump status codes, and service processor status progress codes	“(D1*xxxxxx*) Service processor dump status codes, platform dump status codes, and service processor status progress codes” on page 1652
D2*xxxxxx*	Partition status progress codes	“(D2*xxxxxx*) Partition status progress codes” on page 1655
D6*xxxxxx*	Managed system power-down status progress codes	“(D6*xxxxxx*) General status progress codes” on page 1657
D9*xxxxxx*	Partition power-off status progress codes	“(D9*xxxxxx*) General status progress codes” on page 1658
DA*xxxxxx*	System reference code (SRC) listed in a serviceable event	Chapter 52, “System reference codes (SRCs) and firmware codes,” on page 1849
DA*xxxxxx*	System reference code (SRC) listed in a serviceable event	Chapter 52, “System reference codes (SRCs) and firmware codes,” on page 1849
H*xxxxxxx*	Management console (HMC) error codes	Chapter 49, “Management console error codes,” on page 1471
Media	Failing function code (FFC), if listed in SRN tables	“Failing function code list” on page 1843

Chapter 49. Management console error codes

These error codes can be displayed as a pop-up on the management console during system configuration and operations. Use this information to determine what a specific error or information message means, and the recovery action (if applicable) to help you determine a recovery strategy.

Choose the prefix of the management console error message you have:

- "0*xxxxx* connection error codes"
- "HSCE console events error codes" on page 1477
- "HSCI inventory scout services error codes" on page 1477
- "HSCL error codes" on page 1480
- "HSCP platform management error codes" on page 1588
- "HSCS service focal point error codes" on page 1601

0*xxxxx* connection error codes

This section lists the 0*xxxxx* connection error codes.

If the management console displays a state of No Connection in the managed system state column, it means that the management console is unable to establish a connection to the managed system. There are several reasons why the management console fails to establish connection, and often it is due to network issues. It is important to first check the network setting on both the management console and the managed system. However, there are times a no connection state is caused by another problem unrelated to network settings. Use the tables below to find the error code you are receiving, and recovery action if available.

Choose the range from the list below:

- "Range 0*x*00*xx*"
- "Range 0*x*01*xx*" on page 1473
- "Range 0*x*02*xx*" on page 1474
- "Range 0*x*04*xx*" on page 1474
- "Range 0*x*08*xx*" on page 1475
- "Range 0*x*0B*xx*" on page 1476
- "Range 0*x*10*xx*" on page 1477

Range 0*x*00*xx*

This section lists the codes in the 0*x*00*xx* range regarding connection related failures during runtime.

Table 424. Range 0x00xx: Connection related failures during runtime (after initial command sequencing is complete)

Error code	Message	Recovery action
0*x*0000	Connecting	None.

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Table 424. Range 0x00xx: Connection related failures during runtime (after initial command sequencing is complete) (continued)

Error code	Message	Recovery action
0*x*0001	Connecting	1. If the management console does not recover automatically within a few minutes, go to "MAP6600 Resetting the managed system connection from the management console" on page 841. 2. If the managed system is still showing *No Connection* on the management console, go to "MAP7000 Entry point for DS8000 private network problems" on page 855.
0*x*0002	Connecting	1. If the management console does not recover automatically within a few minutes, go to "MAP6600 Resetting the managed system connection from the management console" on page 841. 2. If the managed system is still showing *No Connection* on the management console, go to "MAP7000 Entry point for DS8000 private network problems" on page 855.
0*x*0003	Connecting	A reset connection of the managed system was initiated on the management console. If the management console does not recover automatically within a few minutes, contact your next level of support. **Note:** The managed system should not stay in this state for long. The management console will re-establish connection to the system, and transition to some other state.
0*x*0004	Temporary disconnection	None.
0*x*0005	Permanent disconnection	None.
0*x*0006	Forced disconnection	Contact your next level of support.
0*x*0007	Connecting.	1. If the management console does not recover automatically within a few minutes, go to "MAP6600 Resetting the managed system connection from the management console" on page 841. 2. If the managed system is still showing *No Connection* on the management console, go to "MAP7000 Entry point for DS8000 private network problems" on page 855.

Table 424. Range 0x00xx: Connection related failures during runtime (after initial command sequencing is complete) (continued)

Error code	Message	Recovery action
0*x*0008	Duplicate IP.	1. There is another managed system with the same IP address. Check whether there is an IP conflict. See "MAP6610 Checking for an IP address conflict" on page 841. 2. Reset the managed system connection from the management console. Go to "MAP6600 Resetting the managed system connection from the management console" on page 841. 3. If the managed system is still showing *No Connection* on the management console, go to "MAP7000 Entry point for DS8000 private network problems" on page 855.
0*x*00FF	Connecting.	1. Reset the managed system connection from the management console. Go to "MAP6600 Resetting the managed system connection from the management console" on page 841. 2. If the managed system is still showing *No Connection* on the management console, go to "MAP7000 Entry point for DS8000 private network problems" on page 855.

Range 0*x*01*xx*

This section lists the codes in the 0*x*01*xx* range.

Table 425. Range 0x01xx: Socket-level connect failures

Error code	Message	Recovery action
0*x*0101	DNS failure.	1. The management console is unable to resolve the host name entered for the managed system through the domain name server. Check whether the DNS is down. 2. If the failure continues, remove the managed system connection and add it back in using the IP address. **Note:** Leaving a connection in the DNS failed state might cause performance problems for other management console connections.
0*x*0102	Connecting.	Unable to establish network connection to the managed system. Ensure that the managed system network is configured properly.

Table 425. Range 0x01xx: Socket-level connect failures (continued)

Error code	Message	Recovery action
0*x*0103	Connecting.	1. The target IP address of the managed system is refusing a connection from the management console. Ensure that the IP specified is a valid managed system IP and that the managed system's network is configured properly. 2. Connection refused will also occur if the service processor firewall is configured to block this management console's IP address. Check your managed system's network configuration setting, and make sure the management console's IP is not being blocked.
0*x*0104	IP unreachable.	1. Unable to establish a network connection to the managed system. Ensure the management console and managed system are not on either side of a firewall, or if a firewall exists, ensure that the firewall is configured properly. 2. Ensure that the managed system network is configured properly. A common cause for this might be an invalid IP configuration on the management console (for example, bad route tables or default gateway).
0*x*01FF	Connecting.	Unable to establish a network connection to the managed system. Ensure that the managed system network is configured properly.

Range 0*x*02*xx*

This section lists the codes in the 0*x*02*xx* range.

Table 426. Range 0x02xx: SSL level connect failures

Error code	Message	Recovery action
0*x*02FF	Connecting	1. Unable to establish secure network connection to the managed system. Reset the connection from the management console. Go to "MAP6600 Resetting the managed system connection from the management console" on page 841. 2. If the problem persists, contact your next level of support.

Range 0*x*04*xx*

This section lists the codes in the 0*x*04*xx* range.

Table 427. Range 0x04xx: Interface version related connection failures

Error code	Message	Recovery action
0*x*0401	Interface version timed out	1. If the management console does not recover automatically within a few minutes, go to "MAP6600 Resetting the managed system connection from the management console" on page 841. 2. If the managed system is still showing *No Connection* on the management console, go to "MAP7000 Entry point for DS8000 private network problems" on page 855.
0*x*0402	Already connected	1. The managed system already has a connection established from the same management console. If the management console does not recover automatically within a few minutes, go to "MAP6600 Resetting the managed system connection from the management console" on page 841. 2. If the managed system is still showing *No Connection* on the management console, go to "MAP7000 Entry point for DS8000 private network problems" on page 855.
0*x*0403	All connections in use	All connections available for management consoles are already in use. Contact your next level of support.
0*x*0404	Version mismatch.	This version of management console is unable to manage the system. Update the management console image.
0*x*0405	Duplicate MTMS.	There is already a managed system with the same machine type, model, and serial number. Contact your next level of support.
0*x*0406	Firmware not ready.	1. If the management console does not recover automatically within a few minutes, go to "MAP6600 Resetting the managed system connection from the management console" on page 841. 2. If the managed system is still showing *No Connection* on the management console, go to "MAP7000 Entry point for DS8000 private network problems" on page 855.
0*x*04FF	Connecting	1. If the management console does not recover automatically within a few minutes, go to "MAP6600 Resetting the managed system connection from the management console" on page 841. 2. If the managed system is still showing *No Connection* on the management console, go to "MAP7000 Entry point for DS8000 private network problems" on page 855.

Range 0*x*08*xx*

This section lists the codes in the 0*x*08*xx* range.

Table 428. Range 0x08xx: Authentication related connection failures

Error code	Message	Recovery action
0*x*0801	Authentication timed out.	1. Reset the managed system connection from the management console. Go to "MAP6600 Resetting the managed system connection from the management console" on page 841. 2. If the managed system is still showing *No Connection* on the management console, go to "MAP7000 Entry point for DS8000 private network problems" on page 855.
0*x*0802	Incorrect password.	The password entered for the managed system is not correct. See "MAP66B0 Password management" on page 848 for details.
0*x*0803	Firmware password locked.	1. There have been too many unsuccessful login attempts to the same managed system and the password is locked. Wait for five minutes, and reset the connection from the management console. Go to "MAP6600 Resetting the managed system connection from the management console" on page 841. 2. If the problem persists, contact your next level of support.
0*x*08FF	Connecting.	1. If the management console does not recover automatically within a few minutes, reset the managed system connection from the management console. Go to "MAP6600 Resetting the managed system connection from the management console" on page 841. 2. If the managed system is still showing *No Connection* on the management console, go to "MAP7000 Entry point for DS8000 private network problems" on page 855.

Range 0*x*0B*xx*

This section lists the codes in the 0*x*0B*xx* range.

Table 429. Range 0x0Bxx: Password change pending related connection failures

Error code	Message	Recovery action
0*x*0BFF	Connecting.	1. If the management console does not recover automatically within a few minutes, reset the managed system connection from the management console. Go to "MAP6600 Resetting the managed system connection from the management console" on page 841. 2. If the managed system is still showing *No Connection* on the management console, go to "MAP7000 Entry point for DS8000 private network problems" on page 855.

Range 0*x*10*xx*

This section lists the codes in the 0*x*10*xx* range.

Table 430. Range 0x10xx: Get interface implementation limits related connection failures

Error code	Message	Recovery action
0*x*1001	Command timed out.	1. If the management console does not recover automatically within a few minutes, reset the managed system connection from the management consolemanagement console. Go to "MAP6600 Resetting the managed system connection from the management console" on page 841. 2. If the managed system is still showing *No Connection* on the management console, go to "MAP7000 Entry point for DS8000 private network problems" on page 855.
0*x*10FF	Connecting	1. If the management console does not recover automatically within a few minutes, reset the managed system connection from the management console. Go to "MAP6600 Resetting the managed system connection from the management console" on page 841. 2. If the managed system is still showing *No Connection* on the management console, go to "MAP7000 Entry point for DS8000 private network problems" on page 855.

HSCE console events error codes

This section lists the HSCE console events error codes.

Table 431. HSCE console events error codes

Error code	Message	Recovery action
2066	A scheduled backup of critical console data failed with a return code other than 0.	The possible return code values are: • A **4** indicates the removable media could not be mounted. Verify that the media is inserted properly in the drive and try the operation again. • A **5** indicates that the removable media is write protected. Remove write protection and try the operation again. • Any value except 4 or 5 is an internal management console error. Go to "MAP6680 Backing up HMC critical console data" on page 847. If the problem persists, contact IBM support.

HSCI inventory scout services error codes

This section lists the HSCI inventory scout services error codes.

Note: The following codes are provided for reference purposes only. If an unexpected error occurred then contact your next level of support.

Table 432. HSCI inventory scout services error codes

Error code	Message	Recovery action
0100	No managed systems were detected that are attached to this system console.	
0101	No logical partitions have been defined for this managed system.	
0102	A blank or invalid entry was entered in the partition password field.	Enter a valid password value.
0103	A blank or invalid entry was entered in the listening port field.	Enter a valid port value.
0104	A blank or invalid entry was entered in the IP address field.	Enter a valid IP address value.
0110	The Inventory Scout Services command completed successfully.	
0111	The Inventory Scout Services command request failed	1. Verify that the removable media is properly inserted in the drive and try the operation again. 2. Try the operation with different media. 3. Run PC Doctor to determine if there is a problem with the hardware. 4. Contact your next level of support.
0112	The removable media cannot be mounted. Ensure the media is inserted properly in the drive and retry the operation.	1. Verify that the removable media is properly inserted in the drive and try the operation again. 2. Try the operation with different media. 3. Run PC Doctor to determine if there is a problem with the hardware. 4. Contact your next level of support.
0113	The media specified is write protected. Adjust the media and retry.	Remove write protection and try the operation again.
0114	The Inventory Scout Services request failed. Ensure the removable media is properly inserted in the drive.	1. Verify that the removable media is properly inserted in the drive and try the operation again. 2. Try the operation with different media. 3. Run PC Doctor to determine if there is a problem with the hardware. 4. Contact your next level of support.

Table 432. HSCI inventory scout services error codes (continued)

Error code	Message	Recovery action
0115	An error occurred while copying the Inventory Scout Services data. Verify that a blank formatted diskette is inserted properly in the drive and retry the operation.	1. Verify that the removable media is properly inserted in the drive and try the operation again. 2. Try the operation with different media. 3. Run PC Doctor to determine if there is a problem with the hardware. 4. Contact your next level of support.
0116	An error occurred while compressing the Inventory Scout Services data. Retry the operation.	1. Verify that the removable media is properly inserted in the drive and try the operation again. 2. Try the operation with different media. 3. Run PC Doctor to determine if there is a problem with the hardware. 4. Contact your next level of support.
0117	An error occurred while trying to unmount the media.	1. Verify that the removable media is properly inserted in the drive and try the operation again. 2. Try the operation with different media. 3. Run PC Doctor to determine if there is a problem with the hardware. 4. Contact your next level of support.
0118	The Inventory Scout Services daemon was restarted successfully.	
0119	The Inventory Scout Services daemon could not be restarted.	1. Verify that the removable media is properly inserted in the drive and try the operation again. 2. Try the operation with different media. 3. Run PC Doctor to determine if there is a problem with the hardware to determine if there is a hardware problem. 4. Contact your next level of support.
0120	The internal managed system name is malformed. Exit this task and retry the operation.	1. Verify that the removable media is properly inserted in the drive and try the operation again. 2. Try the operation with different media. 3. Run PC Doctor to determine if there is a problem with the hardware. 4. Contact your next level of support.
0121	The Inventory Scout Services request failed. An error occurred while copying data to removable media.	1. Verify that the removable media is properly inserted in the drive and try the operation again. 2. Try the operation with different media. 3. Run PC Doctor to determine if there is a problem with the hardware. 4. Contact your next level of support.

Table 432. HSCI inventory scout services error codes (continued)

Error code	Message	Recovery action
0122	The system partitions did not respond to query attempts.	1. Check that the management console host name and the host name of the partition are fully qualified domain names (not a short host name). If they are not, this must be corrected for remote security to work. 2. Verify that the network routing is set up so the management console can use ping to reach the partition and vice versa. If one or both cannot be reached from the other, correct the routing. 3. Ensure that **/var** is not full on the partition, which would prevent certain processes from running correctly. 4. Verify that the following filesets have been installed properly on the AIX logical partitions: a. **rsct.core** b. **csm.client** c. **devices.chrp.base.ServiceRM** 5. Log into one of the logical partitions and issue the following command: `lssrc -s ctcas`. 6. If the output shows ctcasd is inoperative, run an `ls -l command` on the **/var/ct/cfg/** directory. 7. If the files **ct_has.pkf** and **ct_has.qkf** are zero-length, there was an (AIX) installation configuration problem. These zero-length files should be removed. 8. Then issue the command `startsrc -s ctcas`. 9. If the `startsrc -s ctcas` command does not work, the AIX lpp might not have been installed. 10. If the output is still blank, shut down and restart the management console. 11. After the shut down and restart occurs, wait at least 10 minutes before trying again, to ensure all the logical partitions have resynchronized their information with the management console. 12. If the problem persists, contact your next level of support.

HSCL error codes

This section lists the HSCL error codes.

The HSCL error codes in this list are organized by their first character, with numbers coming before letters.

- "HSCL 00*xx*"
- "HSCL 01*xx*" on page 1489
- "HSCL 02*xx*" on page 1490
- "HSCL 03*xx*" on page 1499
- "HSCL 04*xx*" on page 1503
- "HSCL 05*xx*" on page 1504
- "HSCL 06*xx*" on page 1508
- "HSCL 07*xx*" on page 1515
- "HSCL 09*xx*" on page 1518
- "HSCL 0B*xx*" on page 1522
- "HSCL 0D*xx*" on page 1523
- "HSCL 11*xx*" on page 1524
- "HSCL 13*xx*" on page 1528
- "HSCL 14*xx*" on page 1528
- "HSCL 15*xx*" on page 1534
- "HSCL 17*xx*" on page 1539
- "HSCL 19*xx*" on page 1542
- "HSCL 25*xx*" on page 1555
- "HSCL 29*xx*" on page 1556
- "HSCL 3*xxx*" on page 1563
- "HSCL 7*xxx*" on page 1575
- "HSCL 8*xxx*" on page 1576
- "HSCL 9*xxx*" on page 1578
- "HSCL A*xxx*" on page 1586

HSCL 00*xx*

This section lists the HSCL 00*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 433. HSCL 00xx: Profile data error codes

Error code	Message	Recovery action
0003	The profile data save area is full. Remove any profiles that are no longer needed.	Remove the profiles that are no longer needed.
0004	A profile with name {0} already exists in the partition with ID {1} in the profile data of the managed system. Provide another name for this profile.	Rename the profile to a name that is not already in use in this partition.

Table 433. HSCL 00xx: Profile data error codes (continued)

Error code	Message	Recovery action
0005	Cannot find information regarding profile data of the managed system. Run a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0006	The managed system's profile data has been corrupted. You must either restore or reinitialize the profile data.	You must restore the profile data. See "MAP6630 Recovering partition data on a CEC enclosure" on page 842 for details.
0007	The profile data of the managed system cannot be accessed or modified. Run a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0008	Could not construct or initialize profile data. Rebuild the managed system.	Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details.
0009	Could not construct or initialize the profile data from the backup file, {0}. Repeat the operation.	1. Repeat the operation. 2. If the problem persists, see "MAP6630 Recovering partition data on a CEC enclosure" on page 842. 3. If the problem persists, contact your next level of support.
000A	Could not build the profile for the managed system. Repeat the operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
000B	Could not get the activated LPAR profile from the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
000C	Could not get the activated system profile from the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
000D	Could not get all the system profiles from the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
000E	Could not get the default LPAR profile from the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.

Table 433. HSCL 00xx: Profile data error codes (continued)

Error code	Message	Recovery action
000F	Could not get the default system profile from the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0010	Could not get the LPAR profiles for the partition from the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0011	Could not get the LPAR profiles for the partition from the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0012	Could not get the system profile from the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0013	Could not remove the LPAR profile from the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0014	Could not remove the system profile from the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0115	Could not save the LPAR profile to the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0016	Could not save the system profile to the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0017	Could not create the LPAR profile in the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.

Table 433. HSCL 00xx: Profile data error codes (continued)

Error code	Message	Recovery action
0018	Could not create the system profile in the profile data. Rebuild the managed system	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0019	Could not set the activated LPAR profile in the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
001A	Could not set the activated system profile in the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
001B	Could not set the default LPAR profile in the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
001C	Could not set the default system profile in the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
001D	Could not clean up the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
001E	Could not update the profile data cache. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
001F	Could not check for duplicate LPAR name. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0020	Could not remove the LPAR profile from the system profile content in the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.

Table 433. HSCL 00xx: Profile data error codes (continued)

Error code	Message	Recovery action
0021	Could not add the LPAR profile to the system profile in the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0022	Could not get the partition name from the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0023	Could not get all the partition names from the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0024	Could not set the partition name in the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0025	Could not build the profile data from the local file, {0}. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0026	Could not write the data to the managed system. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0027	Could not back up the profile data to a file. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0028	Could not read profile data from the managed system. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0029	Could not delete profiles at the partition with ID of {0} in the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.

Table 433. HSCL 00xx: Profile data error codes (continued)

Error code	Message	Recovery action
002A	Could not modify the system profiles containing the LPAR slot ID of {0} in the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
002B	Could not perform a priority restore on the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
002C	Could not merge the profile information in the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
002D	Could not merge partition name data in the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
002E	Could not merge default and activated list data in the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0030	Could not initialize the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0031	The profile data has been cleared. Either restore or reinitialize the profile data save area.	1. Restore the profile data. See "MAP6630 Recovering partition data on a CEC enclosure" on page 842. 2. If the problem persists, contact your next level of support.
0032	Could not set the system profile's user-defined name to the profile data. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0033	This managed system version, {0}, is unknown to management console. Update to an management console release that can handle this version of managed system.	1. Perform the rebuild managed system operation. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the same error occurs, update to an management console release that can handle this version of managed system. 3. If you are not sure what version to use, contact your next level of support.

Table 433. HSCL 00xx: Profile data error codes (continued)

Error code	Message	Recovery action
0034	The levels of managed system and profile data area are not matching up. Managed system version: {0}, profile data area version: {1}. Upgrade the managed system version ″to proper level.″	1. Rebuild managed system operation. See “MAP6620 Rebuilding managed system information” on page 842 for details. 2. If the same error occurs, update the managed system to a proper version. 3. If you are not sure what version to use, contact your next level of support.
0035	Cannot restore profile data with two different versions of profile save data.	1. Perform the operation again. 2. If the same error occurs, restore using another profile data file. See “MAP6630 Recovering partition data on a CEC enclosure” on page 842. 3. If the problem persists, contact your next level of support.
0036	Migrate profile data failed.	1. Perform the operation again. 2. If the problem persists, contact your next level of support.
0037	This level of profile data, {0}, is unknown to this management console. Update to an management console version that can handle this level of profile data.	1. Perform the operation again. 2. If the problem persists, update to an management console version that can handle this level of profile data. 3. If you are not sure what version to use, contact your next level of support.
0038	Creation of logical partition profiles failed in the profile data save area.	1. Rebuild the managed system. See “MAP6620 Rebuilding managed system information” on page 842 for details. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
0039	Deletion of logical partitions failed in the profile data save area.	1. Rebuild the managed system. See “MAP6620 Rebuilding managed system information” on page 842 for details. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
003A	Removal of system profiles failed at profile data save area.	1. Rebuild the managed system. See “MAP6620 Rebuilding managed system information” on page 842 for details. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
003B	Setting of partition information failed in the profile data save area.	1. Rebuild the managed system. See “MAP6620 Rebuilding managed system information” on page 842 for details. 2. Retry the operation. 3. If the problem persists, contact your next level of support.

Table 433. HSCL 00xx: Profile data error codes (continued)

Error code	Message	Recovery action
003C	Retrieval of all logical partition information failed in the profile data save area.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
003D	Retrieval of partition information failed in the profile data save area.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
0041	Migration of partition information failed in the profile data save area.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0042	Migration of profile names failed in the profile data save area.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0043	Migration of default profile list failed in the profile data save area.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0044	Migration of activated profile list failed in the profile data save area.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0046	Migration of I/O unit and profile information failed in the profile data save area.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0047	Migration of time stamps of profile data save area failed.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0048	Migration of checksums of the profile data save area failed.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.

Table 433. HSCL 00xx: Profile data error codes (continued)

Error code	Message	Recovery action
0049	Unable to get next available profile ID from the management console profile data.	
004A	Management console Save Area Set Fast Activation failed.	
004B	Management console Save Area Get Fast Activation failed.	
004C	Unable to open the management console Save Area file.	
004D	The management console could not retrieve information from the managed system.	
004E	Unable to set partition info in the profile data. Execute a rebuild managed system operation.	
004F	Management console Save Area Get System Credential Information failed.	
0050	Management console Save Area Set System Credential Information failed.	
0051	Cannot retrieve Virtual Ethernet MAC Address prefix.	1. Try the operation again. 2. If the problem persists, contact IBM support.
0052	Cannot set Virtual Ethernet MAC Address Prefix.	1. Try the operation again. 2. If the problem persists, contact IBM support.
0053	Attempt to update profile information failed due to invalid resource lock type.	1. Try the operation again. 2. If the problem persists, contact IBM support.

HSCL 01*xx*

This section lists the HSCL 01*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 434. HSCL: 01xx Managed system error codes

Error codes	Message	Recovery action
01F7	Unable to get the current time from the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Try the task again. 3. If the problem persists, contact your next level of support.
01F8	This property cannot be altered.	
01F9	Could not create managed system instance in object manager.	1. Try the task again. 2. Shut down and restart the management console. 3. Try the task again.
01FA	The managed system is already powered off.	The managed system was already powered off before your attempt to power it off. No action is required.
01FB	The number of parameters is incorrect. Specify a different value.	
01FC	The parameter specified is not valid. Specify a different value.	
01FD	Power on failed. Try again.	1. Retry to power on. 2. If the problem persists, contact your next level of support.
01FE	The managed system is already powered on.	
01FF	Could not rebuild. Shut down and restart the management console.	1. Retry the task. 2. If it fails again, shut down and restart the management console. 3. Check the state of the managed system. Refer to "MAP6650 Correcting the CEC enclosure operating state" on page 843 and perform the appropriate procedure to put the managed system in the correct state. 4. Try the task again. 5. If the problem persists, contact your next level of support.

HSCL 02*xx*

This section lists the HSCL 02*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 435. HSCL: 02xx error codes

Error code	Message	Recovery action
0201	Service Processor command failed after {0} attempts: Invalid response.	Wait several minutes and try the task again.
0203	Command sent to Service Processor failed. Error response {0}.	1. Try the task again. 2. Check the state of the managed system. Refer to "MAP6650 Correcting the CEC enclosure operating state" on page 843 and perform the appropriate procedure to put the managed system in the correct state. 3. If the problem persists, contact your next level of support.
0204	Command failed. Unknown error.	1. Shut down and restart the management console. 2. If the problem persists, contact your next level of support.
0205	The managed system is in the error state and is unable to continue with the task.	The recovery partition data task cannot be run until the managed system is no longer in error state. 1. Record the error message. 2. Check the state of the managed system. Refer to "MAP6650 Correcting the CEC enclosure operating state" on page 843 and perform the appropriate procedure to put the managed system in the correct state.
0206	Failed to power on the managed system. Unable to continue with the power on task.	1. Check the Operator Panel Value field for the managed system to verify it is in the no power state and that the managed system is not in the error state. 2. If the managed system is in the error state, refer to "MAP6650 Correcting the CEC enclosure operating state" on page 843 and perform the appropriate procedure to put the managed system in the correct state. 3. Verify that no other task is being performed, and then retry the task. 4. If the problem persists, contact your next level of support.
0208	Failed to power on the managed system. Could not continue with the power on task.	1. Check the Operator Panel Value field for the managed system to verify it is in the no power state and that the managed system is not in the error state. 2. If the managed system is in the error state, refer to "MAP6650 Correcting the CEC enclosure operating state" on page 843 and perform the appropriate procedure to put the managed system in the correct state. 3. Verify that no other task is being performed, and then retry the task. 4. If the problem persists, contact your next level of support.

Table 435. HSCL: 02xx error codes (continued)

Error code	Message	Recovery action
0209	Remote virtual terminal sessions are not allowed. Check the remote virtual terminal settings.	Virtual terminal cannot open remotely at this time. If this feature is needed, use the Enable/Disable Remote Virtual Terminal task in the System Configuration menu to enable remote connections.
020A	The power on system profile operation timed out. Activate the system profile manually after the managed system is powered on.	Activate the system profile manually after the managed system is powered on.
020D	The command you issued contained incorrect data.	Contact IBM support.
0211	The requested function is currently disabled.	Shut down the managed system, and start it again.
0212	The managed system is not Capacity on Demand (CoD) capable at the present time.	1. Ensure that the managed system is powered on. 2. If it is powered on, check the managed system's properties window to verify that the system is **not** CoD capable. 3. Contact your local representative for more information about this feature.
0213	The managed system does not support Capacity on Demand upgrades for processors.	Contact your local representative for more information about this feature.
0214	The managed system does not support Capacity on Demand upgrades for memory.	Contact your local representative for more information about this feature.
0215	There was an error trying to save processor order information to a diskette.	Verify that the diskette is writable, and retry the operation again. If the error persists, contact your next level of support.
0222	The operation cannot be done because the managed system is not LPAR capable.	1. If you believe that the managed system should be capable of logical partitioning, reboot the management console and retry the operation. 2. If the problem persists, contact your next level of support.
0223	Firmware is not ready to accept the specified command. Try again later.	1. Retry the task. 2. If the problem persists, contact your next level of support.
0224	There was an error dumping the LPAR configuration. Please check the console event log.	1. Retry the task. 2. If the problem persists, contact your next level of support.

Table 435. HSCL: 02xx error codes (continued)

Error code	Message	Recovery action
0225	There was an error clearing the LPAR configuration. Please check the console event log.	1. Retry the task. 2. If the problem persists, contact your next level of support.
0226	Invalid firmware power off policy returned from the service processor. Unable to determine whether the firmware should power off or stay running after last partition powers off.	1. Check that the inputs are correct. 2. Retry the task. 3. If the problem persists, contact your next level of support.
0228	The managed system could not be found in the database. Perform a rebuild managed system operation, and try again.	1. Shut down and restart the management console. 2. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact your next level of support.
0229	Memory specified, {0}, is not a multiple of the system memory region size, {1}. Please modify the value to be a multiple of the memory region size and try again.	1. Modify the value of the memory specified to be a multiple of the memory region size and try the operation again. 2. If the problem persists, contact your next level of support.
022A	The operation cannot be done since the managed system is not OS/400 capable.	1. The managed system is not capable of creating or managing i5/OS partitions. 2. If you believe that the managed system should be i5/OS capable, reboot the management console and retry the operation. 3. If the problem persists, contact your next level of support.
022C	The managed system is not in a valid state to perform the operation. Check the state of the managed system and retry the operation.	1. Try the task again. 2. Refer to "MAP6650 Correcting the CEC enclosure operating state" on page 843 and perform the appropriate procedure to put the managed system in the correct state. 3. If the problem persists, contact your next level of support.
022D	Unable to perform a get or a set operation on the managed system's platform IPL parameters.	1. Try the task again. 2. If the managed system is not in the correct state, refer to "MAP6650 Correcting the CEC enclosure operating state" on page 843 and perform the appropriate procedure to put the managed system in the correct state. 3. If the problem persists, contact your next level of support.

Table 435. HSCL: 02xx error codes (continued)

Error code	Message	Recovery action
022E	Unable to restore the profile data when the managed system is not in the Operating or Standby state.	1. Verify that the managed system is in the Operating or Standby state, and retry the operation. 2. If the managed system is not in the correct state, refer to "MAP6650 Correcting the CEC enclosure operating state" on page 843 and perform the appropriate procedure to put the managed system in the correct state. 3. If the problem persists, contact your next level of support.
022F	Unable to delete the profile data backup file, {0}.	1. Try the task again. 2. Rebuild the managed system and try the task again. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact your next level of support.
0230	Unable to get managed system credential information.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. Then try the task again. 2. Reboot the management console and then retry the operation. 3. If the problem persists, contact your next level of support.
0231	Unable to set managed system credential information.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. Then try the task again. 2. Reboot the management console and then retry the operation. 3. If the problem persists, contact your next level of support.
0233	Unable to change the service partition to the partition with ID of {0}. Please check your current setting(s) and ensure this change is allowed.	The service partition is not able to be changed. 1. Check current settings and verify that this change is in fact allowed. 2. Rebuild the managed system and try the operation again. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact your next level of support.
0234	Failed to transition out of standby state. Rebuild the managed system and try again.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. Then try the task again. 2. If the problem persists, contact your next level of support.

Table 435. HSCL: 02xx error codes (continued)

Error code	Message	Recovery action
0235	Cannot change service partition from one partition to another if either one of them are not in the Not Activated state.	1. Ensure that the current service partition is Not Activated. 2. Ensure the partition user who tried to assigned the server authority is Not Activated. 3. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. Then try the task again. 4. If the problem persists, contact your next level of support.
0236	The name specified contain unprintable or invalid characters listed: {0}. Remove the invalid characters and try again.	1. Ensure not to use any invalid characters specified in the message. 2. Retry the task. 3. If the problem persists, contact your next level of support.
0240	The {0} password is locked and cannot be changed while it is locked.	The password has been locked, contact your hardware service provider to unlock the password.
0241	The {0} password is locked.	The password has been locked, contact your hardware service provider to unlock the password.
0250	The managed system MTMS is empty.	
0251	Service processor command {0} failed. The connection to the hardware server is broken.	Ensure the network connection is working. If the problem persists, contact your next level of support.
0252	Service processor command {0} failed. The connection to service processor is not available.	Ensure the network connection is working. If the problem persists, contact your next level of support.
0253	Service processor command {0} failed. The managed system has been deleted.	Ensure the network connection is working. If the problem persists, contact your next level of support.
0254	Hardware server command {0} failed. No response package.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
0255	Hardware server command {0} failed. The request ID has been deleted from the ID table.	1. Retry the operation. 2. If the problem persists, contact your next level of support.

Table 435. HSCL: 02xx error codes (continued)

Error code	Message	Recovery action
0256	Issuing a service processor pass through failed. management console server is trying to reconnect to the hardware server.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
0257	Issuing a service processor pass through failed. management console server reestablished a connection to the hardware server after this command was issued.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
0258	Issuing a service processor pass through failed. An expected exception with message {0} was thrown.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
0259	Service processor lock failed. The lock manager is not active.	Reboot the management console. If the problem persists, contact your next level of support.
025A	Service processor lock failed. The conflict lock is owned by management console: {0}. Its request ID is {1}.	1. Another management console might be performing this operation. 2. Try again later. 3. If the problem persists, contact your next level of support.
025B	Query service processor data failed. The error code is {0}.	
025C	Service processor command {0} failed. Service processor authentication needs to be done first.	1. Ensure to authenticate with managed system first. 2. Retry the task. 3. If the problem persists, contact your next level of support.
025D	Service processor command {0} failed. System firmware is not ready to accept command.	1. Wait and then try the operation again. 2. If the problem persists, contact your next level of support.
025E	The lock table in the managed system is full. Please try again.	Wait and then try the operation again.
025F	There is a managed system lock.	Wait and then try the operation again.

Table 435. HSCL: 02xx error codes (continued)

Error code	Message	Recovery action
0260	Unexpected error happened when trying to acquire a managed system lock. The command return status is {0}.	Wait and then try the operation again.
0261	Unexpected error happened when trying to acquire a managed system lock.	Report the problem to your next level of support.
0262	Supplement lock operation is failed.	Check the input and permission and try the task again.
0263	Service processor does not support more than one management console connection. No Service processor lock is needed.	Contact your next level of support.
0264	The console command manager is not active.	1. Try the operation again. 2. If the problem persists, contact your next level of support.
0265	No destination was specified for command {0}. The command cannot be sent.	1. Try the operation again. 2. If the problem persists, contact your next level of support.
0266	The request to query data on the managed system failed with error code {0}.	1. Try the operation again. 2. If the problem persists, contact your next level of support.
0267	The connection to the service processor has been lost. A long-running task was stopped.	Verify the completion of the long-running task. If the task did not complete successfully, try the task again
0268	An unexpected error occurred in a long-running task.	Verify the completion of the long-running task. If the task did not complete successfully, try the task again.
0269	Managed system with IP address {0} cannot be found.	Verify the specified IP address. Specify a valid IP address and try the request again.
026A	The specified managed system name {0} is not valid with the specified IP address {1}. The managed system cannot be removed.	Specify a valid managed system name and a valid IP address. Then try the request again.
026B	Cannot find a managed system with the specified name {0}.	Verify the specified system name. Specify a valid managed system name and try the request again.

Table 435. HSCL: 02xx error codes (continued)

Error code	Message	Recovery action
026C	The request to add a new managed system with IP address {0} failed.	Verify the specified IP address. Specify a valid IP address and try the request again.
026D	Lock type {0} is not valid for the managed system.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
026E	The lock manager for managed system {0} is not active.	Try the request again later. If the problem persists, contact your service provider.
026F	Either the managed system name or the IP address is not specified in the request to remove the managed system.	Specify both the managed system name and the IP address. Then try the request again.
0270	The specified command destination {0} cannot be found. The command {1} cannot be sent.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
0271	The connection state of the specified command destination {0} is not valid. The command {1} cannot be sent.	The connection to the managed system has been lost. Try the request again later.
0280	The service processor managed system state is not valid. The power state is {0}. The run state is {1}.	1. Retry the task. 2. If the problem persists, contact your next level of support.
0281	The operation cannot be done because the managed system is not shared processor capable.	No recovery action is required.
0282	The virtual Ethernet adapter in virtual I/O slot {0} cannot be defined because the partition with ID {1} already defines a trunk adapter in its virtual I/O slot {2}. Please modify the profile accordingly and reactivate the partition.	Please modify the profile accordingly and reactivate the partition.

HSCL 03*xx*

This section lists the HSCL 03*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 436. HSCL: 03xx managed system resource error codes

Error code	Message	Recovery action
03EA	There is an insufficient number of processors: Obtained - {0}, Required - {1}. Check that there are enough processors available to activate the partition. If not, create a new profile or modify the existing profile with the available resources, and then activate the partition. If the partition must be activated with the specified number of processors, deactivate any active logical partitions using the resource, and then activate the partition.	1. Check the managed system properties window to ensure that enough processors are available to activate the partition. 2. If there are not enough processors available, create a new profile or modify the existing profile with the available resources. Then activate the partition. 3. If the partition must be activated at any cost, deactivate any running partition that is using the resource and then activate the partition. 4. If the problem persists, contact your next level of support.
03EB	Could not allocate the I/O slot for activation in {0}. Check that the specified I/O is available to activate the partition. If not, create a new profile or modify the existing profile with the available resources, and then activate the partition. If the partition must be activated with these resources, deactivate any running partitions using the resource, and then activate this partition.	1. Check the managed system properties window to ensure that enough I/O slots are available to activate the partition. 2. If there are not enough I/O slots available, create a new profile or modify the existing profile with the available resources. Then activate the partition. 3. If the partition must be activated at any cost, deactivate any running partition that is using the resource and then activate the partition. **Note:** If you have tried to recover using the above action and you are not successful, and you must activate the partition, edit the profile for the partition you are activating and remove all slots that are associated with the identified slot's PHB. See the PCI Adapter Placement Reference, order number SA38-0538 for information on PHB slot associations. 4. If the problem persists, contact your next level of support.

Table 436. HSCL: 03xx managed system resource error codes (continued)

Error code	Message	Recovery action
03EC	There is not enough memory: Obtained - {0}, Required - {1}. Check that there is enough memory available to activate the partition. If not, create a new profile or modify the existing profile with the available resources, and then activate the partition. If the partition must be activated with these resources, deactivate any running partition or partitions using the resource, and then activate this partition.	1. Check the managed system properties window to ensure that enough memory is available to activate the partition. 2. If there is not enough available memory, create a new profile or modify the existing profile with the available resources and then activate the partition. 3. If the partition must be activated at any cost, deactivate any running partition using the resource, and activate the partition. 4. If the problem persists, contact your next level of support.
03ED	The I/O unit specified by this ID cannot be found and might have been deleted from the managed system. Modify the profile.	Modify the partition profile so that the unit that cannot be found is no longer part of the profile's resources.
03EE	The specified slot number cannot be found. Ensure the profile is not using I/O unit slots that do not exist in the managed system.	The adapter specified cannot be found. Modify partition profiles so that the slot that cannot be found is not part of any partition profile.
03EF	The number of system units, slots, and I/O required and desired information stored in the properties do not match. The profile might be corrupted. Perform the Restore Profile Data task.	1. The profile might be corrupted. Restore the profile data. See "MAP6660 Operation procedures that do not apply to DS8000" on page 846 for details. 2. If the problem persists, delete the profile and create a new profile.

Table 436. HSCL: 03xx managed system resource error codes (continued)

Error code	Message	Recovery action
03F0	Could not allocate the I/O slot for activation in I/O drawer {0}. Slot {1} is currently being used by another partition. Perform one of the following three actions: 1) Remove this I/O slot from the profile, 2) Change the I/O slot from Required to Desired in the profile, or 3) Remove the I/O slot from the other partition.	Perform one of the following actions: • Remove this I/O slot from the profile. • Change the I/O slot from Required to Desired in the profile. • Remove the I/O slot from the other partition.
03F4	Not enough processing resources to meet the allocation setting	1. Ensure there is enough processors to start the partition. 2. Rebuild the managed system. See “MAP6620 Rebuilding managed system information” on page 842 for details. 3. If the problem persists, contact your next level of support.
03F5	There is an insufficient amount of shared processing resources: Virtual processor obtained - {0}, processing units obtained - {1}, Required virtual processors - {2}, Required processing units - {3}. Check that there is enough processing resources available to activate the partition. If not, create a new profile or modify the existing profile with the available resources, and then activate the partition. If the partition must be activated with the specified amount of processing resources, deactivate any active partitions using the resource then activate this partition.	1. Ensure there is enough processing to start the partition. 2. Rebuild the managed system. See “MAP6620 Rebuilding managed system information” on page 842 for details. 3. If the problem persists, contact your next level of support.

Table 436. HSCL: 03xx managed system resource error codes (continued)

Error code	Message	Recovery action
03F6	The 5250 CPW needed by the partition exceeds the system limit. Amount allowable at this point is {0}.	1. Check the 5250 CPW. 2. If the problem persists, contact your next level of support.
03F7	Insufficient amount of 5250 CPW for allocation: Obtained - {0}, required - {1}.	1. Ensure there are enough 5250 CPW to start the partition. 2. Rebuild managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact your next level of support.
03F8	The 5250 CPW set by user is below the partition minimum allowed: minimum = {0}.	1. Ensure the 5250 CPW setting is correct. 2. If the problem persists, contact your next level of support.
03F9	Not enough memory resources to meet the allocation setting.	1. Ensure there is enough memory to start the partition. 2. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact your next level of support.
03FA	Unable to gather I/O information of the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
03FB	Unable to gather virtual I/O information of the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
03FC	The MAC address prefix specified was not valid. The MAC address prefix must be six characters long, and only contain hexadecimal values (0-9 and A-F).	1. Ensure the MAC address conform with the rule specified. 2. If the problem persists, contact your next level of support.
03FD	The MAC address prefix cannot have the multicast bit on. The multicast bit is 0x010000.	1. Ensure the multicast bit is not on. 2. If the problem persists, contact your next level of support.

Table 436. HSCL: 03xx managed system resource error codes (continued)

Error code	Message	Recovery action
03FE	There was an error updating a virtual Ethernet adapter MAC address.	1. Retry the task. 2. If the problem persists, contact your next level of support.
03FF	Failed to extract system resources information. Ensure the managed system is powered on.	1. Retry the task. 2. Rebuild the managed system. See “MAP6620 Rebuilding managed system information” on page 842 for details. 3. If the problem persists, contact your next level of support.

HSCL 04*xx*

This section lists the HSCL 04*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 437. HSCL: 04xx partition error codes

Error code	Message	Recovery action
0400	Failed to determine the minimum amount of memory required for the amount of maximum specified	1. Retry the task. 2. If the problem persists, contact your next level of support.
0401	Failed to determine the valid 5250 CPW range with the amount of processing given.	1. Retry the task. 2. If the problem persists, contact your next level of support.
0402	There is insufficient amount of system firmware memory to perform this task. In order to perform this task, the managed system needs an additional {0} MB of memory. Free memory resources by removing memory through dynamic logical partitioning or deletions of unused partitions.	The managed system needs additional memory. Remove memory through dynamic logical partitioning or deleting unused partitions to free memory resources.

HSCL 05*xx*

This section lists the HSCL 05*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 438. HSCL 05xx error codes

Error code	Message	Recovery action
0500	The operation violates the Workload Management Policy. It might be due to one of the following reasons: 1. Deleting a partition which belongs to a cluster. 2. Changing a partition cluster ID from one cluster to another cluster. 3. Running dynamic partitioned move operation between two partitions which belong to the same cluster.	Check the operation. 1. For deleting a clustered partition, first move it out of the cluster and then delete it. 2. For changing a cluster ID, first change it to a non-clustered partition, and then change to the destination cluster. 3. It is not allowed to move processor or memory between two clusters.
0589	Could not delete partition {0}. Refresh the interface and check whether the operation was performed. If not, try the operation again.	1. Refresh the interface and check whether the operation was performed. 2. If not, rebuild the managed system, and try the task again. See “MAP6620 Rebuilding managed system information” on page 842 for details. 3. If the operation still fails, contact your next level of support.
058A	Could not activate the logical partition on logical partition {0} with ID {1}. Refresh the interface and check whether the operation was performed. If not, try the operation again.	1. Perform a rebuild of the managed system. See “MAP6620 Rebuilding managed system information” on page 842 for details. 2. Try the task again. 3. If the operation still fails, contact your next level of support.
058C	User defined name cannot be blank or empty.	1. Set a non-blank user defined name for this partition. 2. If the problem persists, contact your next level of support.

Table 438. HSCL 05xx error codes (continued)

Error code	Message	Recovery action
058D	The user defined name cannot be longer than {0} characters.	1. The partition's user-defined name is too long. Shorten this partition's user-defined name, and try the operation again. 2. If the problem persists, contact your next level of support.
058F	Cannot activate a LPAR when the managed system state is No Power.	1. Verify that the managed system is in the Operating or Standby state and try the task again. 2. If the state is not Operating or Standby, refer to "MAP6650 Correcting the CEC enclosure operating state" on page 843 and perform the appropriate procedure to put the managed system in the correct state. 3. If the problem persists, contact your next level of support.
059A	Cannot activate the logical partition. The profile's maximum memory amount exceeds the managed system's memory limit. Change the profile's maximum memory amount.	Change the profile's maximum memory amount, and retry the operation.
059D	This panel function is not enabled at this time.	
059E	Failed to get supported panel functions from firmware.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
05DC	The partition does not have Virtual IO Server capability.	Please choose the correct partition and retry the command.
05DD	Could not get logical partition state. Repeat the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
05DE	A logical partition in the managed system already uses the name {0}. Provide another name for this logical partition.	Rename the logical partition to a name that is not yet used by other logical partitions in the same managed system. Refer to the LPAR help text for details.
05DF	The logical partition is not in a state under which this operation can be performed. Check the state of the logical partition.	1. Verify that the operation is allowable under this logical partition state. 2. Refer to "MAP6650 Correcting the CEC enclosure operating state" on page 843 and perform the appropriate procedure to put the managed system in the correct state.

Table 438. HSCL 05xx error codes (continued)

Error code	Message	Recovery action
05E0	The logical partition {0} is in an undefined state. Rebuild the managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Reboot the management console. 3. If the problem persists, contact your next level of support.
05E1	Only {0} logical partitions can be allocated on this managed system can be allocated. There are no more unallocated logical partitions available. Delete unused or unwanted logical partitions for this managed system and retry the operation. Logical partitions in the ready state are currently not in use.	Delete unused or unwanted logical partitions. Logical partitions in the ready state are currently not in use. Refer to the LPAR help text for details.
05E2	Partition is in an unrecognized state.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Try the operation again. 3. If the problem persists, contact your next level of support.
05E3	Partition is in an unrecognized state.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Try the operation again. 3. If the problem persists, contact your next level of support.
05E5	Unable to create partition when the managed system is in {0} state. Ensure that the managed system is in the Operating or Standby state.	1. Verify that the managed system is in the Operating or Standby state. 2. If it is not in the Operating or Standby state refer to "MAP6650 Correcting the CEC enclosure operating state" on page 843 and perform the appropriate procedure to put the managed system in the correct state. 3. If the problem persists, contact your next level of support.
05E6	Logical partition {0} delete failed. Cannot delete a partition when its state is not in the Not Activated state. Perform a shutdown operation then delete the partition.	1. Verify the partition is in Not Activated state. 2. Perform a Rebuild Managed System operation. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. Then try the task again.

Table 438. HSCL 05xx error codes (continued)

Error code	Message	Recovery action
05E7	The profile you tried to activate does not belong to the logical partition {0} you specified. Select the correct LPAR profile.	Verify that you selected the correct logical partition profile to activate.
05E9	Could not activate the logical partition. Ensure that the partition is not already activated and that the managed system is in the Operating or Standby state.	1. Verify that the logical partition is not already activated, and the state and power-on condition of the managed system are correct, and try the operation again. 2. If necessary, refer to "MAP6650 Correcting the CEC enclosure operating state" on page 843 and perform the appropriate procedure to put the managed system in the correct state. 3. If the problem persists, contact your next level of support.
05EA	Cannot activate the partition when it is in state {0}. Ensure the partition is in the Not Activated state.	1. Verify that the logical partition is not in the running, booting, or open firmware state. 2. If necessary, refer to "MAP6650 Correcting the CEC enclosure operating state" on page 843 and perform the appropriate procedure to put the managed system in the correct state. 3. If it still fails, contact your next level of support.
05EB	Could not create the partition. Make sure that all requirements are met for creating a logical partition.	1. To verify that all the requirements for creating a logical partition are met, refer to "Partitioning the server". 2. If all requirements are met, do a rebuild of the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. Retry the task. 4. If the problem persists, contact your next level of support.
05EC	Could not delete logical partition {0}. Ensure that all requirements are met for deleting a logical partition.	1. Verify that all the requirements for deleting a logical partition are met. 2. Perform a rebuild of the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. Retry the task. 4. If it still fails, contact your next level of support.
05ED	Could not set the properties for logical partition {0}. Try again.	1. Repeat the operation. 2. If the operation still fails, contact your next level of support.
05EE	Could not get the managed system's service processor log entry. Try again.	1. Repeat the operation. 2. If the operation still fails, contact your next level of support.

Table 438. HSCL 05xx error codes (continued)

Error code	Message	Recovery action
05EF	This new logical partition does not have a user-defined name. Specify a name for the logical partition.	1. Set the user-defined name for this logical partition. See "MAP6670 Viewing information about the managed system" on page 846 for details. 2. If it still fails, contact your next level of support.
05F3	Could not display the OS reset dialog for logical partition {0}. Try again.	1. Refresh the interface and check whether the operation was performed. 2. If not, rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. Retry the task. 4. If the operation still fails, contact your next level of support.
05F4	Could not display the logical partition activate dialog for logical partition {0}. Try again.	1. Log off and then log in to the management console and try the operation again. 2. If this does not correct the problem, contact your next level of support.
05F5	Could not display the create logical partition dialog for the managed system: {0}. Try again.	1. Log off and then log in to the management console and try the operation again. 2. If this does not correct the problem, contact your next level of support.
05F7	Could not open the virtual terminal for logical partition {0} with ID {1}.	1. Refresh the interface and check whether the operation was performed. 2. If not, rebuild the managed system, and try the task again. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the operation still fails, contact your next level of support.
05F8	Could not perform the OS reset {0} reset on logical partition {1} with ID {2}.	1. Refresh the interface and check whether the operation was performed. 2. If not, rebuild the managed system, and try the task again. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the operation still fails, contact your next level of support.
05F9	Could not delete logical partition {0}. Refresh the interface and check whether the operation was performed. If not, try the operation again.	1. Verify that the logical partition displays on the graphical user interface. 2. Delete the logical partition again, and check the graphical user interface to see if it is updated appropriately. 3. Log off and log back in to the management console. 4. Contact your next level of support.

HSCL 06*xx*

This section lists the HSCL 06*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 439. HSCL: 06xx error codes

Error code	Message	Recovery action
0601	Cannot create partition with bootable definition state setting.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the operation. 3. If the problem persists, contact your next level of support
0602	Partition with the same ID is already defined in the managed system.	1. Check the entry and try again. 2. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact your next level of support.
0604	Could not read the dump.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
0605	The initialize dump request failed because the managed system is already in the process of creating a dump of the specified type.	The keylock position of the managed system needs to be set to manual mode.
0607	Dump partition does not exist.	1. Ensure that the dump partition has been mounted. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
0608	Could not mount the dump partition.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
0611	Could not read dump as a temporary file.	1. Ensure that the dump partition has been mounted and has an access to it. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
0612	Could not process dump header.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
0613	Could not query the dump.	1. Retry the operation. 2. If the problem persists, contact your next level of support.

Table 439. HSCL: 06xx error codes (continued)

Error code	Message	Recovery action
0616	Cannot use the 5250 CPW setting. Check whether the setting is valid.	1. Ensure the 5250 CPW setting is correct. 2. If the problem persists, contact your next level of support
0619	Cannot use the I/O setting for allocation. Check whether the setting is valid.	1. Check the I/O setting is valid. 2. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact your next level of support.
061A	Cannot use the virtual I/O setting for allocation. Check whether the setting is valid.	1. Check that the setting is valid 2. Retry the task. 3. If the problem persists, contact your next level of support.
061B	Operation failed to set partition activation policies.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
061C	Operation failed to allocate memory for the partition.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact IBM support.
061D	Operation failed to allocate virtual I/O for the partition.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
061E	Operation failed to allocate 5250 CPW for the partition.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
061F	Operation failed to allocate processing resource for the partition.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.

Table 439. HSCL: 06xx error codes (continued)

Error code	Message	Recovery action
0620	Operation failed to allocate I/O slots for the partition.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
0621	Cannot use the LPAR profile for partition operation since its dedicated processor setting is not correct. Check the processor setting in the profile, and ensure the setting is valid.	1. Check the processors settings 2. If the problem persists, contact your next level of support.
0622	Cannot use the LPAR profile for partition operation since its shared processor setting is not correct. Check the processor setting in the profile, and ensure the setting is valid.	1. Check the processors settings 2. If the problem persists, contact your next level of support.
0623	Partition cluster ID cannot be modified when the partition is not in the Not Activated state.	1. Ensure the partition is in *Not Activated* state. 2. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact your next level of support.
0624	Unable to launch Update Password Dialog. Try again.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
0625	Cannot activate partition when the managed system state is not in the Operating or Standby state.	1. Ensure the partition is in Operating or Standby state. 2. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact your next level of support.
0626	Cannot find the LPAR profile to activate the partition.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.

Table 439. HSCL: 06xx error codes (continued)

Error code	Message	Recovery action
0627	The virtual I/O specified for tagged I/O is not valid.	1. Check that the setting is valid. 2. Retry the task. 3. If the problem persists, contact your next level of support.
0628	Resource specified as load source must be required.	1. Ensure the load source device is specified as required. 2. Retry the operation. 3. If the problem persists, contact your next level of support
0629	Must specify resource for load source setting.	1. Ensure the load source device is specified as required. 2. Retry the operation. 3. If the problem persists, contact your next level of support
062A	Cluster ID specified, {0}, is greater than maximum allowable value, {1}.	1. Ensure the setting is valid. 2. Retry the operation.
062B	Cannot change maximum virtual I/O Slots value when partition is not in the Not Activated state.	1. Ensure the setting is valid. 2. Retry the operation.
062D	The partition is currently in a state of Running, Initializing or Open Firmware, and cannot be deleted.	A partition cannot be deleted when it is in Running, Initializing, or Open Firmware state. 1. Deactivate the partition and retry the operation. 2. If you believe that the partition is already stopped, rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. Retry the operation. 4. If the problem persists, contact your next level of support.
062E	Unable to shutdown the partition using operation system command.	1. Retry the operation. 2. If the problem persists, contact your next level of support
062F	You must select one profile to activate the partition with or select Cancel.	1. Only one partition profile can be used to activate a partition. Either retry the operation, selecting a profile to activate the partition with, or select **Cancel**. 2. If the problem persists, contact your next level of support.

Table 439. HSCL: 06xx error codes (continued)

Error code	Message	Recovery action
0630	Could not display the partition activate advance dialog for partition: {0}. Try the operation again.	1. Refresh the graphical user interface and retry the operation. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Log off and then log back onto the management console and try the operation again. 3. If the problem persists, contact your next level of support.
0631	Could not display the partition reboot dialog. Try the operation again.	1. Refresh the graphical user interface and retry the operation. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Log off and then log back onto the management console and try the operation again. 3. If the problem persists, contact your next level of support.
0632	Could not perform the reboot partition operations. Refresh the interface and check whether the operation was performed. If not, try the operation again.	1. Refresh the interface and check whether the operation was performed. 2. If not, rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact your next level of support.
0633	Could not display the partition shut down dialog. Try the operation again.	1. Refresh the graphical user interface and retry the operation. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Log off and then log back onto the management console and try the operation again. 3. If the problem persists, contact your next level of support.
0634	Could not perform the shut down partition operations. Refresh the interface and check whether the operation was performed. If not, try the operation again.	1. Refresh the interface and check whether the operation was performed. 2. If not, rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact your next level of support.
0635	Could not display the change default profile dialog. Try the operation again.	1. Refresh the graphical user interface and retry the operation. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Log off and then log back onto the management console and try the operation again. 3. If the problem persists, contact your next level of support.

Table 439. HSCL: 06xx error codes (continued)

Error code	Message	Recovery action
0636	Unable to modify processing information of the partition with ID of {0}. The information could be out of sync. Rebuild the managed system and try again.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
0637	Unable to modify processing information of the partition with ID of {0}. The information could be out of sync. Rebuild the managed system and try again.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
0638	Unable to modify 5250 CPW information of the partition with ID of {0}. Rebuild the managed system and try again.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
0639	Unable to modify OptiConnect setting of the partition with ID of {0}. Rebuild the managed system and try again.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
063A	Unable to extract partition's virtual I/O information.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
063B	Failed to set I/O adapter {0} for the partition.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
063C	Failed to set tagged I/Os for the partition.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.

Table 439. HSCL: 06xx error codes (continued)

Error code	Message	Recovery action
063D	Failed to change the partition's processor type.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
063E	Failed to change the partition's processor settings.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
063F	Cannot assign a storage device under I/O processor to AIX/Linux partition.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
0640	OptiConnect Pool IDs might only be set on OS/400 partitions.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
0641	Cannot activate a profile using full system resources while other partitions are powered on.	1. Ensure there are no partitions running. 2. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. Retry the task. 3. If the problem persists, contact your next level of support.
0642	Partition ID specified is over max number of partition supported by the system. Check the entry and try again.	1. Ensure the partition ID specified is not over the maximum number of logical partitions supported. 2. Retry the task. 3. If the problem persists, contact your next level of support.
0643	Virtual I/O server command {0} for partition {1} failed.	The I/O server command for the partition failed. The reason or cause is included in the error message. Check the command and retry. If the error persists, contact your next level of support.

HSCL 07*xx*

This section lists the HSCL 07*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not

currently performing DS8000 actions through the management console ESSNI connection.

Table 440. HSCL: 07xx error codes

Error code	Messages	Recovery action
07D1	This logical partition profile is currently active in its logical partition and cannot be modified or deleted. To make the profile inactive, bring the partition to the Not Activated state, and then repeat the operation.	Partition profiles that are active in a logical partition cannot be deleted. 1. Perform an operating system reset on the partition to bring it to the Not Activated state, at which time the profile will no longer be active. See "MAP6660 Operation procedures that do not apply to DS8000" on page 846. 2. If it still fails, contact your next level of support.
07D2	This logical partition profile is the logical partition's default profile and cannot be deleted. If you still want to delete it, change the default profile for this logical partition or, if necessary, create another logical partition profile to be the default profile.	All logical partitions must have at least one partition profile, which is designated as the default profile because it is the profile implicitly used when the logical partition is activated with no profile specified. 1. If you still want to delete it, change the default profile for this logical partition (create another logical partition profile if necessary). 2. If it still fails, contact your next level of support.
07D3	The logical partition profile could not be found in the management console save area. The management console is either out of sync with the console save area, or the console save area has been corrupted. Rebuild this logical partition profile's managed system.	1. Ensure that the inputs are correct. 2. Restore the profile data. See "MAP6660 Operation procedures that do not apply to DS8000" on page 846 for details. 3. If the problem persists, contact your next level of support.
07D4	A profile named {0} already exists for this logical partition in the management console save area. Choose a different name for the new system profile.	1. All partition profiles for a logical partition must have unique names. Choose a different name for the new profile. 2. If the problem persists, contact your next level of support.
07D8	Deleting default profile associations within the current context is not allowed.	

Table 440. HSCL: 07xx error codes (continued)

Error code	Messages	Recovery action
07D9	Setting a default profile association is only allowed during create.	
07DA	The logical partition profile used for the operation cannot be found in the profile data.	1. Verify that you entered the correct information. 2. If the problem persists, contact your next level of support.
07DB	An attempt to create a profile failed.	1. Try the task again. 2. If problem persists, contact your next level of support.
07DC	An attempt to modify a profile failed.	1. Try the task again. 2. If problem persists, contact your next level of support.
07DD	The LPAR profile's processing resources setting is not valid. Check profile processing resource setting.	1. Check the processing resources setting. 2. If the problem persists, contact your next level of support.
07DE	The LPAR profile's 5250 CPW setting is not valid. Check profile processing resource setting.	1. Check the 5250 CPW. 2. If the problem persists, contact your next level of support.
07DF	Virtual slot 0 and 1 are set to default as virtual serial adapters when a partition is created. No modification can be made regarding these 2 slots.	
07E0	The partition profile could not be found in the database. Perform a rebuild managed system operation, and try again.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
07E1	An error occurred while changing the default profile for the partition. Please retry the operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.

Table 440. HSCL: 07xx error codes (continued)

Error code	Messages	Recovery action
07E2	Required processor information in the LPAR profile is not set. Please check your profile and try again.	1. Ensure that the setting is valid. 2. Retry the task. 3. If the problem persists, contact your next level of support.
07E3	Failed to delete LPAR profile, {0}, from partition, {1}.	1. Retry the task. 2. If the problem persists, contact your next level of support.
07E5	The critical I/O setting is incorrect. Check the setting and try again.	1. Ensure the tagged I/O setting is correct. 2. Retry the task. 3. If the problem persists, contact your next level of support

HSCL 09*xx*

This section lists the HSCL 09*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 441. HSCL: 09xx system profile error codes

Error code	Message	Recovery action
09C6	Could not find the system profile in memory. It might be corrupted. Restore the profile data.	The system profile might be corrupted. 1. Restore the profile data. See "MAP6660 Operation procedures that do not apply to DS8000" on page 846 for details. 2. If the problem persists, delete and re-create a new system profile. Refer to "MAP6660 Operation procedures that do not apply to DS8000" on page 846 for details. 3. If the problem persists, contact your next level of support.
09C7	A system profile named {0} already exists for this managed system in the Hardware Management Console save area. Choose a different name for the new system profile.	Every system profile created for an individual managed system must have a unique name. Choose a different name for the new system profile. If it still fails, contact your next level of support.

Table 441. HSCL: 09xx system profile error codes (continued)

Error code	Message	Recovery action
09C8	Could not open the Copy System Profile dialog. Try again.	1. Log off the management console, and log back in. 2. Try the task again. See "MAP6660 Operation procedures that do not apply to DS8000" on page 846 for details. 3. If it still fails, contact your next level of support.
09C9	Could not copy the system profile {0}. Try again.	1. Log off the management console, and log back in. 2. Try the task again. See "MAP6660 Operation procedures that do not apply to DS8000" on page 846 for details. 3. If it still fails, contact your next level of support.
09CA	Could not delete the system profile. Try the task again.	1. Log off the management console, and log back on. 2. Try the task again. 3. If the problem persists, contact your next level of support.
09CF	Validation of system profile failed. Retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
09D0	Cannot validate system profile if the managed system is not in Operating or Standby state.	1. Ensure that the managed system is in the Operating or Standby state and then retry the operation. 2. If the problem persists, contact your next level of support.
09D2	The following partition or partitions failed to activate: {0}	A logical partition that is part of the system profile failed to activate. 1. Ensure that you have enough free resources to activate the desired partition profile. 2. If so, rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. Retry the operation. 4. If the problem persists, contact your next level of support.
09D3	An unknown error occurred during system profile activation. Please retry the operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
09D4	Update of the system profile failed. Please retry the operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the operation. 3. If the problem persists, contact your next level of support.

Table 441. HSCL: 09xx system profile error codes (continued)

Error code	Message	Recovery action
09D5	An unknown error occurred during system profile creation. Please retry the operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
09D6	An unknown error occurred during deletion of the system profile. Please retry the operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
09D7	The system profile that you have chosen to validate could not be found.	The system profile might be corrupted. 1. Restore the profile data. See "MAP6660 Operation procedures that do not apply to DS8000" on page 846 for details. 2. If the problem persists, delete and re-create a new system profile. 3. If the problem persists, contact your next level of support.
09D8	System profile {0} could not be {1} because profile {2} was not found in the managed system.	A profile that is part of the system profile cannot be found in the managed system. 1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
09D9	System profile {0} could not be {1} because profiles {2} and {3} belong to the same partition. Take one of the profiles out of the system profile list and try again.	There is more than one profile in the system profile that belongs to the same partition. 1. Ensure that each partition has at most one profile in the system profile, and retry the operation. 2. If the problem persists, contact your next level of support.
09DA	System profile {0} could not be {1} because LPAR profile {2}, belonging to partition {3}, is listed more than once. Take one of the profiles out of the system profile list and try again.	A profile is listed more than once in the system profile. 1. Ensure that all partition profiles are only listed once in the system profile, and retry the operation. 2. If the problem persists, contact your next level of support.

Table 441. HSCL: 09xx system profile error codes (continued)

Error code	Message	Recovery action
09DB	Partition {0} could not be activated because it is already active.	This error occurs when a logical partition listed in the system profile is already activated. 1. If the logical partition is not activated, rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
09DC	System profile {0} could not be {1} because profile {2} is a full system partition profile. There cannot be any other partition profiles listed in the system profile.	If a full system partition profile is part of a system profile, there can be no other partition profiles listed in that system profile. 1. Either take all other profiles except the full system partition profile out of the system profile, or remove the full system partition profile from the system profile. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
09DD	The partition profile ID {0} does not correspond to a valid profile. Please retry the command.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
09DE	The system profile cannot be created because no user-defined name was given. Ensure to enter a user-defined name, and try the operation again.	1. No user-defined system profile name was given during system profile creation. Retry the creation operation again, this time making sure to enter a user-defined name. 2. If the problem persists, contact your next level of support.
09DF	The system profile cannot be created because there are no partition profiles currently included in the system profile. Please specify partition profiles for the system profile or click \"Cancel\".	1. Partition profiles for the system profile must be specified during system profile creation. Retry the system profile creation operation, making sure to add at least one partition profile to the system profile. 2. If the problem persists, contact your next level of support.

Table 441. HSCL: 09xx system profile error codes (continued)

Error code	Message	Recovery action
09E0	The profile {0} belongs to a partition that currently has a profile already included in the system profile. Please select a profile from a different partition or first remove the conflicting partition's profile from the system profile, and then add the desired profile again.	
09E1	There is currently a system profile with the name {0} created for this system. Please enter a unique name.	1. If there is not a system profile with the specified name displayed in the console, refresh the console and try the command again. 2. If it fails again, rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. Reboot the management console and then try the task again. 4. If the problem persists, contact your next level of support.
09E2	There is currently a system profile with the name {0} created for this system. Please enter a unique name.	This message is for informational purposes only regarding the outcome of system profile validation. No recovery action should be taken.
09E3	Activation results for system profile {0}:{1}.	This message is for informational purposes only regarding the outcome of system profile validation. No recovery action should be taken.

HSCL 0B*xx*

This section lists the HSCL 0B*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 442. HSCL: 0Bxx attention light messages

Error code	Message	Recovery action
0BBB	Can not get LED.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the operation. 3. Reboot the management console and then try the task again. 4. If the problem persists, contact your next level of support.

HSCL 0D*xx*

This section lists the HSCL 0D*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 443. HSCL 0Dxx error codes

Error code	Message	Recovery action
0DB2	An operating system reset can be issued for a logical partition only if the partition is in the running or starting state.	1. Refresh the graphical user interface. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Try the task again. 3. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. Then try the task again.
0DB4	An Operating System Shutdown can not be performed because the operating system image running does not support remote execution of this task from the management console.	1. Ensure the network connection between partition and management console is working. 2. Rebuild the management console. 3. If the problem persists, contact your next level of support.

Table 443. HSCL 0Dxx error codes (continued)

Error code	Message	Recovery action
0DB5	An Operating System Shutdown can be issued for a logical partition only if the partition is in the Running state.	A partition must be in the Running state in order for an operating system shutdown operation to be performed. 1. Ensure that the partition's state is Running, and try the task again. 2. If your partition is in a state other than Running, but you are sure that the partition is in fact running, rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. Retry the operation. 4. If the problem persists, contact your next level of support.
0DB7	Fail to shutdown partition through operation system command due to following reasons:{0}.	1. Ensure that the network between the management console and the partition is working. 2. Retry the operation. 3. If the problem persists, contact your next level of support.

HSCL 11*xx*

This section lists the HSCL 11*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 444. HSCL: 11xx backup and restore error codes

Error code	Message	Recovery action
1195	Unable to back up the profile data to the backup file. Try again.	1. Try the task again. 2. If the problem persists, contact your next level of support.
1196	You do not have read access permission on the backup file {0}. Refresh the interface and check whether the operation was completed. If not, try the operation again.	1. Try the task again. 2. If the operation still fails, contact your next level of support.

Table 444. HSCL: 11xx backup and restore error codes (continued)

Error code	Message	Recovery action
1197	Unable to read the profile data's backup file {0}. Refresh the interface and check whether the operation was completed. If not, try the operation again.	1. Try the task again. 2. Shut down and restart the management console, and then try the task again. 3. If the operation still fails, contact your next level of support.
1198	Cannot find backup file {0} for profile data. Select a valid, existing backup file.	1. Try the task again. 2. If the operation still fails, contact your next level of support.
1199	A full restore is not permitted when there are logical partitions in {0} state. A full restore can only be issued when the managed system was powered on and all partitions are in the Not Activated state.	1. Verify the managed system was powered-on to run in Partition Standby. 2. Try the task again. 3. If the operation still fails, contact your next level of support.
119A	There was an I/O error while backing up the profile data. Try again.	1. Try the task again. 2. Shut down and restart the management console, and then try the task again. 3. If the operation still fails, contact your next level of support.
119B	The restore profile data operation failed. Try again.	1. Try the task again. 2. Shut down and restart the management console, and then try the task again. 3. If the operation still fails, contact your next level of support.
119C	Cannot initialize profile data when the managed system was not in the Standby or Operating state, or there is any partition not in the Not Activated state.	1. Verify that the managed system is in the Standby or Operating state, and that no logical partitions are running. 2. Try the task again. 3. If the problem persists, contact your next level of support.
119D	Cannot restore the profile data if the managed system is in the {0} state.	1. Verify that the managed system is in the Standby or Ready state, and try the task again. 2. If the problem persists, contact your next level of support.
119E	Cannot initialize the profile data if the managed system is in the {0} state.	1. Verify that the managed system is in the Standby or Ready state, and try the task again. 2. If the problem persists, contact your next level of support.

Table 444. HSCL: 11xx backup and restore error codes (continued)

Error code	Message	Recovery action
119F	The backup file {0} used to restore the profile data is not valid. Its file size ({1}) is not correct. Select a valid backup file.	The backup file selected is not valid. The file might be corrupted. 1. Try the task again. Select another backup file and try the task again. 2. If the problem persists, contact your next level of support
11A0	Cannot restore the profile data if the managed system is in the {0} state. The managed system must be in the Operating or Standby state.	1. Verify that the managed system is in Operating or Standby state. 2. Try the task again.
11A1	Cannot initialize the profile data if the managed system is in the {0} state. The managed system must be in the Operating or Standby state.	1. Verify that the managed system is in Operating or Standby state. 2. Try the task again.
11A2	Could not display the backup dialog for the managed system: {0}. Try the operation again.	1. Try the task again. 2. Log off the management console, and then log back in. 3. Try the task again. 4. If the problem persists, contact your next level of support.
11A3	Could not back up the profile data for the managed system: {0} to file {1}.	1. Refresh the graphical user interface. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Try the task again. 3. Shut down and restart the management console, and then try the task again. 4. If the problem persists, contact your next level of support.
11A4	Cannot back up profile data to the default backup file name {0}.	Cannot back up the profile data to the default backup file. Choose a different backup file name. If the problem persists, contact your next level of support.
11A5	Could not display the remove backup dialog for the managed system {0}. Try again.	1. Try the task again. 2. Log off the management console, and log back in. 3. Try the task again. 4. Contact your next level of support.
11A6	Could not remove the backup file {0} from the managed system {1}.	1. Refresh the graphical user interface. See Updating managed system or frame information for details. 2. Try the task again. 3. Shut down and restart the management console, and then try the task again. 4. If the problem persists, contact your next level of support.

Table 444. HSCL: 11xx backup and restore error codes (continued)

Error code	Message	Recovery action
11A7	No backup file has been selected for the operation. Select a backup file.	If the problem persists, contact your next level of support.
11A8	Could not display the restore profile data dialog for the managed system: {0}. Try the operation again.	1. Try the task again. 2. Log off the management console, and then log back in. 3. Try the task again. 4. If the problem persists, contact your next level of support.
11A9	Could not initialize the profile data task on the managed system {0}. Refresh the interface and check whether the operation was performed. If not, try the operation again.	1. Refresh the graphical user interface. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Ensure the operation has been performed and displays on the graphical user interface. 3. If not, repeat the operation. 4. If the problem persists, contact your next level of support.
11AA	Could not restore the profile data task on the managed system {0} with backup file {1} of {2} option. Refresh the interface and check whether the operation was performed. If not, try the operation again.	1. Refresh the graphical user interface. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Try the task again. 3. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. Then try the task again. 4. If the problem persists, contact your next level of support.
11AB	Could not display the recover partition data dialog for the managed system {0}.	1. Try the task again. 2. Log off the management console, and then log back in. 3. Try the task again. 4. If the problem persists, contact your next level of support.
11AC	Could not perform the recover logical partition data task on the managed system {0}.	1. Refresh the graphical user interface. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Try the task again. 3. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. Then try the task again. 4. If the problem persists, contact your next level of support.
11AD	Could not display the Rebuild Computer System dialog for managed system {0}.	1. Refresh the graphical user interface and retry the operation. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.

HSCL 13*xx*

This section lists the HSCL 13*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 445. HSCL: 13xx utility class error codes

Error code	Message	Recovery action
138F	Could not get the management console host name. Check the network settings within the system configuration.	1. Check the network setting under system configuration, and then try the task again. 2. If the problem persists, contact your next level of support.
1393	Could not load the list of IBM PC product names.	1. Shut down and restart the management console. 2. If the problem persists, contact your next level of support.
1395	Could not launch the Confirmation dialog. Try again.	1. Refresh the graphical user interface. See “MAP6620 Rebuilding managed system information” on page 842 for details. 2. Try the task again. 3. Log off and then log back onto the management console and try the operation again. 4. If the problem persists, contact your next level of support.
1397	Could not determine the version of the firmware that is loaded on the service processor.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
1398	Could not determine what version of service processor firmware is compatible with this version of the management console.	Check the version of your managed system and the management console version first with Administration staff. Then determine the compatibility from the document, if they do match.
1399	The managed system does not have Virtual IO Server capability.	There is no recovery action necessary.

HSCL 14*xx*

This section lists the HSCL 14*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console

ESSNI connection.

Table 446. HSCL: 14xx error codes

Error code	Message	Recovery action
1400	The firmware operation failed.	Try the task again. If the problem persists, contact your next level of support.
1401	An error was detected using the current management console's network configuration. A duplicate IP address and system hostname might be the cause of this problem. Verify this system's network settings via the 'Customize Network Settings' task. This management console's network interface has been temporarily disabled and the hostname set to 'localhost.localdomain'.	1. Ensure the network setting is correct. 2. If the problem persists, contact your next level of support.
1402	This operation failed due to following reasons: {0}.	
1403	Could not display the {0} dialog. Try the operation again.	1. Refresh the graphical user interface. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the operation. 3. If it still fails, log off and then log back onto the management console and try the operation again. 4. If the problem persists, contact your next level of support.
1450	There is an insufficient number of unallocated processors to perform the operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
1451	Attempted to allocate a number of processors below the minimum processor setting.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
1452	Attempted to allocate a number of processors above the maximum processor setting.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.

Table 446. HSCL: 14xx error codes (continued)

Error code	Message	Recovery action
1453	There is an insufficient amount of unallocated processing units to perform the operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
1454	Attempted to allocate an amount of processing units below the minimum processing unit setting.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
1455	Attempted to allocate an amount of processing units above the maximum processing setting.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
1456	The processor setting exceeds the maximum system configuration.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
1457	There is an insufficient amount of unallocated memory to perform the operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
1458	Attempted to allocate an amount of memory below the minimum memory setting.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
1459	Attempted to allocate an amount of memory above the maximum memory setting.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
145A	The minimum memory amount is below the required amount of memory with the maximum specified.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
145B	There is an insufficient amount of unallocated 5250 CPW to perform the operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.

Table 446. HSCL: 14xx error codes (continued)

Error code	Message	Recovery action
145C	Attempted to allocate an amount of 5250 CPW below the minimum setting.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
145D	Attempted to allocate an amount of 5250 CPW above the maximum setting.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
145E	Attempted to allocate processing units greater than the maximum capacity allowed with the specified virtual processor setting.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
145F	Attempted to allocate processing units less than the minimum capacity allowed with the specified virtual processor setting.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
1460	Attempted to set maximum processing units greater than the maximum capacity allowed with the specified virtual processor setting.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
1461	Attempted to set maximum processing units less than the minimum capacity allowed with the specified virtual processor setting.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
1462	Attempted to set minimum processing units greater than the maximum capacity allowed with the specified virtual processor setting.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
1463	Attempted to set minimum processing units less than the minimum capacity allowed with the specified virtual processor setting.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.

Table 446. HSCL: 14xx error codes (continued)

Error code	Message	Recovery action
1464	The partition is not currently configured for shared processing.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
1465	The partition is not currently configured for dedicated processing.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
1466	The partition specified is not valid. Rebuild the managed system and try again.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
1467	The type of partition specified is not compatible with the operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
1468	The I/O pool ID specified is not valid.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
1469	The shared processor pool ID specified is not valid.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
146A	The I/O adapter: {0} is not valid.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
146B	The partition name specified has already been used by another partition. Specify a different name.	
146C	The partition name specified is not acceptable. Check the name and try again.	

Table 446. HSCL: 14xx error codes (continued)

Error code	Message	Recovery action
146D	The partition is currently in a state where this configuration change is not allowed. Rebuild the managed system and try again.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
146E	The number of power controlling partitions for this partition is not valid. Check the setting and try again.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
146F	Changing from shared to dedicated processing is not allowed with the current processing setting.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
1472	The SNI adapter: {0} specified is not valid. Check the entry and try again.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
1473	Cannot perform atomic operation. Atomic operations are not enabled.	1. Retry the task. 2. If the problem persists, contact your next level of support.
1474	The processing weight specified is not valid. Check the entry and try again.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
1475	Unable to switch out or into manufacturing default configuration at this point.	1. Retry the task. 2. If the problem persists, contact your next level of support.
1477	Unable to perform atomic operation(s) at this point since one is already in progress.	1. Retry the task. 2. If the problem persists, contact your next level of support.
1478	The virtual I/O adapter type specified is not valid. Check the entry and try again.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
1479	The atomic operation failed.	1. Retry the task. 2. If the problem persists, contact your next level of support.

Table 446. HSCL: 14xx error codes (continued)

Error code	Message	Recovery action
147A	The RIO bus number: {0} is not valid. Check the entry and try again.	1. Ensure the setting is valid. 2. Retry the task 3. If the problem persists, contact your next level of support.
147B	The hardware page table ratio specified is not valid. Check the entry and try again.	1. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
147C	The I/O adapter: {0} cannot be assigned to the pool specified.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
147D	Cannot change the processing setting to uncapped.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support.
147E	The OptiConnect pool specified is not acceptable by the managed system. Check the entry and try again.	1. Retry the task. 2. If the problem persists, contact your next level of support.
147F	The HSL OptiConnect pool specified is not acceptable by the managed system. Check the entry and try again.	1. Retry the task. 2. If the problem persists, contact your next level of support.
1481	Cannot perform this operation because the partition belongs to a workload management group joined by other partitions.	1. Retry the task. 2. If the problem persists, contact your next level of support.

HSCL 15*xx*

This section lists the HSCL 15*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 447. HSCL: 15xx CIMOM error codes

Error code	Message	Recovery action
150B	Cannot change the I/O pools of the partition since the partition is still using an I/O adapter participating in one of the pool IDs.	
150C	Cannot use the I/O adapter: {0} since the partition is not part of the pool this adapter belongs to.	
150D	Cannot use the I/O adapter: {0} because it is not available.	1. Retry the task. 2. If the problem persists, contact your next level of support.
150E	Cannot use the I/O adapter: {0} since it is configured under an I/O unit marked as switchable.	
150F	Cannot vary off the I/O adapter: {0} because it is still in use by the partition.	
1510	This I/O adapter is marked as multi-hub reserving for shark partition.	
1511	Cannot use the I/O adapter: {0} because it is either used by another partition or an allocation is already in progress.	
1512	Cannot vary off the I/O adapter: {0} because the partition is not ready to release the adapter.	
1513	Cannot change the OptiConnect setting since the communication with the partition is still active.	
1514	The virtual I/O slot number specified is not valid.	1. Ensure that the setting is valid. 2. Retry the task. 3. If the problem persists, contact your next level of support.

Table 447. HSCL: 15xx CIMOM error codes (continued)

Error code	Message	Recovery action
1515	Cannot use a virtual slot number greater or equal to the maximum number of virtual slots allowed with this partition.	1. Ensure that the setting is valid. 2. Retry the task. 3. If the problem persists, contact your next level of support.
1516	Cannot specify additional virtual LAN IDs since this virtual Ethernet adapter is not IEEE compatible.	1. Ensure that the setting is valid. 2. Retry the task. 3. If the problem persists, contact your next level of support.
1517	The virtual slot number specified to query or set virtual slot information is not valid.	1. Ensure that the setting is valid. 2. Retry the task. 3. If the problem persists, contact your next level of support.
1518	The virtual slot state specified is not valid.	1. Ensure that the setting is valid. 2. Retry the task. 3. If the problem persists, contact your next level of support.
1519	The number of virtual slots specified is not valid.	1. Ensure that the setting is valid. 2. Retry the task. 3. If the problem persists, contact your next level of support.
151A	A virtual Ethernet trunk adapter with the same MAC address already exists.	1. Ensure that the setting is valid. 2. Retry the task. 3. If the problem persists, contact your next level of support.
151B	Unable to delete the partition when there is a virtual terminal connection opened.	1. Close the terminal session for the partition you want to delete. 2. Retry the task. 3. If the problem persists, contact your next level of support.
151C	Server adapter setting of the virtual slot: {0} is not valid.	1. Ensure that the setting is valid. 2. Retry the task. 3. If the problem persists, contact your next level of support.
151D	The virtual adapter: {0} cannot be set up for management console connection.	1. Ensure that the setting is valid. 2. Retry the task. 3. If the problem persists, contact your next level of support.
151E	Cannot have multicast MAC address for the virtual Ethernet trunk adapter.	1. Ensure that the setting is valid. 2. Retry the task. 3. If the problem persists, contact your next level of support.

Table 447. HSCL: 15xx CIMOM error codes (continued)

Error code	Message	Recovery action
1523	Shared pool ID specified is not valid.	1. Ensure that the setting is valid. 2. Retry the task. 3. If the problem persists, contact your next level of support.
152A	Cannot switch out of manufacturing default mode because the managed system is in EEH.	
152D	The managed system is not ready for the management console to extract partition and resource information.	1. Retry the task. 2. If the problem persists, contact your next level of support.
1537	The partition is not responsive for dynamic resource configuration changes.	1. Retry the task. 2. If the problem persists, contact your next level of support.
1538	There is an insufficient amount of memory for maintaining system firmware.	
1539	Memory configuration for the partition cannot be satisfied due to system memory usage limitation.	
1550	Firmware command: {0} failed due to the following {1} errors:{2}	1. Retry the task. 2. If the problem persists, contact your next level of support.
1551	The firmware extended error code is {0}.	1. Retry the task. 2. If the problem persists, contact your next level of support.
1552	The firmware operation failed with extended error.	1. Retry the task. 2. If the problem persists, contact your next level of support.
157D	Unable to query the association within the managed system. Log in as the proper user and use the correct association method.	
157E	Unable to edit instance of {0}. Check user permissions, and then log in as the proper user and try editing again.	1. Check your user role's permissions. 2. If your user role does not permit the desired action, log out and log back in as the proper user, and retry the operation. 3. If the problem persists, contact your next level of support.

Table 447. HSCL: 15xx CIMOM error codes (continued)

Error code	Message	Recovery action
157F	Cannot find an instance of the object specified. Either there is no instance and it must be created or a path to the object was incorrect.	1. Ensure that the inputs are correct. 2. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. Then try the task again. 3. If the problem persists, contact your next level of support.
1580	Improper number of arguments passed in: passed in = {0}, expected = {1}. Check the parameters of the invoked method.	1. Verify that the command is being called correctly, and try the task again. 2. If the problem persists, contact your next level of support.
1581	The method name {0} passed in the invoke method does not match the name of the method you are trying to invoke. Check the method name and the required parameters.	1. Retry the task. 2. If the problem persists, contact your next level of support.
1582	The wrong path is being used for the object manager - {0}. Check the code for build CIMObjectPath and its contents.	1. Retry the task. 2. If the problem persists, contact your next level of support.
1583	The wrong object manager method is being invoked.	1. Retry the task. 2. If the problem persists, contact your next level of support.
1584	You do not have the proper authorization or permission to perform this task. Log in as the proper user and try again.	Log in with appropriate permissions to perform the task. If the problem persists, contact your next level of support.
1585	There was an unknown error while querying the object manager database.	1. Try the task again. 2. Shut down and restart the management console. 3. If the problem persists, contact your next level of support.
1586	Cannot find an instance with object manager of {0}.	1. Check the input. 2. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. Then try the task again. 3. If the problem persists, contact your next level of support.

Table 447. HSCL: 15xx CIMOM error codes (continued)

Error code	Message	Recovery action
1588	An exception was encountered while calling the method named {0}.	1. Retry the operation. 2. If the problem persists, rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact your next level of support.
159B	The group number is invalid. Group numbers cannot contain any letters or characters other than the numbers 0 through 9.	Enter the new group number again without alphabetic characters.
159C	The Workload Management group number has to be between {0} and {1}.	Enter a number inside the valid range for workload management group numbers.
15E7	The profile you tried to activate does not belong to the partition {0} you specified.	Verify that you selected the correct LPAR profile to activate. If the operation still fails, contact your next level of support

HSCL 17*xx*

This section lists the HSCL 17*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 448. HSCL: 17xx Management console console error codes

Error code	Message	Recovery action
1771	Could not create console information and set it with the managed system. Perform the rebuild managed system operation.	Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details.
1772	Could not set management console information. Perform the rebuild managed system operation.	Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details.

Table 448. HSCL: 17xx Management console console error codes (continued)

Error code	Message	Recovery action
1773	Invocation of the management console information method failed. Perform the rebuild managed system operation.	Rebuild the managed system. See “MAP6620 Rebuilding managed system information” on page 842 for details.
1774	Unable to get the defined slot number for management console information slots. Perform the rebuild managed system operation.	Rebuild the managed system. See “MAP6620 Rebuilding managed system information” on page 842 for details.
1776	Could not get the management console information. Perform the rebuild managed system operation.	Rebuild the managed system. See “MAP6620 Rebuilding managed system information” on page 842 for details.
1777	Failed to construct the management console information string. Perform the rebuild managed system operation.	Rebuild the managed system. See “MAP6620 Rebuilding managed system information” on page 842 for details.
1778	Could not create the management console instance in the object manager. Restart the management console.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
1779	Could not create the management console motherboard instance in the object manager. Restart the management console.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
177A	Could not create the management console chassis instance in the object manager. Restart the management console.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
177B	Could not create the management console network setting instance in the object manager. Restart the management console.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
177C	Could not create the management console partition management instance in the object manager. Restart the management console.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.

Table 448. HSCL: 17xx Management console console error codes (continued)

Error code	Message	Recovery action
177D	Could not create the management console operating system instance in the object manager. Restart the management console.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
177E	Could not create the management console memory instance in the object manager. Restart the management console.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
177F	Could not delete the management console instance.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Shut down and restart the management console and then try the task again. 3. If the problem persists, contact your next level of support.
1780	Could not delete management console and its related instances.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
1781	Could not obtain management console's VPD information. Restart the management console.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
1782	Could not delete the management console Motherboard instance and its associations.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
1783	Could not delete the management console chassis instance and its associations.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
1784	Could not delete the management console network setting instance and its associations.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
1785	Could not delete the management console partition management instance and its associations.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
1786	Could not delete the management console operating systems instance and its associations.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.

Table 448. HSCL: 17xx Management console console error codes (continued)

Error code	Message	Recovery action
1787	Could not delete the management console memory instance and its associations.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
1788	Management console information data has exceeded the 256 characters limit. Please reduce the length of your host name.	

HSCL 19*xx*

This section lists the HSCL 19*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 449. HSCL: 19xx WEBSM/AUIML error codes

Error code	Message	Recovery action
1965	Unable to determine the management console server's host name. Check the management console network settings under System Configuration and verify that they are correct.	1. Check the management console Network Settings under System Configuration to verify that the settings are correct and that you have a valid host name for the management console. 2. Contact your system or network administrator for network settings help.
1967	You must select one system profile to power on with or select **Cancel**.	Select a system profile from the window or select **Cancel** to close the window.
1969	Could not retrieve information from the GUI server. Check your network configuration and connection.	Check the management console network settings under System Configuration and verify that the settings are correct. If the problem persists, contact your next level of support.
196A	Choose a new default profile from the list or select **Cancel**.	1. Choose only one new default profile. 2. Either choose a new default profile, or select **Cancel**. 3. If the problem persists, contact your next level of support.
196B	The object is not found in the data area. Refresh the interface.	1. Perform the refresh task. 2. If the problem persists, contact your next level of support.

Table 449. HSCL: 19xx WEBSM/AUIML error codes (continued)

Error code	Message	Recovery action
196C	Problem obtaining object information. Refresh the interface.	1. Perform the refresh task. 2. If the same error occurs, perform the rebuild managed system operation. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact your next level of support.
196E	Could not display the Operating System Shutdown dialog. Try the operation again.	1. Refresh the graphical user interface. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the operation. 3. If it still fails, log off and then log back onto the management console and try the operation again. 4. If the problem persists, contact your next level of support.
1970	Parent {0} name space not set.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Reboot the management console and try the task again. 3. If the problem persists, contact your next level of support.
1971	There was an error retrieving necessary information from the management console. Please refresh the console and try the operation again.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Reboot the management console and try the task again. 3. If the problem persists, contact your next level of support.
1975	The management console access password has been set from another management console or ASM screen before this Update Password task completed. You must cancel out of the Update Password - Authentication Pending dialog and reselect this managed object to proceed.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the managed system state remains in *Pending Authentication*, reboot the management console and try the task again. 3. If the problem persists, contact your next level of support.

Table 449. HSCL: 19xx WEBSM/AUIML error codes (continued)

Error code	Message	Recovery action
1976	The ASM General Password has been set from another management console or ASM screen before this Update Password task completed. You must cancel out of the Update Password - Authentication Pending dialog and reselect this managed object to proceed.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Reboot the management console and try the task again. 3. If the problem persists, contact your next level of support.
1977	The ASM Administrator Password has been set from another management console or ASM screen before this Update Password task completed. You must cancel out of the Update Password - Authentication Pending dialog and reselect this managed object to proceed.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Reboot the management console and try the task again. 3. If the problem persists, contact your next level of support.
1978	An error occurred while attempting to update the management console access password. Try to update the password again by either entering it again here or by cancelling out of this dialog and reselecting this managed system and its Update Managed System Password task.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
1979	An error occurred while attempting to update the ASM General Password. Try to update the password again by either entering it again here or by cancelling out of this dialog and reselecting this managed system and its Update Managed System Password task.	1. Retry the operation. 2. If the problem persists, contact your next level of support.

Table 449. HSCL: 19xx WEBSM/AUIML error codes (continued)

Error code	Message	Recovery action
197A	An error occurred while attempting to update the ASM Administrator Password. Try to update the password again by either entering it again here or by cancelling out of this dialog and reselecting this managed system and its Update Managed System Password task.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
197B	Failed to backup the profile data {0} to file: {1}.	1. Refresh the graphical user interface. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. Reboot the management console and try the task again. 4. If the problem persists, contact your next level of support.
197C	Failed to remove backup file {0} from Managed System: {1}.	1. Refresh the graphical user interface. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. Reboot the management console and try the task again. 4. If the problem persists, contact your next level of support.
197D	Failed to initialize profile data at Managed System: {0}.	1. Refresh the graphical user interface. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Ensure that the operation was performed and that it displays on the graphical user interface. 3. If not, repeat the operation. 4. If the problem persists, contact your next level of support.
197E	Failed to restore Managed System {0} from backup file {1} with {2}.	1. Refresh the graphical user interface. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 4. Retry the task. 5. If the problem persists, contact your next level of support.

Table 449. HSCL: 19xx WEBSM/AUIML error codes (continued)

Error code	Message	Recovery action
1980	Failed to copy profile: {0}.	1. Try the task again. 2. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. Retry the operation. 4. If the problem still persists, contact your next level of support.
1982	Profile Property Display failed. Exception: {0}.	1. Refresh the graphical user interface. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 4. Retry the task. 5. If the problem persists, contact your next level of support.
1985	The following error(s) occurred during the operating system shutdown of partition {0}: {1}.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
1986	There was an unknown error while changing the default profile.	1. Try the task again. 2. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. Retry the operation. 4. If the problem still persists, contact your next level of support.

Table 449. HSCL: 19xx WEBSM/AUIML error codes (continued)

Error code	Message	Recovery action
198A	No objects were found in the database. Possible problems and solutions are: 1. The database is currently being populated. The object(s) should appear automatically when the database is fully populated, or you can retry later by clicking on Reload. 2. There is a problem with the connection between the Console and the Managed System. Ensure the network is correctly configured between the Console and the Managed System.	1. Ensure the network is correctly configured. 2. Reboot the management console. 3. If the problem persists, contact your next level of support.
198B	Failed to delete the selected profile(s).	1. Try the task again. 2. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. Retry the operation. 4. If the problem still persists, contact your next level of support.
198C	Failed to delete the selected profile(s).	1. Refresh the graphical user interface. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. See if the profile appears to be deleted. 3. If the problem still persists, contact your next level of support.
198D	The new management console access password and Verify management console access password do not match. Enter matching passwords to proceed.	Enter matching passwords.
198E	The New ASM General Password and Verify ASM General Password do not match. Enter matching passwords to proceed.	Enter matching passwords.

Table 449. HSCL: 19xx WEBSM/AUIML error codes (continued)

Error code	Message	Recovery action
198F	The New ASM Administrator Password and Verify ASM Administrator Password do not match. Enter matching passwords to proceed.	Enter matching passwords.
1990	You have entered an incorrect password. Either the current management console access password specified is incorrect, or the management console access password has been changed already at another management console and the New management console access password you specified here is wrong. Correct the password(s), and then select OK once again from this dialog to retry the operation.	Enter the correct management console access password.
1991	The management console access password you specified is incorrect. Enter the correct management console access password to login.	Enter the correct management console access password.
1992	The management console access password specified is invalid. The new password must be at least {0} and no greater than {1} characters in length. Enter the new password again to proceed.	Re-enter a password that conforms to the password rules.
1993	The ASM General Password specified is invalid. The new password must be at least {0} and no greater than {1} characters in length. Enter the new password again to proceed.	Re-enter a password that conforms to the password rules.

Table 449. HSCL: 19xx WEBSM/AUIML error codes (continued)

Error code	Message	Recovery action
1994	The ASM Administrator Password specified is invalid. The new password must be at least {0} and no greater than {1} characters in length. Enter the new password again to proceed.	Re-enter a password that conforms to the password rules.
1995	Your attempt to update the {0} password(s) has failed, because a successful attempt to update these passwords has taken place elsewhere during the time that has elapsed since this management console last connected to the managed system. A reconnection to the managed system has been initiated to reset the password status, and the managed system state will be updated to reflect the true authentication state once this has completed. Note that none of the passwords stored on the managed system are what you attempted to set them to in this dialog.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the managed system state remains in *Pending Authentication*, reboot the management console and try the task again. 3. If the problem persists, contact your next level of support.

Table 449. HSCL: 19xx WEBSM/AUIML error codes (continued)

Error code	Message	Recovery action
1996	Your attempt to update the {0} password(s) has succeeded. However, your attempt to update the {1} password(s) has failed because an update on this (these) password(s) has already happened successfully elsewhere during the time that has elapsed since this management console last connected to the managed system. A reconnection to the managed system has been initiated to reset the password status, and the managed system state will be updated to reflect the true authentication state once this has completed. Note that for the failure cases, the password(s) stored on the managed system are not what you attempted to set them to in this dialog.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the managed system state remains in *Pending Authentication*, reboot the management console and try the task again. 3. If the problem persists, contact your next level of support.

Table 449. HSCL: 19xx WEBSM/AUIML error codes (continued)

Error code	Message	Recovery action
1997	Your attempt to update the {0} password(s) has failed, because a successful attempt to update these passwords has taken place elsewhere during the time that has elapsed since this management console last connected to the managed system. A subsequent attempt to reconnect to the managed system and reset the authentication state has also failed. 'Please exit the Update Password - Pending Authentication dialog and retry the connection reset operation by selecting the 'Reset or Remove Connection' managed system task. If the problem persists, contact support.	

Table 449. HSCL: 19xx WEBSM/AUIML error codes (continued)

Error code	Message	Recovery action
1998	Your attempt to update the {0} password(s) has passed. However, your attempt to update the {1} password(s) has failed, because an update on this (these) passwords has already happened successfully elsewhere during the time that has elapsed since this management console last connected to the managed system. A subsequent attempt to reconnect to the managed system and reset the authentication state has also failed. Please exit the Update Password - Pending Authentication dialog and retry the connection reset operation by selecting the 'Reset or Remove Connection' managed system task. If the problem persists, contact support.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the managed system state remains in *Pending Authentication*, reboot the management console and try the task again. 3. If the problem persists, contact your next level of support.

Table 449. HSCL: 19xx WEBSM/AUIML error codes (continued)

Error code	Message	Recovery action
1999	Your attempt to update the {0} password(s) has failed, because a successful attempt to update these passwords has taken place elsewhere during the time that has elapsed since this management console last connected to the managed system. A reconnection to the managed system will be initiated to reset the password status once you exit this dialog, and the managed system state will be updated to reflect the true authentication state once this has completed. 'Note that none of the passwords stored on the managed system are what you attempted to set them to in this dialog.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the managed system state remains in *Pending Authentication*, reboot the management console and try the task again. 3. If the problem persists, contact your next level of support.

Table 449. HSCL: 19xx WEBSM/AUIML error codes (continued)

Error code	Message	Recovery action
199A	Your attempt to update the {0} password or passwords has succeeded. However, your attempt to update the {1} password or passwords has failed, because an update has already happened successfully elsewhere during the time that has elapsed since this management console last connected to the managed system. A reconnection to the managed system will be initiated to reset the password status once you exit this dialog, and the managed system state will be updated to reflect the true authentication state once this has completed. Note that for the failure cases, the password or passwords stored on the managed system are not what you attempted to set them to in this dialog.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the managed system state remains in *Pending Authentication*, reboot the management console and try the task again. 3. If the problem persists, contact your next level of support.
199B	The management console access password specified is invalid. The password must be at least {0} and no greater than {1} characters in length. Re-enter a password of the correct length in this field to proceed.	Re-enter a password that conforms to the password rules.
199C	The ASM General Password specified is invalid. The password must be at least {0} and no greater than {1} characters in length. Re-enter a password of the correct length in this field to proceed.	Re-enter a password that conforms to the password rules.

Table 449. HSCL: 19xx WEBSM/AUIML error codes (continued)

Error code	Message	Recovery action
199D	The ASM Administrator Password specified is invalid. The password must be at least {0} and no greater than {1} characters in length. Re-enter a password of the correct length in this field to proceed.	Re-enter a password that conforms to the password rules.

HSCL 25*xx*

This section lists the HSCL 25*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 450. HSCL: 25xx user management error codes

Error code	Message	Recovery action
251D	There was an unknown internal management console error.	1. Repeat the operation. 2. If it still fails, reboot the management console. 3. If the problem persists, contact your next level of support.
251E	Failed to set the \'enable remote virtual terminal\' option.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
251F	The following error was encountered: {0}. Retry the operation.	1. Ensure the network connection between the management console and the partition is working. 2. Retry the task. 3. If the problem persists, contact your next level of support.
2520	The command entered is not supported.	1. Retry the task. 2. If the problem persists, contact your next level of support.
2521	There was a failure in the management console repository.	1. Reboot the management console, and retry the operation. 2. If the problem persists, contact your next level of support.
2522	The firmware command {0} failed. The return code from firmware is {1}.	1. Try the task again. 2. If the problem persists, contact your next level of support.

Table 450. HSCL: 25xx user management error codes (continued)

Error code	Message	Recovery action
2523	A critical property, {0}, stored in the repository is not set.	1. Rebuild the managed system, and try the task again. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Reboot the management console, and retry the operation. 3. If the problem persists, contact your next level of support.
2524	Invalid subscription ID {0}.	1. Log off and then log back onto the management console and try the operation again. 2. If the problem persists, contact your next level of support.
2525	Authentication failed.	1. Log off and then log back onto the management console and try the operation again. 2. If the problem persists, contact your next level of support.
2526	The following errors occurred during the {0} operation {1}.	

HSCL 29*xx*

This section lists the HSCL 29*xx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 451. HSCL: 29xx user management error codes

Error code	Message	Recovery action
2901	This logical partition is not capable of adding, removing, or moving processors dynamically.	Ensure your logical partitions are capable of performing dynamic logical partition operations.
2902	The destination logical partition is not capable of adding, removing, or moving processors dynamically.	Ensure your logical partitions are capable of performing dynamic logical partition operations.

Table 451. HSCL: 29xx user management error codes (continued)

Error code	Message	Recovery action
2903	Your processor request goes below the profile's required processor limit. You can remove or move {0} or fewer processors. Retry the operation.	Retry the operation, entering a smaller number of processors.
2904	Your processor request exceeds the profile's maximum processor limit. You can add or move up to {0} processors. Retry the operation.	Retry the operation, entering a smaller number of processors.
2905	This logical partition is not capable of adding, removing, or moving memory dynamically.	Ensure your logical partitions are capable of performing dynamic logical partition operations.
2906	The destination logical partition is not capable of adding, removing, or moving memory dynamically.	Ensure your logical partitions are capable of performing dynamic logical partition operations.
2907	Your memory request exceeds the profile's maximum memory limit. You can add or move up to {0} MBs of memory. Retry the operation.	1. Retry the task and request a smaller memory amount. 2. Reset the logical partition, reactivate the logical partition, and then retry the operation. 3. If the problem persists, contact your next level of support.
2908	Your memory request goes below the profile's minimum memory limit. You can remove or move up to {0} MB of memory. Retry the operation.	1. Retry the task and request a smaller memory amount. 2. Reset the logical partition, reactivate the logical partition, and then retry the operation. 3. If the problem persists, contact your next level of support.
2909	Your memory request exceeds the total available memory of the managed system. You can add up to {0} MB of memory. Retry the operation.	1. Check the available memory of the managed system, retry the task and request a smaller memory amount. 2. Reset the logical partition, reactivate the logical partition, and then retry the operation. 3. If the problem persists, contact your next level of support.
290B	This logical partition is not capable of adding, removing, or moving I/O slots dynamically.	Ensure your logical partitions are capable of performing dynamic logical partition operations.

Table 451. HSCL: 29xx user management error codes (continued)

Error code	Message	Recovery action
290C	The destination logical partition is not capable of adding, removing, or moving I/O slots dynamically.	Ensure your logical partitions are capable of performing dynamic logical partition operations.
2912	The managed system is powered off. You must power on the managed system to perform a dynamic logical partition operation.	1. Ensure the managed system is powered on. 2. Rebuild managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact your next level of support
2914	The quantity to be added exceeds the available resources.	1. Ensure that memory is available in the managed system. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
2916	The partition could not be found in the database. Perform a rebuild managed system operation, and try again.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support
2925	An unknown error occurred during the add Virtual adapter operation. Please retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
2926	An unknown error occurred during the remove Virtual adapter operation. Please retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
2927	Dynamic logical partition MOVE Processing resources failed: {0}.	1. Retry the task. 2. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. Retry the task. 4. If the problem persists, contact your next level of support
2928	Dynamic logical partition ADD I/O resources failed: {0}.	1. Ensure you have the resources available to perform the operation. 2. Retry the operation. 3. If operation still fails, rebuild the managed system and try the operation again. See "MAP6620 Rebuilding managed system information" on page 842 for details. 4. If the problem persists, contact your next level of support.

Table 451. HSCL: 29xx user management error codes (continued)

Error code	Message	Recovery action
2929	Dynamic logical partition REMOVE I/O resources failed: {0}.	1. Ensure you have the resources available to perform the operation. 2. Retry the operation. 3. If operation still fails, rebuild the managed system and try the operation again. See "MAP6620 Rebuilding managed system information" on page 842 for details. 4. If the problem persists, contact your next level of support.
2930	Dynamic logical partition MOVE I/O resources failed: {0}.	1. Ensure you have the resources available to perform the operation. 2. Retry the operation. 3. If operation still fails, rebuild the managed system and try the operation again. See "MAP6620 Rebuilding managed system information" on page 842 for details. 4. If the problem persists, contact your next level of support.
2931	Dynamic logical partition ADD Memory resources failed: {0}.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
2932	Dynamic logical partition REMOVE Memory resources failed: {0}.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
2933	Dynamic logical partition MOVE Memory resources failed: {0}.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
2934	The operating system drmgr command failed. Please consult the appropriate operating system log files for further information and retry the operation if desired.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
2935	{0} operation for {1} resource did not finish completely in the timeout value specified. The requested number was {2}. The success number is {3}. Please increase the timeout value if needed.	1. Retry the operation. 2. If the problem persists, contact your next level of support.

Table 451. HSCL: 29xx user management error codes (continued)

Error code	Message	Recovery action
2936	{0} operation for {1} resource failed.	1. Ensure the network connection between the management console and the partition is working. 2. Retry the operation. 3. If the problem persists, contact your next level of support
2937	{0} operation for {1} has completed, but only {3} out of {2} were successful. The partition standard output/error is not available.	
2938	{0} operation for {1} resource failed. The RPA partition standard output/error is not available.	
2939	{0} operation for {1} has completed, but only {3} out of {2} were successful. The partition standard output is: {4}. The AIX standard error is: {5}.	
293A	{0} operation for {1} has completed, but only {3} out of {2} were successful. The partition command is: {4}. The partition standard output is: {5} The partition standard error is: {6}.	
293B	The return code is {0}. The partition return code is {1}.	
293D	Partition {0} is not in the correct state to perform dynamic logical partitioning operations.	Dynamic logical partitioning operations can only be performed on running partitions. 1. Verify that the partition is in the Running state, and retry the operation. 2. If the problem persists, contact your next level of support
2940	An unknown Dynamic logical partition error has occurred. Try the operation again.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
2941	There are no processors available for dynamic logical partitioning on this partition.	1. Ensure that there are available processors in the managed system. 2. Retry the operation. 3. If the problem persists, contact your next level of support.

Table 451. HSCL: 29xx user management error codes (continued)

Error code	Message	Recovery action
2942	There is no memory available for dynamic logical partitioning on this partition.	1. Ensure that there are available processors in the managed system. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
2944	The I/O slot cannot be found. Ensure that the correct slot ID and unit ID were entered.	1. Ensure the inputs are correct. 2. Rebuild managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. Retry the task. 4. If the problem persists, contact your next level of support
2945	The shutdown operation on the logical partition failed. The return code is {0}.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
2946	The logical partition could not be shut down because the management console's communication to the partition failed. The return code is {0}.	1. Ensure the network connection between the partition and the management console is working. 2. Reboot the management console and retry the operation. 3. If the problem persists, contact your next level of support.
2947	An error occurred while trying to restore stopped processors. There were {0} processors restored before the error occurred.	
2949	An error occurred while trying to restore stopped I/O devices. There were {0} devices restored before the error occurred.	
294A	The I/O slot cannot be found or it is required. Ensure that the valid slot ID and unit ID were entered.	1. Ensure the inputs are correct. 2. Ensure the adapter is not marked as required. 3. Rebuild managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 4. If the problem persists, contact your next level of support
294C	Dynamic logical partition ADD Virtual I/O resources failed: {0}.	1. Correct the error and retry the operation. 2. If the problem persists, contact your next level of support.

Table 451. HSCL: 29xx user management error codes (continued)

Error code	Message	Recovery action
294D	Dynamic logical partition REMOVE Virtual I/O resources failed: {0}.	1. Correct the error and retry the operation. 2. If the problem persists, contact your next level of support.
294E	Dynamic logical partition ADD Processing resources failed: {0}.	1. Retry the operation. 2. If operation still fails, perform a Rebuild Managed System operation, and try the operation again. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact your next level of support.
294F	Dynamic logical partition REMOVE Processing resources failed: {0}.	1. Retry the operation. 2. If operation still fails, perform a Rebuild Managed System operation, and try the operation again. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact your next level of support.
2950	Dynamic logical partition operation on PCI Host Bridge failed.	1. Ensure you have the resources available to perform the operation. 2. Retry the operation. 3. If operation still fails, perform a Rebuild Managed System operation, and try the operation again. See "MAP6620 Rebuilding managed system information" on page 842 for details. 4. If the problem persists, contact your next level of support.
2952	The dynamic logical partitioning requested could not be completed due to an unknown error(s) in the local system. Please retry the operation	1. Retry the operation. 2. If the problem persists, contact your next level of support.
2970	The IOServer command has failed because of the following reason: {0}.	Please retry the command. If the problem persists, contact your next level of support.

Table 451. HSCL: 29xx user management error codes (continued)

Error code	Message	Recovery action
2971	The IOServer command fails because the partition {0} is unknown to RMC/LparCmdRM. This could be because of a firewall or an improper network setup causing RMC not to recognize the partition. Please check the system network setup.	This could be caused by a firewall or an improper network setup causing Resources Monitoring Control (RMC) not to recognize the partition. Please check the system network setup.
2972	There is no active session between the management console and the partition.	1. There could be a short interruption in the network causing Resources Monitoring Control (RMC) to not recognize the partition. 2. Retry the operation later or reboot the management console. 3. If the problem persists, contact your next level of support.
2973	The IOServer command contained illegal characters such as ; or >.	There are illegal characters in the IOServer command. Please check the IOServer command to make sure it does not include illegal characters, and try the task again.

HSCL 3*xxx*

This section lists the HSCL 3*xxx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 452. HSCL: 3xxx error codes

Error codes	Message	Recovery action
3006	The LED operation failed. Refer to the management console Operations Guide for more details. {0}	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3060	The following managed frames failed to initialize: {0}. If the error persists, contact your software support representative.	1. Retry the operation. 2. If the problem persists, contact your next level of support.

Table 452. HSCL: 3xxx error codes (continued)

Error codes	Message	Recovery action
3070	The Frame lock action failed. Try the operation again.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3071	The Frame Guided Maintenance operation failed. Try the operation again.	Try the operation again. If the problem persists, contact your hardware representative.
3072	The Frame FRU deactivation operation failed. Try the operation again.	Try the operation again. If the problem persists, contact your hardware representative.
3073	The Frame FRU activation operation failed. Try the operation again.	Try the operation again. If the problem persists, contact your hardware representative.
3074	The frame host information was not saved. Ensure the management console has enough disk space and the correct file permission and try the operation again.	Ensure the /opt/hsc/data directory contains free disk space so that the management console can save the frame host information when needed.
3075	The frame host information that was found is not valid. Check the host information you provided and try the operation again.	Check the frame host information that was entered into the application program to ensure the host name, password, and frame bulk power controller (BPC) internal identification are valid.
3076	An error has occurred while attempting the bulk power assembly connection operation. Please retry the operation. If the problem persists, contact your service representative.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3077	This operation is not allowed in the frame's current state. In order for this operation to be performed, at least one bulk power assembly (BPA) must be in the Standby state.	1. Make sure that at least one bulk power assembly is in the Standby state, and try the operation again. 2. If the problem persists, contact your hardware representative.

Table 452. HSCL: 3xxx error codes (continued)

Error codes	Message	Recovery action
3078	The request to power on the drawer or planar for the frame failed. Try the request again.	Try the request again. If the problem persists, contact your service provider.
3079	The request to add a drawer to the frame failed. Try the request again.	Try the request again. If the problem persists, contact your service provider.
3080	The request to remove a planar from the frame failed. Try the request again.	Try the request again. If the problem persists, contact your service provider.
3081	The request to remove a drawer from the frame failed. Try the request again.	Try the request again. If the problem persists, contact your service provider.
3200	Unknown lock error.	Contact your next level of support.
3201	Lock type not valid.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
3202	Failed to acquire lock because of timeout.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
3203	Nested lock type requested not valid.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
3204	Lock not held.	1. Reboot the management console. 2. If the problem persists, contact your next level of support.
3205	The managed system is busy, please try the operation again later.	The managed system is busy doing another action. Wait and then retry the action.
3351	Code update process is not allowed by the management console. Check the code update status to verify the code update owner.	1. Check the code update status to verify the code update owner. 2. Retry the operation if management console is the code update owner. 3. If the problem persists, contact your next level of support.
3352	Code update is already in progress by another management console or by the firmware. Verify that no other code update is in progress and retry the operation.	1. Verify that no other code update operation is in progress and retry the operation. 2. If the problem persists, contact your next level of support.

Table 452. HSCL: 3xxx error codes (continued)

Error codes	Message	Recovery action
3353	Code update is not allowed to the specified side. Check the current flash side.	1. Rebuild the managed operation. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Check the power-on side from the managed system property panel and ensure you are not performing code update to the power-on side and then retry the operation. 3. If the problem persists, contact your next level of support.
3354	Code update is already in progress from this management console. Ensure that no code update operation is in progress on the management console before retrying the operation.	1. Ensure that no code update operation is in progress on the management console before retrying the operation. 2. If the problem persists, contact your next level of support.
3355	The code update operation failed with return code {0}.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3356	The code update is not in progress by this management console. The start code update task should have been performed prior to code update complete by this management console.	1. Ensure that the start code update task has been performed. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
3357	The operation failed since another commit or long running code update is in progress.	1. Ensure that no other code update operation is in progress. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
3358	The delete lid operation is not allowed when a write LID is in progress.	1. Ensure that no other code update operation is in progress. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
3359	The code update operation failed since an invalid LID ID was specified.	1. Check the Lid file ID and retry the operation with a valid lid file ID. 2. If the problem persists, contact your next level of support.
3360	Error accessing the flash.	1. Retry the operation. 2. If the problem persists, contact your next level of support.

Table 452. HSCL: 3xxx error codes (continued)

Error codes	Message	Recovery action
3361	An unknown error occurred during code update operation. Please retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3362	An unknown error occurred during reboot service processor. Please retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3363	The size of the LID number array is not the same as the Filename array. Ensure every LID number has a corresponding filename.	1. Ensure every Lid number has a corresponding filename and retry the operation. 2. If the problem persists, contact your next level of support.
3364	The read lid operation failed: {0}.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3365	Error: The following file(s) already exist(s): {0}.	1. Ensure the files to read in the lids do not exists and retry the operation. 2. If the problem persists, contact your next level of support.
3367	The input parameter arrays should all be of the same length. Check the lengths and retry the operation.	1. Ensure the lengths of the input parameters are the same and retry the operation. 2. If the problem persists, contact your next level of support.
3368	The Max write block size for the start code update did not get set. Please retry the operation.	1. Retry the operation for the LIDs that failed. 2. If the problem persists, contact your next level of support.
3370	The deletion of the following lid(s) failed: {0}.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3371	The write LID operation failed: {0}.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3372	The following LID filenames are not files: {0}.	1. Ensure the lid files exist and retry the operation. 2. If the problem persists, contact your next level of support.
3373	The following LID files are empty: {0}.	1. Ensure that the LIDs are valid and retry the operation. 2. If the problem persists, contact your next level of support.

Table 452. HSCL: 3xxx error codes (continued)

Error codes	Message	Recovery action
3374	The following LID files do not exists: {0}.	1. Ensure the lid files exist and retry the operation. 2. If the problem persists, contact your next level of support.
3376	Invalid value returned from the service processor to indicate whether service partition firmware code lid updates are enabled or disabled.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3377	The start code update operation failed since an invalid component to update was specified. Please retry the operation with the a valid firmware component to update.	1. Retry the operation with a valid firmware component to update. 2. If the problem persists, contact your next level of support.
3378	The start code update operation failed since the managed system is not in the valid state. Check the state of the managed system and retry the operation.	1. Check the state of the managed system and retry the operation. 2. If the problem persists, contact your next level of support.
3379	There is a permanent error in flash, retry the operation and if the problem persists contact support.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3380	The Code Update operation failed since the managed system is not in the Power Off, Operating, or Standby state. Check the managed system's state and retry the operation.	1. Check the state of the managed system and retry the operation. 2. If the problem persists, contact your next level of support.
3381	The Complete Code Update operation failed since an invalid completion type was specified. Please retry the operation with a valid completion type.	1. Retry the operation. 2. If the problem persists, contact your next level of support.

Table 452. HSCL: 3xxx error codes (continued)

Error codes	Message	Recovery action
3382	The Code Update is not in progress. The start code update operation needs to be performed before the Complete Code Update operation.	1. Ensure the start code update operation is performed first. 2. Retry the operation. 3. If the problem persists, contact your next level of support.
3383	One or more LIDs are invalid in the primary LID list.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3384	For the partial read, the specified length was not read since the end of file flag was reached.	1. Retry the operation with a valid length to be read. 2. If the problem persists, contact your next level of support.
3385	Error: The following file(s) specified an invalid data for the Special LID Designator or the code update side: {0}.	1. Retry the operation with valid special lid designator or the code update side. 2. If the problem persists, contact your next level of support.
3386	The read partial/special LID operation failed, since writing to the file on the management console got an error. Check the log for the error and retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3387	An unknown error occurred during the open of firmware files. Please retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3388	The following fileid-subid specified an invalid open type: {0}.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3389	The following fileid-subid specified an invalid Force Flag: {0}.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3390	Error: The following files got an exception while trying to open the firmware file: {0}.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3391	The open firmware file operation failed: {0}.The open firmware file operation failed: {0}	1. Retry the operation. 2. If the problem persists, contact your next level of support.

Table 452. HSCL: 3xxx error codes (continued)

Error codes	Message	Recovery action
3392	An unknown error occurred during the write operation of firmware files. Please retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3393	An unknown error occurred during the close of firmware files. Please retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3394	An unknown error occurred during the get firmware status update operation. Please retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3395	An unknown error occurred during the start firmware update operation. Please retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3396	Failed to delete the partition with ID {0} since it is the service partition.	1. Ensure the partition is not the service partition. 2. Rebuild the managed system. See “MAP6620 Rebuilding managed system information” on page 842 for details. 3. If the problem persists, contact your next level of support.
3397	The secondary service processor is not available for the managed system.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3398	The code update service processor lock is already taken. Check that no other code update operation is running and retry the operation.	1. Check that no other code update operation is in progress and retry the operation. 2. If the problem persists, contact your next level of support.
3399	The code update service processor lock is not taken. Ensure the lock is taken before trying to release the code update service processor lock.	1. Retry the operation. 2. If the problem persists, contact your next level of support.

Table 452. HSCL: 3xxx error codes (continued)

Error codes	Message	Recovery action
3400	The service processor that was specified as the target is not valid. Verify the service processor name and try the request again.	1. Rebuild the managed frame. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Try the task again. 3. If the problem persists, contact your service provider.
3401	The get power domain operation failed. Please retry the operation.	1. The I/O concurrent maintenance command failed. Retry the operation. 2. If the problem persists, contact your next level of support.
3402	The get power domain power state operation failed. Please retry the operation.	1. The I/O concurrent maintenance command failed. Retry the operation. 2. If the problem persists, contact your next level of support.
3403	The set service lock operation failed. Please retry the operation.	1. The I/O concurrent maintenance command failed. Retry the operation. 2. If the problem persists, contact your next level of support.
3404	The reset service lock operation failed. Please retry the operation.	1. The I/O concurrent maintenance command failed. Retry the operation. 2. If the problem persists, contact your next level of support.
3405	The FRU level activate operation failed. Please retry the operation.	1. The I/O concurrent maintenance command failed. Retry the operation. 2. If the problem persists, contact your next level of support.
3406	The FRU level deactivate operation failed. Please retry the operation.	1. The I/O concurrent maintenance command failed. Retry the operation. 2. If the problem persists, contact your next level of support.
3407	The vary off power domain platform operation failed. Please retry the operation.	1. The I/O concurrent maintenance command failed. Retry the operation. 2. If the problem persists, contact your next level of support.
3408	The vary off power domain platform operation failed. Please retry the operation.	1. The I/O concurrent maintenance command failed. Retry the operation. 2. If the problem persists, contact your next level of support.
3409	The vary on power domain platform operation failed. Please retry the operation.	1. The I/O concurrent maintenance command failed. Retry the operation. 2. If the problem persists, contact your next level of support.

Table 452. HSCL: 3xxx error codes (continued)

Error codes	Message	Recovery action
3410	The vary off power domain partition operation failed. Please retry the operation.	1. The I/O concurrent maintenance command failed. Retry the operation. 2. If the problem persists, contact your next level of support.
3411	The vary off power domain partition operation failed. Please retry the operation.	1. The I/O concurrent maintenance command failed. Retry the operation. 2. If the problem persists, contact your next level of support.
3412	The vary on power domain partition operation failed. Please retry the operation.	1. The I/O concurrent maintenance command failed. Retry the operation. 2. If the problem persists, contact your next level of support.
3413	No Partitions are defined for the managed system. Check the user interface to see if partitions are defined and then retry the operation.	1. Rebuild the managed frame. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Try the task again. 3. If the problem persists, contact your service provider.
3414	The start I/O concurrent maintenance operation failed. Retry the operation.	1. The I/O concurrent maintenance command failed. Retry the operation. 2. If the problem persists, contact your next level of support.
3415	The I/O concurrent maintenance operation failed. Retry the operation.	1. The I/O concurrent maintenance command failed. Retry the operation. 2. If the problem persists, contact your next level of support.
3416	The get configuration ID operation failed. Retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3417	The set configuration ID operation failed. Retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3418	The get IO unit configuration ID and MTMS operation failed. Retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3419	The set IO unit MTMS operation failed. Retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3420	The set IO unit configuration ID operation failed. Retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.

Table 452. HSCL: 3xxx error codes (continued)

Error codes	Message	Recovery action
3421	This operation is not allowed in the managed system's current state. Check the state of the managed system and retry the operation.	1. Check the state of the managed system and retry the operation. 2. If the problem persists, contact your next level of support.
3422	This operation cannot be completed because a conflicting concurrent maintenance operation is already in progress. Ensure that the other operation has completed and then retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3423	Invalid data was specified for this operation. Check the data and retry the operation.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3424	The I/O concurrent maintenance operation failed with return code: {0}.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
3500	The function completed successfully.	
3501	The operation failed because of a non-trivial reason.	1. Reboot the management console and retry the task. 2. If the problem persists, contact your next level of support.
3503	Input error: The specified value is out of range or undefined.	Contact your next level of support.
3504	An invalid input file or an error has occurred during an operation on the specified file.	1. Reboot the system. 2. If the problem persists, contact your next level of support.
3505	An error occurred while contacting the access control system. Please retry the operation.	1. Reboot the system. 2. If the problem persists, contact your next level of support.
350A	Invalid input parameter(s).	1. Check the input and try the task again. 2. If the problem persists, contact your next level of support.

Table 452. HSCL: 3xxx error codes (continued)

Error codes	Message	Recovery action
350B	The user does not have the appropriate authority.	1. Try the task again. 2. Reboot the system. 3. If the problem persists, contact your next level of support.
350C	Input error: An invalid operation has been specified.	1. Check the input and try the task again. 2. Reboot the system. 3. If the problem persists, contact your next level of support.
350D	Input error: An invalid user ID has been specified.	1. Check the input and try the task again. 2. If the problem persists, contact your next level of support.
350E	Input error: An invalid task has been specified.	1. Check the input and try the task again. 2. Reboot the system. 3. If the problem persists, contact your next level of support.
350F	Input error: The input resource is not valid or conflicts with the role in the operation. 1. Check the input and try the task again. 2. Reboot the system. 3. If the problem persists, contact your next level of support.	1. Check the input and try the task again. 2. Reboot the system. 3. If the problem persists, contact your next level of support.
3510	Input error: An invalid role or parent role has been specified.	1. Check the input and try the task again. 2. If the problem persists, contact your next level of support.
3511	Input error: An invalid subsystem has been specified.	1. Check the input and try the task again. 2. If the problem persists, contact your next level of support.
3512	Input error: An invalid option has been specified.	1. Check the input and try the task again. 2. If the problem persists, contact your next level of support.
3513	Input error: An invalid managed resource role name has been specified.	1. Check the input and try the task again. 2. Reboot the management console. 3. If the problem persists, contact your next level of support.
3514	The role specified already exists.	A duplicate role name has been specified in the operation. Please select a different name.

Table 452. HSCL: 3xxx error codes (continued)

Error codes	Message	Recovery action
3532	An unknown error, such as an exception, has occurred during the operation.	1. Try the task again. 2. Reboot the management console. 3. If the problem persists, contact your next level of support.
3533	Invalid operation. The input role is a system predefined role.	The operation is not allowed.
3534	An invalid assignment has been specified. The resource type of the assignment is invalid or conflicts with the user's role.	The resource type specified in the assignment is not valid or conflicts with the user role. Give the user a different assignment or role and retry the operation.
3563	The function specified is not available in the current release.	

HSCL 7*xxx*

This section lists the HSCL 7*xxx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 453. HSCL: 7xxx error codes

Error code	Message	Recovery action
7001	The partition profile named {0} was not found.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support
7002	The partition named {0} was not found.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support
7003	The partition with ID {0} was not found.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support

Table 453. HSCL: 7xxx error codes (continued)

Error code	Message	Recovery action
7005	The partition was not found.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the task. 3. If the problem persists, contact your next level of support

HSCL 8*xxx*

This section lists the HSCL 8*xxx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 454. HSCL: 8xxx error codes

Error code	Message	Recovery action
8002	The managed system entered was not found. Please check your entry and retry the command.	1. Ensure the inputs are correct. 2. Retry the task. 3. If the problem persists, contact IBM support.
8005	{0} could not be deleted because it was not found in the search order. Please retry the command.	1. Retry the operation. 2. If the problem persists, contact IBM support.
8008	An error occurred while trying to run corrective services. Please check your entry and retry the command.	This is an unexpected error. Contact IBM support.
8009	An error occurred while attempting to remotely connect to the server. Please retry the command.	1. An unexpected error occurred while trying to change the Web Server settings. 2. Retry the command. 3. If the problem persists, contact IBM support.
800A	An error occurred while attempting to remotely connect to the server. Please retry the command.	1. An unexpected error occurred while trying to change the Web Server settings. 2. Retry the command. 3. If the problem persists, contact IBM support.
800B	An error occurred while attempting to change user interface server settings. Please retry the command.	1. An unexpected error occurred while trying to change the Web Server settings. 2. Retry the command. 3. If the problem persists, contact IBM support.

Table 454. HSCL: 8xxx error codes (continued)

Error code	Message	Recovery action
800C	An error occurred while attempting to change syslogd settings. Please retry the command.	1. An unexpected error occurred while trying to change the Web Server settings. 2. Retry the command. 3. If the problem persists, contact IBM support.
800D	Cannot specify both IP address and hostname.	A syntax error occurred. Retry the command with only one of the options (IP address or hostname) specified.
800E	An I/O exception occurred reading the file named: {0}. Please check the file and try again.	1. Check the file. 2. Retry the command. 3. If the problem persists, contact IBM support.
800F	The partition profile named {0} was not found. Please check your entry and retry the command.	1. Check the profile name entered to ensure that it is correct and retry the command. 2. Rebuild the managed system and retry the operation. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact IBM support.
8010	The system profile named {0} was not found. Please check your entry and retry the command.	1. Ensure that the system profile entered was correct, and retry the command. 2. If this does not work, the system profile might be corrupted. Restore the profile data. See "MAP6660 Operation procedures that do not apply to DS8000" on page 846 for details. 3. If problem persists, delete and re-create a new system profile. 4. If the problem persists, contact IBM support.
8011	The partition with ID {0} was not found. Please check your entry and retry the command.	1. Ensure the correct partition ID was entered and retry the command. 2. Rebuild the managed system and retry the operation. See "MAP6620 Rebuilding managed system information" on page 842 for details. 3. If the problem persists, contact IBM support.
8012	The partition named {0} was not found. Please check your entry and retry the command.	1. Ensure you specified a valid partition. 2. Retry the command. 3. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 4. If the problem persists, contact IBM support.
8013	The partition specified for the {0} attribute was not found. Please correct the configuration data and retry the command.	1. Ensure you specified a valid partition. 2. Retry the command. 3. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 4. If the problem persists, contact IBM support.

Table 454. HSCL: 8xxx error codes (continued)

Error code	Message	Recovery action
8016	An unknown error occurred while trying to perform this command. Retry the command. If the error persists, contact support.	1. Retry the operation. 2. If the problem persists, contact IBM support.

HSCL 9*xxx*

This section lists the HSCL 9*xxx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 455. HSCL: 9xxx error codes

Error code	Message	Recovery action
9000	This operation is not allowed because Capacity on Demand is not supported on the managed system.	
9003	The operation has failed on the managed system. Retry the operation. If the failure persists, contact your hardware service representative.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
9004	The information could not be retrieved from the managed system.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
9005	The information could not be retrieved from the managed system. Contact your next level of support.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
9006	The information could not be retrieved from the managed system. Retry the operation. If the problem persists, contact your next level of support.	1. Retry the operation. 2. If the problem persists, contact your next level of support.

Table 455. HSCL: 9xxx error codes (continued)

Error code	Message	Recovery action
9007	This operation is not allowed because Capacity on Demand for processors is not supported on the managed system.	
9008	This operation is not allowed because Capacity on Demand for memory is not supported on the managed system.	
9009	This operation is not allowed because Capacity Upgrade on Demand for processors is not supported on the managed system.	
900A	This operation is not allowed because Capacity Upgrade on Demand for memory is not supported on the managed system.	
900B	This operation is not allowed because On/Off Capacity on Demand for processors is not supported on the managed system.	
900C	This operation is not allowed because On/Off Capacity on Demand for memory is not supported on the managed system.	
900D	This operation is not allowed because Reserve Capacity on Demand is not supported on the managed system.	
900E	This operation is not allowed because Trial Capacity on Demand for processors is not supported on the managed system.	
900F	This operation is not allowed because Trial Capacity on Demand for memory is not supported on the managed system.	

Table 455. HSCL: 9xxx error codes (continued)

Error code	Message	Recovery action
9010	This operation is only allowed when the managed system is in the Standby or Operating state.	1. Ensure that the managed system is in the Operating or Standby state, and then try the operation again. 2. If the problem persists, contact your next level of support.
9011	This operation is not allowed because unreturned On/Off CoD processors are currently in use on the managed system. Make the On/Off CoD processors available to be reclaimed by the system by removing them from partitions, and then retry the operation.	There are unreturned On/Off CoD processors currently in use on the managed system which must be made available to be reclaimed by the system before this operation will be allowed. 1. Check the number of unreturned On/Off CoD processors, and then remove processors from partitions, if necessary, until the number of available processors is equal to or greater than the number of On/Off CoD processors that were unreturned. 2. To remove them, either use dynamic partitioning to remove the On/Off CoD processors from a running partition, or shutdown and then delete the partition to free up the processors. 3. Retry the operation.
9015	The managed system cannot currently process this operation. This condition is temporary. Please retry the operation.	1. The managed system is busy, but the condition is temporary. Retry the operation after a period of time. 2. If the condition persists, contact your next level of support.
9016	You did not enter the CoD code correctly. Try again.	The CoD code was entered incorrectly. Try the operation again by carefully re-entering the code exactly as it was given to you.
9017	{0} The sequence number of the CoD code indicates that this code has been used before. Obtain a new CoD code and try again.	The CoD code that was entered has been used before and cannot be used more than once. Check to make sure you are entering a new CoD code and try again.
9018	{0} The CoD feature for which the CoD code was generated is not supported on the managed system.	The CoD feature for which this CoD code was generated is not supported on the managed system. Verify that the CoD code you are trying to enter was generated for the managed system on which you are trying to enter it.
9019	The CoD code has been rejected by the managed system because too many invalid CoD codes have been entered. The managed system must be rebooted before another CoD code will be accepted.	1. Reboot the management console. 2. Try the task again with a valid CoD code.

Table 455. HSCL: 9xxx error codes (continued)

Error code	Message	Recovery action
901A	There are not enough inactive processors available to accept this CoD code because On/Off CoD processors are currently activated. Remove processors from partitions, if necessary, until the number of On/Off CoD processors that are activated have been made available to be reclaimed by the system. Then deactivate the On/Off CoD processors, and re-enter the CUoD processor activation code.	There are not enough inactive processors currently available to accept this CoD code for CUoD processors, because On/Off processors are currently activated. 1. Check the number of available processors, and then remove processors from partitions, if necessary, until the number of available processors is equal to or greater than the number of On/Off processors that have been activated. To do this, either use dynamic partitioning to remove the On/Off CoD processors from a running partition, or shutdown and then delete the partition to free up the processors. 2. If the problem persists, contact your next level of support.
9024	{0} The CoD code cannot be accepted because On/Off CoD resources are currently activated. If necessary, remove resources from partitions until the amount of On/Off CoD resources that are activated have been made available to be reclaimed by the system. Then deactivate the On/Off CoD resources, and re-enter the On/Off capacity termination code.	The CoD code to terminate On/Off CoD cannot be accepted, because On/Off resources are currently activated. 1. Check the amount of available resources, and then remove resources from partitions, if necessary, until the amount of available resources is equal to or greater than the amount of resources that have been activated for CoD. Do this by either using dynamic partitioning to remove the On/Off resources from a running partition, or shutdown and delete the partition to free up the resources. 2. Retry the operation.
9026	The number of On/Off CoD processors requested exceeds the number of inactive processors that are currently available on the managed system. Reduce the number of processors requested and try again.	1. Reduce the number of processors requested. 2. Retry the operation.

Table 455. HSCL: 9xxx error codes (continued)

Error code	Message	Recovery action
902A	There are insufficient resources available to accept the On/Off CoD activation request.	The number of processors multiplied by the number of days cannot exceed the number of processor days remaining in the current On/Off CoD processor enablement period. 1. Reduce either the number of processors and/or the number of days by amounts such that the product of these two values is less than or equal to the number of processor days remaining in the current On/Off CoD processor enablement period. 2. Alternatively, you might obtain another On/Off CoD processor enablement code to extend your On/Off CoD processor enablement period.
902B	The On/Off CoD processor activation request cannot be accepted because On/Off CoD processors are currently activated. The Current On/Off CoD processors must be deactivated before a new On/Off CoD processor activation request can be accepted.	On/Off CoD processors are already activated. 1. Deactivate current On/Off CoD processors. 2. Retry the operation.
9031	On/Off CoD processors are not currently enabled on the managed system. An On/Off processor enablement code must be obtained and entered before On/Off CoD processors can be activated.	On/Off CoD processors are not currently enabled on the system. Obtain an On/Off CoD processor enablement code, and then try again to activate the processors after the enablement code has been entered.
9033	The On/Off CoD processor deactivation request cannot be accepted because there are no On/Off CoD processors that are currently activated on the managed system.	An attempt was made to deactivate processors that have not been activated; therefore, there is no recovery action.

Table 455. HSCL: 9xxx error codes (continued)

Error code	Message	Recovery action
9035	The On/Off CoD processors cannot be deactivated because they cannot be reclaimed by the managed system. Make processors available to be reclaimed by removing them from partitions, and then try again.	An attempt was made to deactivate On/Off CoD processors when there are not enough available processors for the system to reclaim. 1. Deallocate the processors by checking the number of available processors and removing processors from partitions, if necessary, until the number available is equal to or greater than the number of processors that have been activated for On/Off CoD. Either use dynamic partitioning to remove the On/Off processors from a running partition, or shutdown and delete the partition to free up the processors. 2. Retry the operation.
903D	The Reserve CoD processor activation request cannot be accepted because On/Off CoD processors are currently activated. Either wait until the On/Off CoD processor request expires, or cancel the current On/Off processor activation request. Then retry the Reserve CoD processor activation request.	1. Either wait until the On/Off CoD processor request expires, or cancel the current On/Off processor activation request. 2. Then retry the Reserve CoD processor activation request.
903E	The On/Off CoD processor activation request cannot be accepted because Reserve CoD processors are currently activated. The Reserve CoD processors must be deactivated before an On/Off CoD processor activation request can be accepted.	The Reserve CoD processors must be deactivated before an On/Off CoD processor activation request can be accepted.
903F	The Reserve CoD processor activation request cannot be accepted because Trial CoD processors are currently activated. Either wait until the Trial CoD activation period expires, or stop the current trial. Then retry the Reserve CoD processor activation request.	Either wait until the Trial CoD activation period expires, or stop the current trial. Then retry the Reserve CoD processor activation request.

Table 455. HSCL: 9xxx error codes (continued)

Error code	Message	Recovery action
9040	The number of CoD processors requested exceeds the number of inactive processors that are currently available on the managed system. Reduce the number of processors and try again.	Reduce the number of processors and try the operation again.
9041	There are not enough processor days remaining to accept the Reserve CoD processor activation request. Either reduce the number of processors requested or obtain and enter an additional Reserve CoD processor enablement code.	Either reduce the number of processors requested, or obtain and enter an additional Reserve CoD processor enablement code.
9042	The Reserve CoD activation request cannot be accepted because Reserve CoD for processors is currently not enabled on the managed system. A Reserve processor enablement code must be obtained and entered before Reserve CoD processors can be activated.	A Reserve processor enablement code must be obtained and entered before Reserve CoD processors can be activated. Enter a Reserve processor enablement code, and then try the operation again.
9043	The Reserve CoD deactivation request cannot be accepted because there are no Reserve CoD processors currently activated on the managed system.	Reserve CoD processors need to be activated before a deactivation request can be accepted.

Table 455. HSCL: 9xxx error codes (continued)

Error code	Message	Recovery action
9044	{0} There are not enough inactive processors available to accept this CoD code because Reserve CoD processors are currently activated. To make the processors available to be reclaimed by the system, deactivate Reserve CoD processors. Then re-enter the CUoD processor activation code.	To make the processors available to be reclaimed by the system, deactivate Reserve CoD processors. Then re-enter the CUoD processor activation code.
9045	{0} There are not enough inactive processors available to accept this CoD code because Reserve CoD processors are currently activated. To make the processors available to be reclaimed by the system, deactivate the Reserve CoD processors. Then re-enter the Trial CoD processor activation code.	To make the processors available to be reclaimed by the system, deactivate the Reserve CoD processors. Then re-enter the Trial CoD processor activation code.
9046	{0} The On/Off processor enablement code cannot be accepted because Reserve CoD processors are currently activated. The Reserve CoD processors must be deactivated before an On/Off CoD processor enablement code can be accepted.	The Reserve CoD processors must be deactivated before an On/Off CoD processor enablement code can be accepted. Deactivate the Reserve CoD processors, and try the operation again.

Table 455. HSCL: 9xxx error codes (continued)

Error code	Message	Recovery action
9047	{0} The Reserve processor enablement code cannot be accepted because On/Off CoD processors are currently activated. The On/Off CoD processors must be deactivated before a Reserve CoD processor enablement code can be accepted.	The On/Off CoD processors must be deactivated before a Reserve CoD processor enablement code can be accepted. Deactivate the On/Off CoD processors, and try the operation again.

HSCL A*xxx*

This section lists the HSCL A*xxx* error codes.

Note: The following error messages and recovery actions might include procedures that are not available on the DS8000 management console. If in doubt, please contact the next level of support. If you are instructed to shutdown the management console, then you must first verify that the customer is not currently performing DS8000 actions through the management console ESSNI connection.

Table 456. HSCL Axxx error codes

Error code	Message	Recovery action
A00	This operation is not allowed because activation of Virtualization Engine Technologies are not supported on the managed system.	Virtualization Engine Technologies activations are not supported on the managed system. If this is incorrect, contact your software representative.
A001	The Show Code Information operation failed. Try the operation again.	Try the operation again. If the problem persists, contact your software representative.
A002	The Enter Activation Code operation failed. Try the operation again.	Try the operation again. If the problem persists, contact your software representative.
A003	You did not enter the activation code correctly. Try again.	Try to enter the activation code again ensuring that it is correct. If you are certain that you entered the correct activation code, contact your Virtualization Engine systems technologies administrator.
A004	{0}The sequence number of the activation code indicates that this code has been used before. Obtain a new activation code and try again.	Obtain a new activation code and try the operation again. If the problem persists, contact your Virtualization Engine systems technologies administrator.

Table 456. HSCL Axxx error codes (continued)

Error code	Message	Recovery action
A005	{0}The capability for which the activation code was generated is not supported on the managed system.	The activation code that was entered is for a capability that is not supported on the managed system. 1. Obtain a new activation code and try the operation again. 2. If the problem persists, contact your Virtualization Engine systems technologies administrator.
A006	[0}The operation failed on the managed system. Try the operation again. If the failure persists, contact your hardware service representative.	Try the operation again. If the failure persists, contact your hardware service provider.
A007	{0}The activation code was rejected by the managed system because too many incorrect activation codes have been entered. The managed system must be restarted before another activation code will be accepted.	Restart the managed system, and retry the operation.
A008	The activation code entered is a CoD activation code instead of a Virtualization Engine Technologies activation code. Try again.	1. Make sure to obtain a Virtualization Engine Technologies activation code for this system. 2. Try the operation again. 3. If the problem persists, contact your Virtualization Engine systems technologies administrator.
A009	The activation code was rejected by the managed system because it is not valid. Contact your Virtualization Engine Technologies administrator.	If the problem persists, contact your Virtualization Engine systems technologies administrator.
A00A	The activation code is the wrong length. The code entered must be exactly {0} characters long. Try again.	1. Make sure that your activation code is correct, and is exactly 34 characters in length. 2. Try the operation again. 3. If the problem persists, contact your Virtualization Engine systems technologies administrator.
A00B	Unknown code information format. Try the operation again.	Try the operation again. You might need to upgrade to a newer management console level to fix this problem. If the problem persists, contact your service provider.

Table 456. HSCL Axxx error codes (continued)

Error code	Message	Recovery action
A101	The bulk power assembly that was specified as the target is not valid. Verify the bulk power assembly name and try the request again.	1. Rebuild the managed frame. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Try the task again. 3. If the problem persists, contact your service provider.

HSCP platform management error codes

This section lists the HSCP platform management error codes.

Table 457. HSCP platform management error codes

Error code	Message	Recovery action
0001	The backup critical data request completed successfully.	
0002	Ensure the media is inserted correctly into the drive and try the operation again.	Verify that the media is inserted correctly in the drive and try the operation again.
0003	The backup critical data request failed.	Internal management console error. Contact your next level of support.
0004	The media is write-protected. Remove write protection and try the operation again.	Remove write protection and try the operation again.
0005	The backup critical data request is in progress.	
0006	The managed system's profile data has been corrupted. You must either restore or reinitialize the profile data.	1. Restore the profile data. See "MAP6630 Recovering partition data on a CEC enclosure" on page 842. 2. If the problem persists, contact your next level of support.
0007	The profile data of the managed system cannot be accessed or modified. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0008	Could not construct or initialize profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0009	Could not construct or initialize the profile data from the backup file, {0}. Repeat the operation.	Repeat the operation. If the problem persists, contact your next level of support.

Table 457. HSCP platform management error codes (continued)

Error code	Message	Recovery action
000A	Could not build the profile data for the managed system. Repeat the operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
000B	Could not get the activated partition profile from the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
000C	Could not get the activated system profile from the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
000D	Could not get all the system profiles from the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
000E	Could not get the default partition profile from the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
000F	Could not get the default system profile from the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0010	Could not get the partition profile from the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0011	Could not get the partition profiles for the partition from the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.

Table 457. HSCP platform management error codes (continued)

Error code	Message	Recovery action
0012	Could not get the system profile from the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0013	Could not remove the partition profile from the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0014	Could not remove the system profile from the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0015	Could not save the partition profile to the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0016	Could not save the system profile to the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0017	Could not create the partition profile in the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0018	Could not create the system profile in the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0019	Could not set the activated partition profile in the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.

Table 457. HSCP platform management error codes (continued)

Error code	Message	Recovery action
001A	Could not set the activated system profile in the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
001B	Could not set the default partition profile in the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
001C	Could not set the default system profile in the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
001D	Could not clean up the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
001E	Could not update the profile data cache. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
001F	Could not check for duplicate partition name. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0020	Could not remove the partition profile from the system profile content in the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0021	Could not add the partition profile to the system profile in the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.

Table 457. HSCP platform management error codes (continued)

Error code	Message	Recovery action
0022	Could not get the partition name from the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0023	Could not get all the partition names from the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0024	Could not set the partition name in the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0025	Could not build the profile data from the local file, {0}. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0026	Could not write the data to the managed system. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0027	Could not backup the profile data to a file. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0028	Could not read profile data from the managed system. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0029	Could not delete profiles at the partition with ID of {0} in the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.

Table 457. HSCP platform management error codes (continued)

Error code	Message	Recovery action
002A	Could not modify the system profiles containing the partition slot ID of {0} in the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
002B	Could not do a priority restore on the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
002C	Could not merge the profile information in the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
002D	Could not merge partition name data in the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
002E	Could not merge default and activated list data in profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0030	Unable to initialize the profile data. Perform a rebuild managed system operation.	1. Recover the profile data. See "MAP6630 Recovering partition data on a CEC enclosure" on page 842. 2. If the problem persists, contact your next level of support.
0031	The profile data has been cleared. Either restore or reinitialize the profile data save area.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0032	Could not set the system profile's user defined name to the profile data. Perform a rebuild managed system operation.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.

Table 457. HSCP platform management error codes (continued)

Error code	Message	Recovery action
0033	This managed system version, {0}, is unknown to management console. Update to an management console release that can handle this version of managed system.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the same error occurs, update to an management console release that can handle this version of managed system. 3. If you are not sure what version to use, contact your next level of support.
0034	The levels of managed system and profile data area are not matching up. Managed system version: {0}, profile data area version: {1}. Upgrade the managed system version to proper level.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the same error occurs, update to an management console release that can handle this version of managed system. 3. If you are not sure what version to use, contact your next level of support.
0035	Cannot restore profile data with 2 different versions of profile saved data.	1. Perform the operation again. 2. If the same error occurs, restore using another profile data file.
0036	Migrate profile data failed.	1. Perform the operation again. 2. If the same error occurs, restore using another profile data file.
0037	This level of profile data, {0}, is unknown to this management console. Update to an management console version that can handle this level of profile data.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the same error occurs, update to an management console release that can handle this version of managed system. 3. If you are not sure what version to use, contact your next level of support.
003A	Removal system profiles failed at profile data save area.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the operation. 3. If you are not sure what version to use, contact your next level of support.

Table 457. HSCP platform management error codes (continued)

Error code	Message	Recovery action
003B	Setting of partition information failed in profile data save area.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the operation. 3. If you are not sure what version to use, contact your next level of support.
003D	Retrieval of partition information failed in profile data save area.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. Retry the operation. 3. If you are not sure what version to use, contact your next level of support.
0040	The corrective service file was successfully downloaded to this system console. Press OK to continue and install this update.	
0041	Migration of partition information failed in profile data save area.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0042	Migration of profile names failed in profile data save area.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0043	Migration of default profile list failed in profile data save area.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0044	Migration of activated profile list failed in profile data save area.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0045	The corrective service data is corrupt. Ensure the media is inserted correctly into the drive and try the operation again.	1. Verify that the removable media is correctly inserted in the drive and try the operation again. 2. If the error persists, contact your next level of support.

Table 457. HSCP platform management error codes (continued)

Error code	Message	Recovery action
0046	Migration of I/O unit and profile information failed in profile data save area.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0047	Migration of time stamps of profile data save area failed.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0048	Migration of checksums of profile data save area failed.	1. Rebuild the managed system. See "MAP6620 Rebuilding managed system information" on page 842 for details. 2. If the problem persists, contact your next level of support.
0049	Unable to get next available profile ID from the management console profile data.	
004A	Management console Save Area Set Fast Activation failed.	
004B	Management console Save Area Get Fast Activation failed.	
004C	Unable to open the Management console Save Area file.	
004D	The management console could not retrieve information from the managed system.	
004E	Unable to set partition info in the profile data. Perform a rebuild managed system operation.	
004F	Management console Save Area Get System Credential Information failed.	
0050	Management console Save Area Get System Credential Information failed.	
0051	The corrective service file download was unsuccessful.	Refer to the text on the error message window.
0052	Successfully downloaded file. Wait while it is installing	
0053	Corrective service installation was successful.	

Table 457. HSCP platform management error codes (continued)

Error code	Message	Recovery action
0054	Corrective service installation has failed.	Refer to the text on the error message window.
0055	View the console log for details.	
0056	Halting service installation.	
0057	Corrective service file download in progress.	
0058	The corrective service file downloaded successfully, and is continuing.	
0060	The customize date and time request completed successfully.	
0061	The customize date and time request failed.	1. Verify that the removable media is correctly inserted in the drive and try the operation again. 2. Try the operation with different media. 3. Run PC Doctor to determine if there is a problem with the hardware. 4. If the problem persists, contact your next level of support.
0070	Enter an integer value between 1 and 99.	
0071	You cannot schedule an event in the past. Set the date and time to schedule the event in the future.	Select a date and time that is after the present time.
0080	There are no system events.	
0081	Unable to display the log data.	1. Verify that the removable media is correctly inserted in the drive and try the operation again. 2. Try the operation with different media. 3. Run PC Doctor to determine if there is a problem with the hardware. 4. If the problem persists, contact your next level of support.

Table 457. HSCP platform management error codes (continued)

Error code	Message	Recovery action
0082	Unable to retrieve the log data.	1. Verify that the removable media is correctly inserted in the drive and try the operation again. 2. Try the operation with different media. 3. Run PC Doctor to determine if there is a problem with the hardware. 4. If the problem persists, contact your next level of support.
0083	An error occurred while processing the exit request.	1. Verify that the removable media is correctly inserted in the drive and try the operation again. 2. Try the operation with different media. 3. Run PC Doctor to determine if there is a problem with the hardware. 4. If the problem persists, contact your next level of support.
0090	Cannot check both the Export default gateway and Silent options for routed.	Select either **Export default gateway** or **Silent** for the Routed option.
0091	You might need to shut down and restart for all network settings changes to take effect.	Restart the management console.
0092	Unable to save your network settings updates to the system configuration files.	1. Try the operation again. 2. Shut down and restart the management console. 3. If the error persists, contact your next level of support.
0093	Ethernet driver {1} cannot be set to {0}.	1. Select a valid speed for the adapter. 2. Select **Auto-negotiate speed**. 3. Shut down and restart the management console.
0100	No CECs were detected that are attached to this system console.	1. If you have a managed system attached, shut down and restart the management console. 2. If the problem persists, contact your next level of support.
0101	No logical partitions have been defined for this CEC.	1. Check to ensure that Service Focal Point is communicating correctly with the managed system. 2. Shut down and restart the management console. 3. If the error persists, contact your next level of support.

Table 457. HSCP platform management error codes (continued)

Error code	Message	Recovery action
0102	A blank or incorrect entry was entered in the logical partition password field.	Re-enter a valid password in the entry field and try the operation again.
0103	A blank or incorrect entry was entered in the listening port field.	Re-enter a valid listening port and try the operation again.
0104	A blank or incorrect entry was entered in the listening port field.	Re-enter the IP address and try the operation again.
0110	The Inventory Scout Services command completed successfully.	
0111	The Inventory Scout Services command request failed.	1. Try the operation again. 2. Shut down and restart the management console. 3. If the error persists, contact your next level of support.
0112	The removable media cannot be mounted. Ensure the media is inserted correctly into the drive and try the operation again.	1. Insert a correctly formatted diskette into the drive. 2. Try using an alternate diskette. 3. If the error persists, contact your next level of support.
0113	The media is write-protected. Remove write protection and try the operation again.	Remove write protection on the media and retry the operation.
0114	The Inventory Scout Services request failed. Ensure the removable media is inserted correctly into the drive.	1. Insert a correctly formatted diskette into the drive. 2. Try using an alternate diskette. 3. If the error persists, contact your next level of support.
0115	An error occurred while copying the Inventory Scout Services data. Verify that a blank formatted diskette is inserted correctly in the drive and retry the operation.	1. Ensure that there is enough free space on the media. 2. Try using an alternate diskette and retry the operation. 3. If the error persists, contact your next level of support.
0117	An error occurred while trying to unmount the media.	
0118	The Inventory Scout Services daemon was restarted successfully.	
0119	The Inventory Scout Services daemon cannot be restarted. Shut down and restart the management console and try the operation again.	1. Try the operation again. 2. Shut down and restart the management console. 3. If the error persists, contact your next level of support.

Table 457. HSCP platform management error codes (continued)

Error code	Message	Recovery action
0120	The CEC name is incorrect.	Shut down and restart the management console. If the error persists, contact your next level of support.
0121	The Inventory Scout Services request failed. An error occurred while copying data to removable media.	1. Retry the operation. 2. Restart the invscout daemon. 3. If the error persists, contact your next level of support.
0122	The system logical partitions did not respond to query attempts.	1. Check to ensure that Service Focal Point is communicating correctly with the managed system. 2. Shut down and restart the management console. 3. If the error persists, contact your next level of support.
0123	Unable to start the terminal session using available error data. Return to the Service Management interface and attempt to start the TTY session from there.	1. Return to the Service Management interface and attempt to start the virtual terminal session. 2. If the problem persists, contact your next level of support.
0124	Unrecoverable error attempting to start a TTY session. Return to the Service Management interface and attempt to start the TTY session from there.	1. Return to the Service Management interface and attempt to start the virtual terminal session. 2. If the problem persists, contact your next level of support.
0125	An incorrect user ID and password combination was entered. Specify a valid user ID and password and try the operation again.	1. Specify a valid user ID and password and retry the operation. 2. Ensure that the remote service (FTP) site is operational. 3. If the problem persists, contact your next level of support.
0126	The corrective service file was not found on the server. Ensure the correct fully qualified path and filename has been specified for the Patch file field and retry the operation.	1. Specify a valid user ID and password and retry the operation. 2. Ensure that the remote service (FTP) site is operational. 3. If the problem persists, contact your next level of support.
0127	An error occurred while unpacking the corrective service file. The file might be corrupt, or the management console might have run out of disk space. Try the operation again. If the problem continues, contact your next level of support.	1. Shut down and restart the management console. 2. If the error persists, contact your next level of support.

Table 457. HSCP platform management error codes (continued)

Error code	Message	Recovery action
0128	A required file is missing from the service package. Contact your next level of support.	Contact your next level of support.
0129	An attempt was made to apply incorrect service filename. Ensure that the correct service file name has been specified and retry the operation.	1. Ensure that the correct service file name has been entered and try the operation again. 2. If the problem persists, contact your next level of support.
0130	The target directory for service file extraction does not exist. Contact your next level of support.	1. Shut down and restart the management console. 2. If the error persists, contact your next level of support.
0131	A fatal error occurred during service file installation. The system might be unstable. Contact your next level of support.	1. Shut down and restart the management console. 2. If the error persists, contact your next level of support.
0135	Error {0} processing data on removable media.	1. Attempt to download and apply the service file again. 2. Perform the save upgrade data task to preserve configuration data and then reinstall the management console from the recovery CD as if doing an upgrade. 3. If the problem persists, contact your next level of support.
0136	The corrective service file was successfully copied to the management console. Select the frame install corrective service task to apply this update.	Select the frame **Install Corrective Service** task to apply this update.
0137	The corrective service file was successfully downloaded to the management console. Select the Frame **Install Corrective Service** task to apply this update.	Select the frame **Install Corrective Service** task to apply this update.
0138	An internal error occurred during save upgrade data processing. Refer to the management console console log for detailed information and recovery actions.	Refer to the management console console log for detailed information and recovery actions.

HSCS service focal point error codes

This section lists the HSCS service focal point error codes.

Table 458. HSCS service focal point error codes

Error code	Message	Recovery action
0001	Unable to access RMC to obtain serviceable events.	1. The management console could not retrieve the serviceable events. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If error persists, contact your next level of support.
0002	Unable to process request.	1. The management console could not process your request to make changes to the serviceable event. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0003	Unable to update the attribute on the serviceable event.	1. The management console could not process your request to make changes to the serviceable event. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0004	Unable to locate the serviceable event to update.	1. The management console could not locate the serviceable event you are trying to view or update. It might have expired or otherwise been closed. 2. Exit the Select Serviceable Event dialog and retry.
0005	Function failed: Error occurred attempting to display a Serviceable Event window.	The management console was unable to locate or launch a window you have requested. This is an internal management console error. 1. Perform backup critical data task. 2. Contact your next level of support.
0006	This serviceable event might contain more information that this version of the management console can display. You might want to upgrade your management console to the latest version.	In order to see serviceable event data made available in more recent management console versions, upgrade this management console to the most recent version or switch to an management console that has already been upgraded.

Table 458. HSCS service focal point error codes (continued)

Error code	Message	Recovery action
0008	Function failed: An error occurred when retrieving machine names.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0020	Function failed: An error occurred when launching the service focal point settings window.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0021	Function failed: Error occurred getting information to display the service focal point settings.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0022	Function failed: An error occurred when updating service focal point settings.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0023	Function failed: Error occurred processing button for the service focal points window.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0024	Function failed: Error occurred processing sort for the service focal point settings window.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.

Table 458. HSCS service focal point error codes (continued)

Error code	Message	Recovery action
0025	Function failed: Error occurred while processing double click for the service focal point settings window.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0026	Service focal point settings have been saved successfully.	
0040	New FRU location code and part number must be entered.	Enter the requested location code and part number.
0041	A new FRU part number must be entered.	Enter the requested part number.
0042	There was nothing to apply.	There were no changes to the FRU list to be added to the serviceable event.
0043	The No FRUs to Update box was checked but there are updated FRUs in the pending table. If there are no FRUs to update, remove the ones from the pending table. If you want to update the FRUs from the pending table, uncheck the check box.	
0044	The No FRUs to Update box was unchecked and there are no updated FRUs in the pending table. If there are no FRUs to update, check the check box to indicate this.	
0045	Function failed: An error occurred when updating FRU information for the serviceable event.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0046	Function failed: An error occurred when attempting to remove an item from the list.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.

Table 458. HSCS service focal point error codes (continued)

Error code	Message	Recovery action
0047	Function failed: An error occurred when attempting to close the serviceable event.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0048	Function failed: An error occurred when adding FRU information for the serviceable event.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0049	Function failed: An error occurred when processing the window.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0050	Function failed: An error occurred when launching the window.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0053	Attempt to update profile information failed due to invalid resource lock type.	1. Retry the operation. 2. If the problem persists, contact your next level of support.
0060	Cannot change state from unknown for the machine.	The requested machine state is not allowed at this time. Close and then restart the enable and disable windows for updated machine information.
0061	Insert scratch diskette number {0} of {1}.	Insert a scratch diskette and select the appropriate button.
0062	Insert DVD cartridge and press the {0} button.	Insert a formatted DVD cartridge and push the appropriate button.
0064	No extended error data available.	Select a serviceable event that has extended error data associated with it.
0065	Error writing to diskette: {0}.	Ensure there is a diskette in the diskette drive. Try the operation again.

Table 458. HSCS service focal point error codes (continued)

Error code	Message	Recovery action
0066	Error writing to DVD cartridge: {0}.	Ensure there is a formatted DVD cartridge in the DVD drive. Try the operation again.
0067	Error reading extended error data: {0}.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0068	Error creating temporary file: {0}.	1. Verify that the removable media is correctly inserted in the drive and try the operation again. 2. Try the operation with different media. 3. Run PC Doctor to determine if there is a problem with the hardware. 4. If the problem persists, contact your next level of support.
0069	Error writing to temporary file: {0}.	1. Verify that the removable media is correctly inserted in the drive and try the operation again. 2. Try the operation with different media. 3. Run PC Doctor to determine if there is a problem with the hardware. 4. If the problem persists, contact your next level of support.
0070	Error formatting diskette: {0}.	Ensure there is a diskette in the diskette drive. Try the operation again.
0071	Extended error data has been saved successfully.	
0072	The saving of extended error data has been cancelled.	No action is needed. The operation was cancelled as a result of your request.
0080	Error encountered while getting the logical partition information.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.

Table 458. HSCS service focal point error codes (continued)

Error code	Message	Recovery action
0081	Error encountered while reading the logical partition information.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0082	Error encountered while getting the extended error data.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0083	Unexpected error encountered while saving the extended error data.	1. Verify that the removable media is correctly inserted in the drive and try the operation again. 2. Try the operation with different media. 3. Run PC Doctor to determine if there is a problem with the hardware. 4. If the problem persists, contact your next level of support.
0084	Error encountered while attempting to call support with the extended error information.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0085	Error encountered while attempting to call home with the extended error information. The call program returned a value of {0}.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0086	Request to call home the extended error information has been successfully submitted. Go to the service agent application to monitor the progress of the request.	The operation was successful. Use the service agent application to monitor the progress of the request.

Table 458. HSCS service focal point error codes (continued)

Error code	Message	Recovery action
0087	Request to call home the extended error information has been successfully submitted. Go to the service agent application to monitor the progress of the request.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0088	Error encountered while attempting to call home the serviceable event. The call program returned a value of {0}.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0089	Request to call home the serviceable event has been successfully submitted. See the Service Agent application to monitor the progress of the request.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0090	Unexpected return code encountered while creating a temporary packaging file: {0}.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0096	No items selected when button was pressed.	1. Not all functions might be operating. Wait and try the previous function again. 2. If the error continues, shut down and restart the management console. 3. If the error persists, contact your next level of support.
0100	Wait while the extended error data is being saved.	The extended error data is being saved to the appropriate removable media.
0101	Error writing to DVD cartridge.	Ensure there is a formatted DVD cartridge in the DVD drive. Try the operation again.
0102	Error unmounting DVD cartridge after writing data successfully.	Ensure that there is a formatted DVD cartridge in the DVD drive. Try the operation again.
0103	DVD drive is already mounted.	

Table 458. HSCS service focal point error codes (continued)

Error code	Message	Recovery action
0104	The LED request did not complete successfully.	1. Retry the task. 2. Log out and then back in to the management console interface. 3. Shut down and restart the management console. 4. If the problem persists, contact your next level of support.
0105	The LED request completed successfully.	
0106	Function failed: An error occurred attempting to display the LED Management window.	1. Retry the task. 2. Log out and then back in to the management console interface. 3. Shut down and restart the management console. 4. If the problem persists, contact your next level of support.
0122	Function failed: An error occurred attempting to display the Hardware Services window.	1. Retry the task. 2. Log out and then back in to the management console interface. 3. Shut down and restart the management console. 4. If the problem persists, contact your next level of support.
0123	The System Attention LED for the selected machine is not supported. The system LED will not be activated.	
0124	The Identify LED for the selected FRU is not supported. The FRU LED will not be activated.	
026A	The specified managed system name {0} is not valid with the specified IP address {1}. The managed system cannot be removed.	Specify a valid managed system name and a valid IP address. Then try the request again.
026B	Cannot find a managed system with the specified name {0}.	Verify the specified system name. Specify a valid managed system name and try the request again.
026C	The request to add a new managed system with IP address {0} failed.	Verify the specified IP address. Specify a valid IP address and try the request again.
026D	Lock type {0} is not valid for the managed system.	1. Retry the operation. 2. If the problem persists, contact your next level of support.

Chapter 50. Progress codes

This section contains information about progress codes.

List of progress codes

This section describes how to use a list of progress codes.

The following progress codes (or checkpoints) represent different processes that occur during initial program load (IPL). The list of progress codes is in numeric order. A general description of the processes represented by the progress code appears beside each number (or range of numbers). Progress codes are 8 characters long, unless otherwise specified.

For information about using this list of progress codes and about progress codes in general, see "Using progress codes" on page 1663.

Use the following list to find information about specific progress codes. The first column provides the link to the 8-character progress code and links to information that includes one or more tables. The second column describes the type of progress code. If you do not find the progress code that you are looking for in this list, call your next level of support for assistance.

Table 459. List of progress codes

Progress code	Description
AIX IPL	AIX IPL progress codes
C1*xxxxxx*	Service processor progress codes
C2*xxxxxx*	Virtual service processor progress codes
C3*xxxxxx*	IPL status progress codes
C5*xxxxxx*	IPL status progress codes
C6*xxxxxx*	IPL status progress codes
C7*xxxxxx*	Server firmware IPL status progress codes
C9*xxxxxx*	IPL status progress codes
CA*xxxxxx*	Partition firmware progress codes
D1*xxxxxx*	Service processor dump status codes, platform dump status codes, and service processor status progress codes
D2*xxxxxx*	Partition status progress codes
D6*xxxxxx*	General status progress codes
D9*xxxxxx*	General status progress codes
E*xxx*	System firmware progress codes

AIX IPL progress codes

This section provides descriptions for the AIX progress codes that occurs when booting the ESS partitions. This information will be displayed through the *xxxxx* Utility Option.

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Operator panel display numbers

This section contains a list of the various numbers and characters that display in the operator panel display.

There are three categories of numbers and characters. The first group tracks the progress of the configuration program. The second group tracks the progress of the diagnostics. The third group provides information about messages that follow an 888 sequence.

AIX configuration program progress codes

This section describes the AIX configuration program indicators.

Notes:

1. All current AIX progress codes are listed below. Many are for hardware that is not used in the DS8000 product. In such cases, contact the next level of support.
2. Some systems might produce 4-digit codes. If the leftmost digit of a 4-digit code is 0, use the three rightmost digits.

- "Three-digit AIX configuration program progress codes"
- "Four-digit AIX configuration program progress codes" on page 1623

Three-digit AIX configuration program progress codes

This section provides descriptions of the 3-digit numbers and characters that display on the operator panel and descriptions of the location codes used to identify a particular item.

Note: All current 3-digit AIX progress codes are listed below. Many are for hardware that is not used in the DS8000 product. In such cases, call the next level of support.

Table 460. 3-digit AIX configuration program progress codes

Progress code	Description/Action
2E6	PCI differential ultra SCSI adapter or the universal PCI differential Ultra SCSI adapter being configured.
2E7	Configuration method unable to determine if SCSI adapter type is SE or DE type.
440	9.1 GB Ultra SCSI disk drive being identified or configured.
441	18.2 GB Ultra SCSI disk drive being identified or configured.
444	2-port multiprotocol PCI adapter (ASIC) being identified or configured.
447	PCI 64-bit Fibre Channel arbitrated loop adapter being configured.
458	36 GB DAT72 tape drive
459	36 GB DAT72 tape drive
500	Querying standard I/O slot.
501	Querying card in slot 1.
502	Querying card in slot 2.
503	Querying card in slot 3.
504	Querying card in slot 4.
505	Querying card in slot 5.

Table 460. 3-digit AIX configuration program progress codes (continued)

Progress code	Description/Action
506	Querying card in slot 6.
507	Querying card in slot 7.
508	Querying card in slot 8.
510	Starting device configuration.
511	Device configuration completed.
512	Restoring device configuration files from media.
513	Restoring basic operating system installation files from media.
516	Contacting server during network boot.
517	Mounting client remote file system during network IPL.
518	Remote mount of the root (/) and /usr file systems failed during network boot.
520	Bus configuration running.
521	/etc/init invoked **cfgmgr** with invalid options; /etc/init has been corrupted or incorrectly modified (irrecoverable error).
522	Configuration manager has been invoked with conflicting options (irrecoverable error).
523	Configuration manager is unable to access the ODM database (irrecoverable error).
524	Configuration manager is unable to access the **config.rules** object in the ODM database (irrecoverable error).
526	Configuration manager is unable to get data from a customized device driver object in the ODM database (irrecoverable error).
525	Configuration manager is unable to get data from a customized device object in the ODM database (irrecoverable error).
527	Configuration manager was invoked with the phase 1 flag; running phase 1 at this point is not permitted (irrecoverable error).
528	Configuration manager cannot find the sequence rule, or no program name was specified in the ODM database (irrecoverable error).
529	Configuration manager is unable to update ODM data (irrecoverable error).
530	The **savebase** program returned an error.
531	Configuration manager is unable to access the **PdAt** object class (irrecoverable error).
532	Not enough memory to continue (malloc failure); irrecoverable error.
533	Configuration manager is unable to find a configuration method for a device.
534	Configuration manager is unable to acquire database lock (irrecoverable error).
535	HIPPI diagnostics interface driver being configured.
536	Configuration manager encountered more than one sequence rule specified in the same phase (irrecoverable error).
537	Configuration manager encountered an error when invoking the program in the sequence rule.
538	Configuration manager is going to invoke a configuration method.

Table 460. 3-digit AIX configuration program progress codes (continued)

Progress code	Description/Action
539	Configuration method has ended and control has returned to configuration manager.
541	A DLT tape device is being configured.
549	Console could not be configured for the Copy a System dump menu.
551	IPL vary-on is running.
552	IPL vary-on failed.
553	IPL phase 1 is complete.
554	The boot device could not be opened or read, or unable to define NFS swap device during network boot.
555	An ODM error occurred when trying to vary-on the rootvg, or unable to create an NFS swap device during network boot.
556	Logical volume manager encountered error during IPL vary-on.
557	Root file system does not mount.
558	Not enough memory to continue the system IPL.
559	Less than 2 MB of good memory available to load AIX kernel.
569	FCS SCSI protocol device being configured (32 bits).
570	Virtual SCSI devices being configured.
571	HIPPI common function device driver being configured.
572	HIPPI IPI-3 master transport driver being configured.
573	HIPPI IPI-3 slave transport driver being configured.
574	HIPPI IPI-3 transport services user interface device driver being configured.
575	9570 disk-array driver being configured.
576	Generic async device driver being configured.
577	Generic SCSI device driver being configured.
578	Generic common device driver being configured.
579	Device driver being configured for a generic device.
580	HIPPI TCP/IP network interface driver being configured.
581	Configuring TCP/IP.
582	Configuring Token-Ring data link control.
583	Configuring an Ethernet data link control.
584	Configuring an IEEE Ethernet data link control.
585	Configuring an SDLC MPQP data link control.
586	Configuring a QLLC X.25 data link control.
587	Configuring a NETBIOS.
588	Configuring a bisync read-write (BSCRW).
589	SCSI target mode device being configured.
590	Diskless remote paging device being configured.
591	Configuring an LVM device driver.
592	Configuring an HFT device driver.

Table 460. 3-digit AIX configuration program progress codes (continued)

Progress code	Description/Action
593	Configuring SNA device drivers.
594	Asynchronous I/O being defined or configured.
595	X.31 pseudo-device being configured.
596	SNA DLC/LAPE pseudo-device being configured.
597	OCS software being configured.
598	OCS hosts being configured during system reboot.
599	Configuring FDDI data link control.FCS SCSI protocol device being configured (64 bits).
59B	FCS SCSI protocol device being configured (64 bits).
5C0	Streams-based hardware drive being configured.
5C1	Streams-based X.25 protocol being configured.
5C3	Streams-based X.25 COMIO emulator driver being configured
5C4	FCS adapter device driver being configured.
5C5	SCB network device driver for FCS being configured.
5C6	AIX SNA channel being configured.
600	Starting network boot portion of /sbin/rc.boot.
602	Configuring network parent devices.
603	/usr/lib/methods/defsys, /usr/lib/methods/cfgsys, or /usr/lib/methods/cfgbus failed.
604	Configuring physical network boot device.
605	Configuration of physical network boot device failed.
606	Running /usr/sbin/ifconfig on logical network boot device.
607	/usr/sbin/ifconfig failed.
608	Attempting to retrieve the client.info file with **tftp**. **Note:** A flashing 608 indicates multiple attempts to retrieve the client_info file are occurring.
609	The client.info file does not exist or it is zero length.
60B	18.2 GB 68-pin LVD SCSI disk drive being configured.
610	Attempting remote mount of NFS file system.
611	Remote mount of the NFS file system failed.
612	Accessing remote files; unconfiguring network boot device.
614	Configuring local paging devices.
615	Configuration of a local paging device failed.
616	Converting from diskless to dataless configuration.
617	Diskless to dataless configuration failed.
618	Configuring remote (NFS) paging devices.
619	Configuration of a remote (NFS) paging device failed.
61B	36.4 GB 80-pin LVD SCSI disk drive being configured.
61D	36.4 GB 80-pin LVD SCSI disk drive being configured.
61E	18.2 GB 68-pin LVD SCSI disk drive being configured.

Table 460. 3-digit AIX configuration program progress codes (continued)

Progress code	Description/Action
620	Updating special device files and ODM in permanent file system with data from boot RAM file system.
621	9.1 GB LVD 80-pin SCSI drive being configured.
622	Boot process configuring for operating system installation.
62D	9.1 GB 68-pin LVD SCSI disk drive being configured.
62E	9.1GB 68-pin LVD SCSI disk drive being configured.
636	TURBOWAYS® 622 Mbps PCI MMF ATM adapter.
637	Dual channel PCI-2 Ultra2 SCSI adapter being configured.
638	4.5 GB Ultra SCSI single-ended disk drive being configured.
639	9.1 GB 10K RPM Ultra SCSI disk drive (68-pin).
63A	See 62D.
63B	9.1 GB 80-pin LVD SCSI disk drive being configured.
63C	See 60B.
63D	18.2 GB 80-pin LVD SCSI disk drive being configured.
63E	36.4 GB 68-pin LVD SCSI disk drive being configured.
63F	See 61B.
640	9.1 GB 10K RPM Ultra SCSI disk drive (80-pin).
646	High-speed token-ring PCI adapter being configured.
64A	See 62E.
64B	9.1 GB 80-pin LVD SCSI disk drive being configured.
64C	See 61E.
64D	18.2 GB LVD 80-pin Drive/Carrier being configured.
64E	36.4 GB 68-pin LVD SCSI disk drive being configured.
64F	See 61D.
650	SCSD disk drive being configured.
653	18.2 GB Ultra-SCSI 16-bit disk drive being configured.
655	GXT130P graphics adapter being configured.
657	GXT2000P graphics adapter being configured.
658	PCI Fibre Channel disk subsystem controller being identified or configured.
659	2102 Fibre Channel disk subsystem controller drawer being identified or configured.
660	2102 Fibre Channel disk array being identified or configured.
662	Ultra2 integrated SCSI controller.
663	The ARTIC960R*x*D digital trunk quad PCI adapter or the ARTIC960R*x*F digital trunk resource adapter being configured.
664	32*x* (MAX) SCSI-2 CD-ROM drive being configured.
667	PCI 3-Channel Ultra2 SCSI RAID adapter being configured.
669	PCI gigabit Ethernet adapter being configured.
66A	Keyboard/mouse attachment card-PCI being configured.
66C	10/100/1000 Base-T Ethernet PCI adapter.

Table 460. 3-digit AIX configuration program progress codes (continued)

Progress code	Description/Action
66D	PCI 4-channel Ultra-3 SCSI RAID adapter.
66E	4.7 GB DVD-RAM drive.
674	ESCON channel PCI adapter being configured.
677	PCI 32-bit Fibre Channel arbitrated loop adapter being configured.
67B	PCI cryptographic coprocessor being configured.
682	20x (MAX) SCSI-2 CD-ROM drive being configured.
689	4.5 GB Ultra SCSI single-ended disk drive being configured.
68C	20 GB 4-mm tape drive being configured.
68E	POWER™ GXT6000P PCI graphics adapter.
690	9.1 GB Ultra SCSI single-ended disk drive being configured.
69b	64-bit/66 MHz PCI ATM 155 MMF PCI adapter being configured.
69d	64-bit/66 MHz PCI ATM 155 UTP PCI adapter being configured.
6CC	SSA disk drive being configured.
700	A 1.1 GB 8-bit SCSI disk drive being identified or configured.
701	A 1.1 GB 16-bit SCSI disk drive being identified or configured.
702	A 1.1 GB 16-bit differential SCSI disk drive being identified or configured.
703	A 2.2 GB 8-bit SCSI disk drive being identified or configured.
704	A 2.2 GB 16-bit SCSI disk drive being identified or configured.
705	Configuration method for the 2.2 GB 16-bit differential SCSI disk drive is being run. If an irrecoverable error occurs, the system halts.
706	A 4.5 GB 16-bit SCSI disk drive being identified or configured.
707	A 4.5 GB 16-bit differential SCSI disk drive being identified or configured.
708	An L2 cache being identified or configured.
709	128 port ISA adapter being configured.
710	POWER GXT150M™ graphics adapter being identified or configured.
711	Unknown adapter being identified or configured.
712	Graphics slot bus configuration is executing.
713	The IBM ARTIC960 device being configured.
714	A video capture adapter being configured.
715	The Ultramedia™ Services audio adapter being configured. This number displays briefly on the panel.
717	TP Ethernet adapter being configured.
718	GXT500 graphics adapter being configured.
720	Unknown read/write optical drive type being configured.
721	Unknown disk or SCSI device being identified or configured.
722	Unknown disk being identified or configured.
723	Unknown CD-ROM being identified or configured.
724	Unknown tape drive being identified or configured.
725	Unknown display adapter being identified or configured.

Table 460. 3-digit AIX configuration program progress codes (continued)

Progress code	Description/Action
726	Unknown input device being identified or configured.
727	Unknown async device being identified or configured.
728	Parallel printer being identified or configured.
729	Unknown parallel device being identified or configured.
730	Unknown diskette drive being identified or configured.
731	PTY being identified or configured.
732	Unknown SCSI initiator type being configured.
733	7 GB 8-mm tape drive being configured.
734	4*x* SCSI-2 640 MB CD-ROM drive being configured.
736	Quiet Touch keyboard and speaker cable being configured.
741	1080 MB SCSI disk drive being configured.
745	16 GB 4-mm tape auto loader being configured.
746	SCSI-2 fast/wide PCI adapter being configured.
747	SCSI-2 differential fast/wide PCI adapter being configured.
749	7331 Model 205 tape library being configured.
751	SCSI 32-bit SE F/W RAID adapter being configured.
754	1.1 GB 16-bit SCSI disk drive being configured.
755	2.2 GB 16-bit SCSI disk drive being configured.
756	4.5 GB 16-bit SCSI disk drive being configured.
757	External 13 GB 1.5M/s 1/4-inch tape being configured.
763	SP™ switch MX adapter being configured.
764	SP system attachment adapter being configured.
772	4.5 GB SCSI F/W disk drive being configured.
773	9.1 GB SCSI F/W disk drive being configured.
774	9.1 GB external SCSI disk drive being configured.
776	PCI token-ring adapter being identified or configured.
777	10/100 Ethernet T*x* PCI adapter being identified or configured.
778	POWER GXT3000P 3D PCI graphics adapter being configured.
77B	4-port 10/100 Ethernet T*x* PCI adapter being identified or configured.
77c	A 1.0 GB 16-bit SCSI disk drive being identified or configured.
783	4-mm DDS-2 tape autoloader being configured.
789	2.6 GB external optical drive being configured.
78B	POWER GXT4000P PCI graphics adapter.
78D	GXT300P 2D graphics adapter being configured.
790	Multi-bus integrated Ethernet adapter being identified or configured.
797	TURBOWAYS 155 UTP/STP ATM adapter being identified or configured.
798	Video streamer adapter being identified or configured.
799	2-Port multiprotocol PCI adapter being identified or configured.

Table 460. 3-digit AIX configuration program progress codes (continued)

Progress code	Description/Action
79c	ISA bus configuration executing.
7C0	CPU/system interface being configured.
7C1	Business audio subsystem being identified or configured.
7cc	PCMCIA bus configuration executing.
800	TURBOWAYS 155 MMF ATM adapter being identified or configured.
803	7336 tape library robotics being configured.
804	8*x* speed SCSI-2 CD-ROM drive being configured.
806	POWER GXT800 PCI graphics adapter being configured.
807	SCSI device enclosure being configured.
80c	SSA 4-port adapter being identified or configured.
811	Processor complex being identified or configured.
812	Memory being identified or configured.
813	Battery for time-of-day, NVRAM, and so on being identified or configured, or system I/O control logic being identified or configured.
814	NVRAM being identified or configured.
815	Floating-point processor test.
816	Operator panel logic being identified or configured.
817	Time-of-day logic being identified or configured.
819	Graphics input device adapter being identified or configured.
821	Standard keyboard adapter being identified or configured.
823	Standard mouse adapter being identified or configured.
824	Standard tablet adapter being identified or configured.
825	Standard speaker adapter being identified or configured.
826	Serial port 1 adapter being identified or configured.
827	Parallel port adapter being identified or configured.
828	Standard diskette adapter being identified or configured.
831	3151 adapter being identified or configured, or serial port 2 being identified or configured.
834	64-port async controller being identified or configured.
835	16-port async concentrator being identified or configured.
836	128-port async controller being identified or configured.
837	16-port remote async node being identified or configured.
838	Network terminal accelerator adapter being identified or configured.
839	7318 serial communications server being configured.
840	PCI single-ended ultra SCSI adapter being configured.
841	8-port async adapter (EIA-232) being identified or configured.
842	8-port async adapter (EIA-422A) being identified or configured.
843	8-port async adapter (MIL-STD-188) being identified or configured.

Table 460. 3-digit AIX configuration program progress codes (continued)

Progress code	Description/Action
844	7135 RAIDiant array disk drive subsystem controller being identified or configured.
845	7135 RAIDiant array disk drive subsystem drawer being identified or configured.
846	RAIDiant array SCSI 1.3 GB disk drive being configured.
847	16-port serial adapter (EIA-232) being identified or configured.
848	16-port serial adapter (EIA-422) being identified or configured.
849	X.25 Interface Coprocessor/2 adapter being identified or configured.
850	Token-ring network adapter being identified or configured.
851	T1/J1 Portmaster® adapter being identified or configured.
852	Ethernet adapter being identified or configured.
854	3270 Host Connection Program/6000 connection being identified or configured.
855	Portmaster Adapter/A being identified or configured.
857	FSLA adapter being identified or configured.
858	5085/5086/5088 adapter being identified or configured.
859	FDDI adapter being identified or configured.
85c	Token-ring high-performance LAN adapter being identified or configured.
861	Optical adapter being identified or configured.
862	Block multiplexer channel adapter being identified or configured.
865	ESCON channel adapter or emulator being identified or configured.
866	SCSI adapter being identified or configured.
867	Async expansion adapter being identified or configured.
868	SCSI adapter being identified or configured.
869	SCSI adapter being identified or configured.
870	Serial disk drive adapter being identified or configured.
871	Graphics subsystem adapter being identified or configured.
872	Grayscale graphics adapter being identified or configured.
874	Color graphics adapter being identified or configured.
875	Vendor generic communication adapter being configured.
876	8-bit color graphics processor being identified or configured.
877	POWER Gt3™/POWER Gt4™ being identified or configured.
878	POWER Gt4 graphics processor card being configured.
879	24-bit color graphics card, MEV2 being configured.
880	POWER Gt1™ adapter being identified or configured.
887	Integrated Ethernet adapter being identified or configured.
889	SCSI adapter being identified or configured.
890	SCSI-2 differential fast/wide and single-ended fast/wide adapter/A being configured.
891	Vendor SCSI adapter being identified or configured.

Table 460. 3-digit AIX configuration program progress codes (continued)

Progress code	Description/Action
892	Vendor display adapter being identified or configured.
893	Vendor LAN adapter being identified or configured.
894	Vendor async/communications adapter being identified or configured.
895	Vendor IEEE 488 adapter being identified or configured.
896	Vendor VME bus adapter being identified or configured.
897	S/370™ channel emulator adapter being identified or configured.
898	POWER Gt1x graphics adapter being identified or configured.
899	3490 attached tape drive being identified or configured.
89c	A multimedia SCSI CD-ROM being identified or configured.
900	GXT110P graphics adapter being identified or configured.
901	Vendor SCSI device being identified or configured.
902	Vendor display device being identified or configured.
903	Vendor async device being identified or configured.
904	Vendor parallel device being identified or configured.
905	Vendor other device being identified or configured.
908	POWER GXT1000™ graphics subsystem being identified or configured.
910	1/4 GB Fiber Channel/266 standard adapter being identified or configured.
911	Fiber Channel/1063 Adapter Short Wave® being configured.
912	2.0 GB SCSI-2 differential disk drive being identified or configured.
913	1.0 GB differential disk drive being identified or configured.
914	5 GB 8-mm differential tape drive being identified or configured.
915	4 GB 4-mm tape drive being identified or configured.
916	Non-SCSI vendor tape adapter being identified or configured.
917	A 2.0 GB 16-bit differential SCSI disk drive being identified or configured.
918	A 2.0 GB 16-bit single-ended SCSI disk drive being identified or configured.
920	Bridge box being identified or configured.
921	101 keyboard being identified or configured.
922	102 keyboard being identified or configured.
923	Kanji keyboard being identified or configured.
924	Two-button mouse being identified or configured.
925	Three-button mouse being identified or configured.
926	5083 tablet being identified or configured.
927	5083 tablet being identified or configured.
928	Standard speaker being identified or configured.
929	Dials being identified or configured.
930	Lighted program function keys (LPFK) being identified or configured.

Table 460. 3-digit AIX configuration program progress codes (continued)

Progress code	Description/Action
931	IP router being identified or configured.
933	Async planar being identified or configured.
934	Async expansion drawer being identified or configured.
935	3.5-inch diskette drive being identified or configured.
936	5.25-inch diskette drive being identified or configured.
937	An HIPPI adapter being configured.
938	Serial HIPPI PCI adapter being configured.
942	POWER GXT 100 graphics adapter being identified or configured.
943	A 3480 or 3490 control unit attached to a System/370™ Channel Emulator/A adapter are being identified or configured.
944	100 MB ATM adapter being identified or configured.
945	1.0 GB SCSI differential disk drive being identified or configured.
946	Serial port 3 adapter being identified or configured.
947	A 730 MB SCSI disk drive being configured.
948	Portable disk drive being identified or configured.
949	Unknown direct bus-attach device being identified or configured.
950	Missing SCSI device being identified or configured.
951	670 MB SCSI disk drive being identified or configured.
952	355 MB SCSI disk drive being identified or configured.
953	320 MB SCSI disk drive being identified or configured.
954	400® MB SCSI disk drive being identified or configured.
955	857 MB SCSI disk drive being identified or configured.
956	670 MB SCSI disk drive electronics card being identified or configured.
957	120 MB DBA disk drive being identified or configured.
958	160 MB DBA disk drive being identified or configured.
959	160 MB SCSI disk drive being identified or configured.
960	1.37 GB SCSI disk drive being identified or configured.
964	Internal 20 GB 8-mm tape drive identified or configured.
968	1.0 GB SCSI disk drive being identified or configured.
970	Half-inch, 9-track tape drive being identified or configured.
971	150 MB 1/4-inch tape drive being identified or configured.
972	2.3 GB 8-mm SCSI tape drive being identified or configured.
973	Other SCSI tape drive being identified or configured.
974	CD-ROM drive being identified or configured.
975	An optical disk drive being identified or configured.
977	M-Audio capture and playback adapter being identified or configured.
981	540 MB SCSI-2 single-ended disk drive being identified or configured.
984	1 GB 8-bit disk drive being identified or configured.

Table 460. 3-digit AIX configuration program progress codes (continued)

Progress code	Description/Action
985	M-Video capture adapter being identified or configured.
986	2.4 GB SCSI disk drive being identified or configured.
987	An enhanced SCSI CD-ROM drive being identified or configured.
989	200 MB SCSI disk drive being identified or configured.
990	2.0 GB SCSI-2 single-ended disk drive being identified or configured.
991	525 MB 1/4-inch cartridge tape drive being identified or configured.
994	5 GB 8-mm tape drive being identified or configured.
995	1.2GB 1/4-inch cartridge tape drive being identified or configured.
996	A single-port, multiprotocol communications adapter being identified or configured.
997	FDDI adapter being identified or configured.
998	2.0 GB 4-mm tape drive being identified or configured.
999	7137 or 3514 disk array subsystem being configured.
D46	Token-ring cable.
D81	T2 Ethernet adapter being configured.

Four-digit AIX configuration program progress codes

Some systems might produce 4-digit codes. Table 461 provides descriptions of the 4-digit numbers and characters that display on the operator panel and descriptions of the location codes used to identify a particular item.

Notes:

1. All current 4-digit AIX progress codes are listed below. Many are for hardware that is not used in the DS8000 product. In such cases, contact the next level of support.
2. If the leftmost digit of a 4-digit code is 0, use the three rightmost digits and refer to Table 460 on page 1612.

Table 461. 4-digit AIX configuration program progress codes

Progress code	Description/Action
2001	Dynamic LPAR CPU removal.
2002	Dynamic LPAR memory addition.
2003	Dynamic LPAR memory removal.
2004	DLPAR maximum memory size too large.
2010	HTX miscompare.
2011	Configuring device model 2107 fcp.
2012	Configuring device model 2107 iscsi.
2013	Configuring MR-1750 (device model 1750) fcp.
2014	Configuring MR-1750 (device model 1750) iscsi.
2015	Configuring SVC (device model 2145) fcp.
2016	Configuring SVCCISCO (device model 2062) fcp.

Table 461. 4-digit AIX configuration program progress codes (continued)

Progress code	Description/Action
2017	Configuring SVCCISCO (device model 2062) iscsi.
2018	Configuring virtual management channel driver.
2019	Configuring vty server.
201b	Configuring virtual SCSI optical.
2020	Configuring Infiniband ICM kernel component.
2021	Configuring TCP Infiniband interface kernel component.
2512	Configuring PCI-X DDR quad channel Ultra320 SCSI RAID adapter.
2513	Configuring PCI-X DDR quad channel Ultra320 SCSI RAID adapter.
2514	Configuring PCI-X DDR quad channel Ultra320 SCSI RAID adapter.
2520	PCI dual-channel Ultra-3 SCSI adapter being identified or configured.
2522	PCI-X dual-channel Ultra320 SCSI adapter.
2523	PCI-X Ultra320 SCSI RAID adapter.
2526	PCI-X Ultra320 SCSI RAID battery pack.
2527	PCI-X quad-channel U320 SCSI RAID adapter.
2528	PCI-X dual-channel Ultra320 SCSI adapter.
2529	PCI-X dual-channel Ultra320 SCSI RAID adapter.
252B	PCI-X DDR dual-channel Ultra320 SCSI RAID adapter.
252D	PCI-X DDR dual-channel Ultra320 SCSI RAID adapter.
2530	10/100 Mbps Ethernet PCI Adapter II being configured.
2535	4-Port 10/100/1000 Base-TX Ethernet PCI-X adapter being configured.
2547	Generic 522 bites per sector SCSI JBOD (not osdisk) disk drive.
254E	Fibre Channel expansion card.
2562	Keyboard/mouse attachment card-PCI being configured.
2564	Keyboard/mouse attachment card-PCI being configured.
2566	USB 3.5 inch micro diskette drive.
2568	USB CD-ROM, generic.
2571	2-Port PCI asynchronous EIA-232 adapter.
2581	1 GB iSCSI TOE PCI-X adapter is being configured (copper connector).
2582	iSCSI protocol device associated with an iSCSI adapter being configured.
2583	1 GB iSCSI TOE PCI-X adapter being configured (copper connector).
2590	IDE CD-ROM drive.
2591	IDE DVD-ROM drive being configured.
2592	IDE DVD-ROM drive being configured.
2593	IDE DVD-ROM drive being configured.
25A0	I/O planar control logic for IDE devices.
25B9	Ethernet adapter (fiber).
25C2	Dual-port gigabit SX Ethernet PCI-X adapter.

Table 461. 4-digit AIX configuration program progress codes (continued)

Progress code	Description/Action
25C3	10/100/1000 Base-TX dual-port PCI-adapter.
25C4	Broadcom dual-port Gpbs Ethernet PCI-X adapter.
25F8	Ethernet adapter (copper).
2600	PCI 64-bit Fibre Channel arbitrated loop adapter being configured.
2601	PCI 64-bit Fibre Channel arbitrated loop adapter being configured.
2631	Integrated IDE controller.
2640	IDE disk drive, 2.5 inch.
2D01	PCI-X quad channel U320 SCSI RAID battery pack.

AIX diagnostics load-progress codes

This section describes AIX diagnostics load-progress indicators.

Note: Some systems might produce 4-digit codes. If the leftmost digit of a 4-digit code is 0, use the three rightmost digits.

Progress code	Description/Action
c00	AIX Install/Maintenance loaded successfully.
c01	Insert the first diagnostic diskette.
c02	Diskettes inserted out of sequence.
c03	The wrong diskette is in diskette drive.
c04	The loading stopped with an irrecoverable error.
c05	A diskette error occurred.
c06	The **rc.boot** configuration shell script is unable to determine type of boot.
c07	Insert the next diagnostic diskette.
c08	RAM file system started incorrectly.
c09	The diskette drive is reading or writing a diskette.
c20	An unexpected halt occurred, and the system is configured to enter the kernel debug program instead of entering a system dump.
c21	The **ifconfig** command was unable to configure the network for the client network host.
c22	The **tftp** command was unable to read client's ClientHostName.info file during a client network boot.
c24	Unable to read client's ClientHostName.info file during a client network boot.
c25	Client did not mount remote miniroot during network install.
c26	Client did not mount the /usr file system during the network boot.
c29	The system was unable to configure the network device.
c31	Select the console display for the diagnostics. To select no console display, set the key mode switch to Normal, and then to Service. The diagnostic programs will load and run the diagnostics automatically. If you continue to get this message, check the cables and make sure you are using the serial port.
c32	A directly attached display (HFT) was selected.

Progress code	Description/Action
c33	A TTY terminal attached to serial ports S1 or S2 was selected.
c34	A file was selected. The console messages store in a file.
c35	No console found.
c40	Configuration files are being restored.
c41	Could not determine the boot type or device.
c42	Extracting data files from diskette.
c43	Cannot access the boot/install tape.
c44	Initializing installation database with target disk information.
c45	Cannot configure the console.
c46	Normal installation processing.
c47	Could not create a physical volume identifier (PVID) on disk.
c48	Prompting you for input.
c49	Could not create or form the JFS log.
c50	Creating root volume group on target disks.
c51	No paging devices were found.
c52	Changing from RAM environment to disk environment.
c53	Not enough space in the /tmp directory to do a preservation installation.
c54	Installing either BOS or additional packages.
c55	Could not remove the specified logical volume in a preservation installation.
c56	Running user-defined customization.
c57	Failure to restore BOS.
c58	Displaying message to turn the key.
c59	Could not copy either device special files, device ODM, or volume group information from RAM to disk.
c61	Failed to create the boot image.
c62	Loading platform dependent debug files.
c63	Loading platform dependent data files.
c64	Failed to load platform dependent data files.
c70	Problem Mounting diagnostic CD-ROM disc.
c99	Diagnostics have completed. This code is only used when there is no console.
F*xx*	(*xx* is any number) Refer to Firmware chapter of the service manual.

Dump progress indicators (Dump status codes)

This section describes dump progress indicators.

The following dump progress codes, are part of an 888 Type 102 message.

Note: When a lowercase c is listed, it displays in the lower half of the character position. Some systems produce 4-digit codes, the two leftmost positions can have blanks or zeros. Use the two rightmost digits.

Progress code	Description/Action
0c0	The dump completed successfully.
0c1	The dump failed due to an I/O error.
0c2	A dump, requested by the user, is started.
0c3	The dump is inhibited.
0c4	The dump device is not large enough.
0c5	The dump did not start, or the dump crashed.
0c6	Dumping to a secondary dump device.
0c7	Reserved.
0c8	The dump function is disabled.
0c9	A dump is in progress.
0cc	Unknown dump failure.

Crash codes

This section describes AIX crash codes.

Note: Some systems might produce 4-digit codes. If the leftmost digit of a 4-digit code is 0, use the three rightmost digits.

The crash codes that follow are part of an 888 Type 102 message s(see "MAP4240 888 error code on HMC LPAR virtual control panel" on page 678). These crash codes are grouped into three categories:

- Category 1 - Dump analysis is the appropriate first action in Problem Determination. Call the next level of support.
- Category 2 - Dump analysis most likely will not aid in Problem Determination. Call the next level of support.
- Category 3 - Both software and hardware support might be needed in Problem Determination. Call the next level of support.

Table 462. Category 1 crash progress code

Progress code	Description/Action
300	Data storage interrupt from the processor.
32*x*	Data storage interrupt because of an I/O exception from IOCC.
38*x*	Data storage interrupt because of an I/O exception from SLA.
400	Instruction storage interrupt.
700	Program interrupt.

Table 463. Category 2 crash progress code

Progress code	Description/Action
200	Machine check because of a memory bus error.
201	Machine check because of a memory timeout.
202	Machine check because of a memory card failure.
203	Machine check because of an out of range address.
204	Machine check because of an attempt to write to ROS.
205	Machine check because of an uncorrectable address parity.

Table 463. Category 2 crash progress code (continued)

Progress code	Description/Action
206	Machine check because of an uncorrectable ECC error.
207	Machine check because of an unidentified error.
208	Machine check due to an L2 uncorrectable ECC.
500	External interrupt because of a scrub memory bus error.
501	External interrupt because of an unidentified error.
51*x*	External interrupt because of a DMA memory bus error.
52*x*	External interrupt because of an IOCC channel check.
53*x*	External interrupt from an IOCC bus timeout; *x* represents the IOCC number.
54*x*	External interrupt because of an IOCC keyboard check.
800	Floating point is not available.

Table 464. Category 3 crash progress code

Progress code	Description/Action
000	Unexpected system interrupt.
558	There is not enough memory to continue the IPL.
600	AIX 4.3.3.3 and above: Alignment Interrupt.
605	AIX 4.3.3.3 and above: AIX has crashed because the Portability Assist Layer (PAL) for this machine type has detected a problem.

(C1*xxxxxx*) Service processor progress codes (checkpoints)

C1*xxxxxx* progress codes, or checkpoints, offer information about the initialization of both the service processor and the server.

For more information about using progress codes, see "Using progress codes" on page 1663.

Table 465. (C1xxxxxx) Service processor progress codes (checkpoints)

Progress code	Description/Action	Failing items
C10010*xx*	Pre-standby.	"FSPSPC1" on page 395
C1001F00	Pre-standby: Starting initial transition file.	"FSPSPC1" on page 395
C1001F*xx*	Pre-standby initialization in progress.	"FSPSPC1" on page 395
C1001FFF	Pre-standby: Completed initial transition file	"FSPSPC1" on page 395
C1009*x*02	Hardware object manager (HOM): Build cards IPL step in progress.	"FSPSPC1" on page 395
C1009*x*04	Hardware object manager (HOM): Build processors IPL step in progress.	"FSPSPC1" on page 395
C1009*x*06	Hardware object manager (HOM): Build chips IPL step in progress.	"FSPSPC1" on page 395
C1009*x*08	Hardware object manager (HOM): Build HOM IPL step in progress.	"FSPSPC1" on page 395

Table 465. (C1xxxxxx) Service processor progress codes (checkpoints) (continued)

Progress code	Description/Action	Failing items
C1009*x*10	Hardware object manager (HOM): Configure HOM IPL step in progress.	"FSPSPC1" on page 395
C1009*x*12	Hardware object manager (HOM): Initialize HOM IPL step in progress.	"FSPSPC1" on page 395
C1009*x*18	Hardware object manager (HOM): Validate HOM IPL step in progress.	"FSPSPC1" on page 395
C1009*x*1B	GARD IPL step in progress.	"FSPSPC1" on page 395
C1009*x*20	Get LBIST values IPL step in progress.	"FSPSPC1" on page 395
C1009*x*23	Clock test IPL step in progress.	"FSPSPC1" on page 395
C1009*x*28	Frequency control IPL step in progress.	"FSPSPC1" on page 395
C1009*x*30	Initialize JTAG IPL step in progress.	"FSPSPC1" on page 395
C1009*x*38	Mask attentions IPL step in progress.	"FSPSPC1" on page 395
C1009*x*40	CEC flush IPL step in progress.	"FSPSPC1" on page 395
C1009*x*48	Scan interface basic assurance tests (SIBATs) IPL step in progress.	"FSPSPC1" on page 395
C1009*x*50	LBIST IPL step in progress.	"FSPSPC1" on page 395
C1009*x*58	ABIST IPL step in progress.	"FSPSPC1" on page 395
C1009*x*60	Asset protection IPL step in progress.	"FSPSPC1" on page 395
C1009*x*68	Wire test IPL step in progress.	"FSPSPC1" on page 395
C1009*x*70	Memory size IPL step in progress.	"FSPSPC1" on page 395
C1009*x*78	Long scan initialization IPL step in progress.	"FSPSPC1" on page 395
C1009*x*80	Start clocks IPL step in progress.	"FSPSPC1" on page 395
C1009*x*88	SCOM initialization IPL step in progress.	"FSPSPC1" on page 395
C1009*x*90	Run interface alignment procedure IPL step in progress.	"FSPSPC1" on page 395
C1009*x*98	DRAM initialization IPL step in progress.	"FSPSPC1" on page 395
C1009*x*9B	Random data test IPL step in progress.	"FSPSPC1" on page 395
C1009*x*A0	Memory diagnostic IPL step in progress.	"FSPSPC1" on page 395

Table 465. (C1xxxxxx) Service processor progress codes (checkpoints) (continued)

Progress code	Description/Action	Failing items
C1009*x*A8	Dump initialization IPL step in progress.	"FSPSPC1" on page 395
C1009*x*B0	Processor runtime diagnostics (PRD) IPL step in progress.	"FSPSPC1" on page 395
C1009*x*B8	Enable machine check IPL step in progress.	"FSPSPC1" on page 395
C1009*x*C0	Message passing wait in progress.	"FSPSPC1" on page 395
C1009*x*C8	Message passing start in progress.	"FSPSPC1" on page 395
C100C1*xx*	Power control.	"FSPSPC1" on page 395
C100D009	Licensed internal code (LIC - system) running initialization.	
C1011F00	Pre-standby: Starting independent initial transition file (primary/secondary).	"FSPSPC1" on page 395
C1011FFF	Pre-standby: Completed independent initial transition file (primary/secondary).	"FSPSPC1" on page 395
C1021F00	Pre-standby: Starting primaryInitial transition file (primary).	"FSPSPC1" on page 395
C1021FFF	Pre-standby: Completed primaryInitial transition file (primary).	"FSPSPC1" on page 395
C1031F00	Pre-standby: Starting secondaryInitial transition file (secondary).	"FSPSPC1" on page 395
C1031FFF	Pre-standby: Completed secondaryInitial transition file (secondary).	"FSPSPC1" on page 395
C103A1*xx*	Hypervisor code modules are being transferred to system storage.	"FSPSPC1" on page 395
C103A2*xx*	Hypervisor data areas are being built in system storage.	"FSPSPC1" on page 395
C103A3*xx*	Hypervisor data structures are being transferred to system storage.	"FSPSPC1" on page 395
C103A400	Special purpose registers are loaded and instructions have been started on the system processors.	"FSPSPC1" on page 395
C103A401	Instructions have been started on the system processors.	"FSPSPC1" on page 395
C103C2*xx*	The service processor is waiting for the batteries in the uninterruptible power supply (UPS) to charge, prior to automatic power-on IPL. The last byte (*xx*) will increment while waiting for the UPS batteries.	"FSPSPC1" on page 395
C1041F00	Pre-standby: Starting GardedInitial transition file (secondary).	"FSPSPC1" on page 395
C1041FFF	Pre-standby: Completed GardedInitial transition file (secondary).	"FSPSPC1" on page 395
C1112000	Power on: Starting Standby-PowerOnTransition transition file (primary).	"FSPSPC1" on page 395
C11120FF	Power on: Completed Standby-PowerOnTransition transition file (primary).	"FSPSPC1" on page 395

Table 465. (C1xxxxxx) Service processor progress codes (checkpoints) (continued)

Progress code	Description/Action	Failing items
C1122000	Power on: Starting PowerOnTransition-PoweredOn transition file (primary).	"FSPSPC1" on page 395
C11220FF	Power on: Completed PowerOnTransition-PoweredOn transition file (primary).	"FSPSPC1" on page 395
C1132000	Power on: Starting PoweredOn-IplTransition transition file (primary).	"FSPSPC1" on page 395
C11320FF	Power on: Completed PoweredOn-IplTransition transition file (primary).	"FSPSPC1" on page 395
C116C2*xx*	System power interface is listening for power fault events from SPCN. The last byte (*xx*) will increment up from 00 to 1F every second while it waits.	"FSPSPC1" on page 395
C1202000	IPL transition: Starting PowerOn/IplTransition-Ipl transition file (primary).	"FSPSPC1" on page 395
C12020FF	IPL transition: Completed PowerOn/IplTransition-Ipl transition file (primary).	"FSPSPC1" on page 395
C12040*xx*	IPL lock time left until expiration. The last byte (*xx*) will count down as the IPL lock time runs out (FF-00).	"FSPSPC1" on page 395
C1212000	IPL transition: Starting Standard/IplTransition-Ipl transition file (primary).	"FSPSPC1" on page 395
C12120FF	IPL transition: Completed Standard/IplTransition-Ipl transition file (primary).	"FSPSPC1" on page 395
C1222000	IPL transition: Starting Flash/IplTransition-Ipl transition file (primary).	"FSPSPC1" on page 395
C12220FF	IPL transition: Completed Flash/IplTransition-Ipl transition file (primary).	"FSPSPC1" on page 395
C1232000	IPL transition: Starting PostDump/IplTransition-Ipl transition file (primary).	"FSPSPC1" on page 395
C12320FF	IPL transition: Completed PostDump/IplTransition-Ipl transition file (primary).	"FSPSPC1" on page 395
C1242000	IPL transition: Starting Idle/IplTransition-Ipl transition file (secondary).	"FSPSPC1" on page 395
C12420FF	IPL transition: Completed Idle/IplTransition-Ipl transition file (secondary).	"FSPSPC1" on page 395
C1252000	IPL transition: Starting Standby/IplTransition-Ipl transition file (secondary).	"FSPSPC1" on page 395
C12520FF	IPL transition: Completed Standby/IplTransition-Ipl transition file (secondary).	"FSPSPC1" on page 395
C1382000	IPL: Starting HostStarted-BcuSwitched transition file (primary).	"FSPSPC1" on page 395
C13820FF	IPL: Completed HostStarted-BcuSwitched transition file (primary).	"FSPSPC1" on page 395
C1392000	IPL: Starting BcuSwitched-Runtime transition file (primary).	"FSPSPC1" on page 395
C13920FF	IPL: Completed BcuSwitched-Runtime transition file (primary).	"FSPSPC1" on page 395
C1402000	IPL: Starting Normal/fast/Ipl-HostStarted transition file (primary).	"FSPSPC1" on page 395

Table 465. (C1xxxxxx) Service processor progress codes (checkpoints) (continued)

Progress code	Description/Action	Failing items
C14020FF	IPL: Completed Normal/fast/Ipl-HostStarted transition file (primary).	"FSPSPC1" on page 395
C1412000	IPL: Starting Normal/slow/Ipl-HostStarted transition file (primary).	"FSPSPC1" on page 395
C14120FF	IPL: Completed Normal/slow/Ipl-HostStarted transition file (primary).	"FSPSPC1" on page 395
C1422000	IPL: Starting PostDump/Ipl-HostStarted transition file (primary).	"FSPSPC1" on page 395
C14220FF	IPL: Completed PostDump/Ipl-HostStarted transition file (primary).	"FSPSPC1" on page 395
C1432000	IPL: Starting Ipl-IdleTransition transition file (secondary).	"FSPSPC1" on page 395
C14320FF	IPL: Completed Ipl-IdleTransition transition file (secondary).	"FSPSPC1" on page 395
C1442000	IPL: Starting IdleTransition-Idle transition file (secondary).	"FSPSPC1" on page 395
C14420FF	IPL: Completed IdleTransition-Idle transition file (secondary).	"FSPSPC1" on page 395
C1452000	IPL: Starting Ipl-StandbyVerificationTransition transition file (secondary).	"FSPSPC1" on page 395
C14520FF	IPL: Completed Ipl-StandbyVerificationTransition transition file (secondary).	"FSPSPC1" on page 395
C1462000	IPL: Starting StandbyVerificationTransition-Standby transition file (secondary).	"FSPSPC1" on page 395
C14620FF	IPL: Completed StandbyVerificationTransition-Standby transition file (secondary).	"FSPSPC1" on page 395
C162E*xyy*	VPD is being collected, where *x* indicates the phase of VPD collection and *yy* indicates the type of device from which VPD is being collected.	"FSPSPC1" on page 395
C1802000	Termination: Starting TerminationTransition-Termination transition file (primary).	"FSPSPC1" on page 395
C18020FF	Termination: Completed TerminationTransition-Termination transition file (primary).	"FSPSPC1" on page 395
C1902000	Power off: Starting Any-Dpo transition file (primary).	"FSPSPC1" on page 395
C19020FF	Power off: Completed Any-Dpo transition file (primary).	"FSPSPC1" on page 395
C1912000	Power off: Starting Any-PowerOffTransition transition file (primary).	"FSPSPC1" on page 395
C19120FF	Power off: Completed Any-PowerOffTransition transition file (primary).	"FSPSPC1" on page 395
C1922000	Power off: Starting PowerOffTransition-PoweredOff transition file (primary).	"FSPSPC1" on page 395
C19220FF	Power off: Completed PowerOffTransition-PoweredOff transition file (primary).	"FSPSPC1" on page 395
C1C02000	Secondary verification: Starting Standby-StandbyVerification transition file (primary).	"FSPSPC1" on page 395

Table 465. (C1xxxxxx) Service processor progress codes (checkpoints) (continued)

Progress code	Description/Action	Failing items
C1C020FF	Secondary verification: Completed Standby-StandbyVerification transition file (primary).	"FSPSPC1" on page 395
C1C12000	Secondary verification: Starting StandbyVerification-Standby transition file (primary).	"FSPSPC1" on page 395
C1C120FF	Secondary verification: Completed StandbyVerification-Standby transition file (primary).	"FSPSPC1" on page 395
C1C22000	Secondary verification: Starting Runtime-secondaryVerification transition file (primary).	"FSPSPC1" on page 395
C1C220FF	Secondary verification: Completed Runtime-secondaryVerification transition file (primary).	"FSPSPC1" on page 395
C1C32000	Secondary verification: Starting secondaryVerification-Runtime transition file (primary).	"FSPSPC1" on page 395
C1C320FF	Secondary verification: Completed secondaryVerification-Runtime transition file (primary).	"FSPSPC1" on page 395
C1D22000	Dump: Starting DumpTransition-Dump transition file (primary).	"FSPSPC1" on page 395
C1D220FF	Dump: Completed DumpTransition-Dump transition file (primary).	"FSPSPC1" on page 395
C1E82000	Exit error: Starting ExitError/Ipl transition file (primary).	"FSPSPC1" on page 395
C1E820FF	Exit error: Completed ExitError/Ipl transition file (primary).	"FSPSPC1" on page 395
C1F22000	Reset/reload: Starting Reset/Ipl-LimitedRuntime transition file (primary).	"FSPSPC1" on page 395
C1F220FF	Reset/reload: Completed Reset/Ipl-LimitedRuntime transition file (primary).	"FSPSPC1" on page 395
C1F32000	Reset/reload: Starting Reset/Ipl-Runtime transition file (primary).	"FSPSPC1" on page 395
C1F320FF	Reset/reload: Completed Reset/Ipl-Runtime transition file (primary).	"FSPSPC1" on page 395
C1F42000	Reset/reload: Starting Reset/Ipl-TermTransition transition file (primary).	"FSPSPC1" on page 395
C1F420FF	Reset/reload: Completed Reset/Ipl-TermTransition transition file (primary).	"FSPSPC1" on page 395

(C2*xxxxxx*) Virtual service processor progress codes

This section describes the (C2*xxxxxx*) virtual service processor progress codes.

The C2*xxxxxx* progress codes indicate the progress of a partition IPL that is controlled by the virtual service processor. The virtual service processor can start a variety of operating systems, and some codes below do not apply to the IPL path of a particular operating system. The virtual service processor progress codes end after the environment setup completes and the specific operating system code continues the IPL.

Table 466. (C2xxxxxx) Virtual service processor progress codes

Progress Code	Description/Action
C2001*xxx*	Early IPL Initialization Phase
C2001000	Partition auto-IPL during a platform IPL
C2001010	IPL source
C2001100	Adding partition resources to the secondary configuration
C20011FF	Partition resources added successfully
C2001200	Checking if IPL is allowed
C20012FF	Partition IPL is allowed to proceed
C2001300	Initializing ISL roadmap
C20013FF	ISL roadmap initialized successfully
C2001400	Initializing SP™ Communication Area #1
C2001410	Initializing IPL parms
C20014FF	IPL parms initialized successfully
C2002*xxx*	SPCN Tower Power On Phase
C2002100	Power on SPCN racks
C2002110	Issuing a rack power on command
C200211F	Rack power on command successful
C20021FF	SPCN rack power on phase complete
C2002200	Begin acquiring slot locks
C20022FF	End acquiring slot locks
C2002300	Begin acquiring VIO slot locks
C20023FF	End acquiring VIO slot locks
C2002400	Begin powering on slots
C2002450	Waiting for power on of slots to complete
C20024FF	End powering on slots
C2002500	Begin power on VIO slots
C20025FF	End powering on VIO slots
C2003*xxx*	Bus Unit ISL Phase
C2003100	Validating ISL command parameters
C2003111	Waiting for Bus object to become operational
C2003112	Waiting for bus unit to become disabled
C2003115	Waiting for creation of bus object
C2003150	Sending ISL command to bus unit
C20031FF	Waiting for ISL command completion
C20032FF	ISL command complete successfully
C2003300	Start SoftPOR of a failed ISL slot
C2003350	Waiting for SoftPOR of a failed ISL slot
C20033FF	Finish SoftPOR of a failed ISL slot
C2004*xxx*	Load Source Device Connection Phase
C2004100	Waiting for load source device to enlist

Table 466. (C2xxxxxx) Virtual service processor progress codes (continued)

Progress Code	Description/Action
C2004200	Load source device has enlisted
C2004300	Preparing connection to load source device
C20043FF	Load source device is connected
C2005*xxx*	Main Store Dump Phase
C2005100	Preparing to initiate MSD phase
C2005110	Loading SID 82 from load source device
C2005115	MSD Phase I
C2005120	Writing processor registers into SID 82
C2005125	MSD Phase II
C2005130	Writing mainstore pages to the load source device
C2005133	Writing hardware page table to the load source device
C2005135	MSD Phase III
C2005140	Storing (final) SID 82 back to the load source device
C2005150	Allocating the hardware page table
C20051FF	MSD processing complete
C2006*xxx*	Load System Licensed Internal Code from Load Source Phase
C2006000	Locating First LID information on the loadsource
C2006005	Clearing all partition main store
C2006010	Locating Next LID information on the loadsource
C2006020	Verifying LID information
C2006030	Priming LP Configuration LID
C2006040	Preparing to initiate LID load from loadsource
C2006050	LP Configuration LID primed successfully
C2006060	Waiting for LID load to complete
C2006100	LID load completed successfully
C2006200	Loading raw kernel memory image
C20062FF	Loading raw kernel memory image completed successfully
C2007*xxx*	Load Source Device Disconnection Phase
C2007100	Disconnecting from load source device
C2007103	Removing load source device from LID Manager object
C2007105	Preparing to remove the load source IP from the primary partition
C2007110	Preparing to remove the load source IOP from the primary partition
C2007120	Non-load source IOP has been successfully removed from the primary partition
C2007125	Load source IOP has been successfully removed from the primary partition
C2007130	Calling fatal error on the Transport Manager bus unit object
C20071FF	Load source is successfully disconnected
C2008*xxx*	Start Processors Phase
C2008040	Begin transfer slot locks to partition

Table 466. (C2xxxxxx) Virtual service processor progress codes (continued)

Progress Code	Description/Action
C2008060	End transfer slot locks to partition
C2008080	Begin transfer VIO slot locks to partition
C20080A0	End transfer VIO slot locks to partition
C20080FF	Hypervisor™ low level session manager object is ready
C2008100	Initializing SP Communication Area #2
C2008104	Loading data structures into mainstore
C2008110	Initializing event paths
C2008120	Starting processors
C2008130	Begin associate of serial ports
C2008138	Associating serial ports to the RPA partition
C200813F	End associate of serial ports
C20081FF	Processors started successfully, now waiting to receive the continue acknowledgement from System Licensed Internal Code
C2008200	Continue acknowledgement received from System Licensed Internal Code
C20082FF	VSP IPL complete successfully

C3*xxxxxx* IPL status progress codes

This section describes the C3*xxxxxx* IPL status progress codes.

For use by service providers.

If a server stalls during an initial program load (IPL) of the operating system, it indicates a problem with the operating system code or hardware configuration. In this case, your only service action is to call your next level of support. If the problem is in the operating system code or hardware configuration, exchanging any hardware FRU will not fix the problem.

Table 467 contains reference information that gives a quick overview of the C3*xxxxxx* IPL status progress codes and the function associated with each. Please note that at points multiple tasks may be happening at the same time, so the progress code on the panel may not reflect the code module having problems. The mode of the IPL (A, B, or D) determines, in part, which status SRCs are displayed.

The table of C3*xxxxxx* IPL status progress codes uses the following format:

- The **Progress code** column contains characters that represent a particular action your server performs during initialization of the supported operating system.
- The **Description/Action** column identifies the action or procedure that produced the progress code.

For more information about using progress codes, see "Using progress codes" on page 1663.

Table 467. C3xxxxxx IPL status progress codes

Progress code	Description/Action
C3*xxxxxx*	System processor or main storage diagnostic in progress.

C5*xxxxxx* IPL status progress codes

This section describes the C5*xxxxxx* IPL status progress codes.

For use by service providers.

If a server stalls during an initial program load (IPL) of the operating system, it indicates a problem with the operating system code or hardware configuration. In this case, your only service action is to call your next level of support. If the problem is in the operating system code or hardware configuration, exchanging any hardware FRU will not fix the problem.

Table 468 contains reference information that gives a quick overview of the C5*xxxxxx* IPL status progress codes and the function associated with each. Please note that at points multiple tasks may be happening at the same time, so the progress code on the panel may not reflect the code module having problems. The mode of the IPL (A, B, or D) determines, in part, which status SRCs are displayed.

The table of C5*xxxxxx* IPL status progress codes uses the following format:

- The **Progress code** column contains characters that represent a particular action your server performs during initialization of the supported operating system.
- The **Description/Action** column identifies the action or procedure that produced the progress code.

For more information about using progress codes, see "Using progress codes" on page 1663.

Table 468. C5xxxxxx IPL status progress codes

Progress code	Description/Action
C5*xxxxxx*	Licensed internal code (LIC) system hardware initialization.
C500C92B	Waiting for console device - error condition only if console not found.

C6*xxxxxx* IPL status progress codes

This section describes the C6*xxxxxx* IPL status progress codes.

For use by service providers.

If a server stalls during an initial program load (IPL) of the operating system, it indicates a problem with the operating system code or hardware configuration. In this case, your only service action is to call your next level of support. If the problem is in the operating system code or hardware configuration, exchanging any hardware FRU will not fix the problem.

Table 469 on page 1638 contains reference information that gives a quick overview of the C6*xxxxxx* IPL status progress codes and the function associated with each. Please note that at points multiple tasks may be happening at the same time, so the progress code on the panel may not reflect the code module having problems. The mode of the IPL (A, B, or D) determines, in part, which status SRCs are displayed.

The table of C6*xxxxxx* IPL status progress codes uses the following format:

- The **Progress code** column contains characters that represent a particular action your server performs during initialization of the supported operating system.

- The **Description/Action** column identifies the action or procedure that produced the progress code.

For more information about using progress codes, see "Using progress codes" on page 1663.

Table 469. C6xxxxxx IPL status progress codes

Progress code	Description/Action
C6*xx*1800	Licensed internal code (LIC) SPCN setup.
C60039*xx*	The typical sequence for an A/B/C mode IPL is 3900, 3910, 3911 (warm IPL only), 3912 (warm IPL only), 3913, 3915, 3917, and then other system licensed internal code (LIC) IPL progress codes. The others are seen when an IOP flash update occurs, usually on a D mode and possibly on a side (source) switch between A and B or C.
C6003900	SP transfer control of Bus 1 (BCU switch) to licensed internal code (LIC) is complete and LIC machine facilities component is initialized. IPL of Bus 1 is in progress.
C6003910	Licensed internal code (LIC) has initiated PCI bus reset to all Bus 1 devices, except the SP.
C6003911	Licensed internal code (LIC) has initiated self-test of all Bus 1 devices, except the SP.
C6003912	Licensed internal code (LIC) is initiating IPL of the load source IOP, waiting for the IOP to signal internal reset complete (immediate status acknowledge bit set to *1*).
C6003913	Licensed internal code (LIC) is initializing the load source IOP messaging functions.
C6003914	Licensed internal code (LIC) has detected a load source IOP problem and is resetting the IOP, or the IOP has requested a reset after an internal flash memory (LIC) update.
C6003915	Licensed internal code (LIC) has initiated the load source IOP self-load.
C6003916	During self-load, the load source IOP signalled licensed internal code (LIC) that it is initiating an internal flash memory update or other critical function.
C6003917	The load source IOP has completed IPL of its operational load. Licensed internal code (LIC) is waiting for the IOP to report its attached IO resources. This is the last progress code normally displayed regarding load source IPL.
C6004001	Static paging.
C6004002	Start limited paging. Call LID manager.
C6004003	Initialize IPL/termination (IT) data area. Set up node address communication area (NACA) pointer.
C6004004	Check and update MSD SID.
C6004005	Initialize event management is executing.
C6004006	IPL all buses.
C6004007	Start SLID.
C6004008	Initialize I/O service.
C6004009	Initialize I/O machine.
C6004010	Initialize interactive device exerciser (IDE).
C6004011	Initialize remote services.
C6004012	Initialize RMAC component data values.

Table 469. C6xxxxxx IPL status progress codes (continued)

Progress code	Description/Action
C6004013	Initialize context management.
C6004014	Initialize RM (component) seize lock.
C6004015	Initialize MISR.
C6004016	Set time of day.
C6004017	Initialize RM (component) process management.
C6004018	Initialize error log.
C6004019	Re-initialize the service processor.
C6004020	Initialize machine services.
C6004021	Initialize performance data collector.
C6004022	Initialize event management.
C6004023	Create MI boundary manager tasks.
C6004024	Disable CPM.
C6004025	Initializes battery test.
C6004026	Hardware card checkout.
C6004027	Start integrated device exerciser (Type C IPL only).
C6004028	Start DST.
C6004029	Make IPL task not critical.
C6004030	Free static storage.
C6004031	Destroy IPL task. DST has been started.
C6004033	Guest partition virtual I/O initialization complete.
C6004050	Storage management recovery is executing.
C6004051	Start LOG is executing.
C6004052	Trace table initialization is executing.
C6004053	Context rebuild is executing. Module called #RCRBCTX.
C6004054	Start product activity log and APPN are executing.
C6004055	Authority recovery is executing.
C6004056	Journal recovery is executing.
C6004057	Data base recovery is executing.
C6004058	Journal synchronization is executing.
C6004059	Commit recovery is executing.
C6004060	Database initialization is executing.
C6004061	Journal IPL cleanup is executing.
C6004062	Commit initialization is executing.
C6004064	System Object Model® (SOM®) recovery is executing.
C6004065	Start operating system is executing.
C6004100	Searching for load source candidate (D-mode only).
C6004101	Opening media file to install licensed internal code (LIC) service displays with proper national language version.
C6004102	Loading and linking from media-file to install licensed internal code (LIC) service displays with proper national language version.

Table 469. C6xxxxxx IPL status progress codes (continued)

Progress code	Description/Action
C6004201	Storage management recovery.
C6004204	Synchronization of mirrored MSD.
C6*nn*4205	Synchronization of mirrored data (where *nn* is percent complete).
C6004240	Reclaim main storage.
C6004250	Storage management subset directory recovery.
C6004255	Defragmentation utility.
C6004260	Storage management directory recovery.
C6004272	ASP overflow recovery.
C6004300	Static paging is available for the link/loader.
C6004301	Applying temporary PTFs. If the IPL is terminated at this point, the licensed internal code (LIC) might need to be installed again.
C6004302	Applying modules. If the IPL is terminated at this point, the licensed internal code (LIC) might need to be installed again.
C6004303	Temporarily applied PTFs have reached the static paging phase.
C600432A	Resolving references to run Mode A. The system can be safely terminated while this work is being done.
C600432B	Resolving references to run Mode B. The system may be safely terminated while this work is being done.
C6004330	Full paging is available; workstation HRI processing.
C6004331	Freeing unused nucleus pages.
C6004332	Permanently applying PTFs. If the IPL is terminated at this point, the licensed internal code (LIC) might need to be installed again.
The following progress codes can appear during an MSD IPL	
C6*xx*4400	Main storage dump manager started (where *xx* is the number of minutes that have elapsed while waiting for DASD to report in).
C6004401	Some DASD failed to report in.
C6004402	Storage management recovery started.
C6004403	Storage management recovery ended.
C6nn4404	Licensed internal code (LIC) log started. If auto copy in progress, *nn* is the percent complete. Module called: MsdStartSf.
C6004405	Dump auto copy completed successfully. Module called: MsdStartSf.
C6004406	Shutdown/Programmed IPL started (MSD-related). Module called: MsdStartSf, MsdInit.
The following are DST progress codes for attended IPLs.	
C6004500	Verifying network attributes.
C6004501	Looking for the console.
C6004504	Verifying system serial number.
C6004505	Verifying system type.
C6004506	Verifying system-unique ID.
C6004507	Starting *before DST* DASD checker
C6004508	Verifying system password (if DASD check OK; if not OK this is checked when IPLing past DST).
C6004509	Starting DASD migration function (only if migrating).

Table 469. C6xxxxxx IPL status progress codes (continued)

Progress code	Description/Action
C600450A	Starting *after DST* DASD checker (can happen twice).
The following are DST progress codes for unattended IPLs.	
C6004500	Verifying network attributes.
C6004502	Starting DST display task (SSP only).
C6004503	Checking possible MRI on media (SSP only).
C6004504	Verifying system serial number.
C6004505	Verifying system type.
C6004506	Verifying system-unique ID.
C6004508	Verifying system password (if DASD check OK).
C600450A	Starting *after DST* DASD checker.
C6004A57	Parallel database recovery is at Pass 1.
C6004A60	Parallel database initialization is at Pass 1.
C6004B57	Parallel database recovery is at Pass 2.
C6004B60	Parallel database initialization is at Pass 2.
C6004C57	Parallel database recovery is at Pass 3.
C6004C60	Parallel database initialization is at Pass 3.
C6004F57	The system is recovering all database objects. This step can take several hours.
C6004F60	The system is examining all objects during database initialization.

(C7*xxxxxx*) Server firmware IPL status progress codes

This section describes the (C7*xxxxxx*) server firmware IPL status progress codes.

A server that stalls during an initial program load (IPL) of the hypervisor indicates a problem with the server firmware code. In this case, your only service action is to contact your next level of support. If the problem is in the server firmware code, exchanging any hardware FRU will not fix the problem.

Server firmware IPL status progress codes enable you and next level of support to more easily identify the server firmware component causing the problem.

Table 470 on page 1642 uses the following format to list the server firmware IPL status progress codes:

- The first column, **Progress code**, contains characters that represent a particular action your server performs during initialization of OS/400®.
- The second column, **Description/Action**, identifies the action or procedure that produced the progress code.

For more information about using progress codes, see "Using progress codes" on page 1663.

For more information about the meaning of the progress codes, see the notes following Table 470 on page 1642.

Table 470. (C7xxxxxx) Server firmware IPL status progress codes

Progress code	Description/Action
C700*xxxx*	Service processor initialization phase.
C70040*xx*	Early IPL initialization phase.

Notes:

1. During the IPL of the server firmware, progress codes display on the control panel. The first progress code is C700*xxxx*, which indicates the service processor has finished initializing without detecting any problems. At this point, the server firmware code takes over and initializes server firmware components. When the server fails to proceed and the control panel displays C700*xxxx*, the source of the problem is the IPL server firmware code.
2. After the server firmware starts to initialize other components, the control panel displays the IPL status progress codes. The progress codes all use the following format: C70040*xx*, where the *xx* is an increment counter that is not related to the specific component being initialized.

In server firmware IPL status progress codes, the third and fourth words indicate the affected component. Table 471 uses the following format to list the component code and the possible subcomponents in the hypervisor IPL status progress codes:

- The first column, **Component code**, is word three of the server firmware IPL status progress code.
- The second column, **Associated component**, is word four of the server firmware IPL status progress code. The associated component is the subcomponent code that the component (identified by the component code) might or might not use.

For more information about using progress codes, see "Using progress codes" on page 1663.

Table 471. Components specified by server firmware IPL status progress codes

Component code	Associated component
Resource Management Base	00040001
Error Routing	00080001
Error Analysis	00080002
Timer Management	00040002
Multiprocessor	00090000
Bus Transport	00010002
LIDMgrP	000A0000
MiniIP	000B0000
LAN	00010012
Machine Facilities	00010001
Partition Configuration Manager	000C0001
Main Storage Dump Manager	000C0002
Breakpoint Management	000C0003
Link Loader	000C0004
CppMacro	000D0000

Table 471. Components specified by server firmware IPL status progress codes (continued)

Component code	Associated component
Common Functions Asset Protection	00060000
Delay Cost Scheduler	000E0001
Concurrent Maintenance	0001000E
IPL Termination	000D0000

C9*xxxxxx* IPL status progress codes

This section describes the C9*xxxxxx* IPL status progress codes.

For use by service providers.

As your server performs an IPL, the control panel displays progress codes that indicate the status of the IPL. Often, you can use these progress codes to help you perform problem analysis. Table 472 offers information on the IPL status progress codes that have a format of C9*xxxxxx*.

Table 472. C9xxxxxx IPL status progress codes

Progress code	Description/Action
C9002810	Reclaim machine context.
C9002820	Resolve system objects.
C9002825	Convert work control block table.
C9002830	System value object.
C90028C0	Prepare SPCF job.
C90028C5	Initialize system objects.
C9002910	Start system logging.
C9002920	Library and object information repository (OIR) cleanup.
C9002925	Verify POSIX** root directories.
C9002930	Database cross-reference.
C9002940	Console configuration.
C9002950	Install complex objects.
C9002960	Sign on processing.
C9002965	Software management services (SMS) initialization.
C9002967	Applying PTFs.
C9002968	IPL options.
C9002970	Database recovery part 1, journal recovery part 1.
C9002973	This recovery step attempts to perform any needed recovery for database files that were being changed, created, or deleted when an abnormal system end occurred.
C9002976	This recovery step verifies that the object recovery list performs any needed recovery for journals and journal receivers.
C9002978	This progress code displays after progress codes C9002A70 through C9002976 have been completed.
C9002980	Storage requirements.
C9002990	Performance adjustments.

Table 472. C9xxxxxx IPL status progress codes (continued)

Progress code	Description/Action
C90029A0	System control block.
C90029B0	Spool initialization.
C90029C0	Work control block table.
C9002A80	Before starting system jobs.
C9002A85	Bringing up POSIX SAG.
C9002A87	POSIX SAG restart and signals initialization.
C9002A90	Starting system jobs.
C9002A95	Abnormal work control block table cleanup.
C9002AA0	Damage notification.
C9002AA1	This recovery step either rolls back or completes certain uncompleted database operations that were run under commitment control.
C9002AA2	This recovery completes certain journal operations that were in progress when the system ended processing.
C9002AA3	This recovery sends messages to QHST for database files that might have been damaged by a system end.
C9002AA3	This recovery sends messages to QHST for database files that might have been damaged by a system end.
C9002AA4	This progress code displays after progress codes C9002AA0 through C9002AA3 have been completed.
C9002AA5	Integrated file system/new file system (NFS) directory recovery.
C9002AAC	Integrated file system conversion.
C9002AB0	Database recovery part 2.
C9002AC0	Document library object (DLO) recovery.
C9002B10	Establish event monitors.
C9002B30	QLUS job.
C9002B40	Device configuration.
C9002C10	After system arbiter.
C9002C20	SNADS recovery.
C9002C25	ZMF component (mail enablement [OeDS] framework) recovery.
C9002C40	Work control block table cleanup.
C9002CF0	Reclaim storage.
C9002F00	IPL complete.

(CA*xxxxxx*) Partition firmware progress codes

This section describes the (CA*xxxxxx*) partition firmware progress codes.

For use by authorized service providers.

Partition firmware progress codes offer information about the progress of partition firmware as it is initializing. In some cases, a server might hang (or stall) at one of these progress codes without displaying an 8-character system reference code (SRC). Only during such a hang condition should you take any service action related to the progress code.

The table of firmware progress codes uses the following format:

- The first column, Progress Code, contains characters that represent a particular action your server performs during initialization of firmware.
- The second column, Description/Action, identifies the action or procedure that produced the progress code. For more information about using progress codes, see "Using progress codes" on page 1663.
- The third column, Failing Item, offers instructions for recovering from a problem or continuing problem analysis. Click a link in this column to view the service actions if you experience a hang condition as previously described.

Notes:

1. If the control panel displays more than eight characters, use only the first eight characters to find the error in the table. Characters that display after the first eight represent a location code that assists you in diagnosing the problem.
2. Licensed programs frequently rely on network configuration, and system information stored in the Vital Product Data (VPD) on the control panel. If the Repair Action/Possible Failing FRU entry indicates that you should replace the control panel, swap the VPD module from the old control panel to the new one. If you need to replace the old VPD module, call technical support for recovery instructions. If recovery is not possible, notify the system owner that new keys for licensed programs might be required.

Table 473. (CAxx) Partition firmware progress codes

Progress Code	Description/Action	Failing Item
CA000000	Process control now owned by partition firmware	"PFW1548" on page 909
CA000020	Checking firmware levels	"PFW1548" on page 909
CA000030	Attempting to establish a communication link by using lpevents	"PFW1548" on page 909
CA000032	Attempting to register lpevent queues	"PFW1548" on page 909
CA000034	Attempting to exchange cap and allocate lpevents	"PFW1548" on page 909
CA000038	Attempting to exchange virtual continue events	"PFW1548" on page 909
CA000040	Attempting to obtain RTAS firmware details	"PFW1548" on page 909
CA000050	Attempting to load RTAS firmware	"PFW1548" on page 909
CA000060	Attempting to obtain open firmware details	"PFW1548" on page 909
CA000070	Attempting to load open firmware	"PFW1548" on page 909
CA000080	Preparing to start open firmware	"PFW1548" on page 909
CA000090	Open firmware package corrupted (phase 1)	"PFW1548" on page 909

Table 473. (CAxx) Partition firmware progress codes (continued)

Progress Code	Description/Action	Failing Item
CA0000A0	Open firmware package corrupted (phase 2)	"PFW1548" on page 909
CA00D001	PCI probe process completed, create PCI bridge interrupt routing properties	"PFW1548" on page 909
CA00D002	PCI adapter NVRAM hint created; system is rebooting	"PFW1548" on page 909
CA00D003	PCI probing complete	"PFW1548" on page 909
CA00D004	Beginning of install-console, loading GUI package	"PFW1548" on page 909
CA00D008	Initialize console and flush queues	"PFW1548" on page 909
CA00D00C		"NEXTLVL" on page 899
CA00D00D	Evaluating NVRAM script	"PFW1548" on page 909
CA00D010	First pass open firmware initialization complete; establish parameters for restart	"PFW1548" on page 909
CA00D011	First pass open firmware initialization complete; control returned to initialization firmware	"PFW1548" on page 909
CA00D012	Second pass open firmware initialization complete; control returned to initialization firmware	"PFW1548" on page 909
CA00D013	Run-time open firmware initialization complete; control returned to initialization firmware	"PFW1548" on page 909
CA00E101	Create RTAS node	"PFW1548" on page 909
CA00E102	Load/initialize RTAS	"PFW1548" on page 909
CA00E105	Transfer control to operating system (normal boot) See "MAP4040 Isolating LPAR operating system boot problems" on page 654.	
CA00E10A	Load RTAS device tree	"PFW1548" on page 909
CA00E10B	Set RTAS device properties	"PFW1548" on page 909
CA00E130	Build device tree	"PFW1548" on page 909
CA00E134	Create memory node	"PFW1548" on page 909
CA00E135	Create HCA node	"PFW1548" on page 909
CA00E136	Create BSR node	"PFW1548" on page 909
CA00E138	Create options node	"PFW1548" on page 909

Table 473. (CAxx) Partition firmware progress codes (continued)

Progress Code	Description/Action	Failing Item
CA00E139	Create aliases node and system aliases	"PFW1548" on page 909
CA00E13A	Create packages node	"PFW1548" on page 909
CA00E140	Loading operating system See "MAP4040 Isolating LPAR operating system boot problems" on page 654.	
CA00E149	Create boot mgr node	"PFW1548" on page 909
CA00E14C	Create terminal emulator node	"PFW1548" on page 909
CA00E14D	Load boot image See "MAP4040 Isolating LPAR operating system boot problems" on page 654.	
CA00E150	Create host (primary) PCI controller node	"PFW1548" on page 909
CA00E151	Probing PCI bus	"FWPCI5" on page 402
CA00E152	Probing for adapter FCODE; evaluate if present	"FWPCI5" on page 402
CA00E153	End adapter FCODE probing and evaluation	"FWPCI5" on page 402
CA00E154	Create PCI bridge node	"FWPCI5" on page 402
CA00E155	Probing PCI bridge secondary bus	"FWPCI5" on page 402
CA00E156	Create plug-in PCI bridge node	"FWPCI5" on page 402
CA00E15B	Transfer control to the operating system (service mode boot) See "MAP4040 Isolating LPAR operating system boot problems" on page 654.	
CA00E15F	Adapter VPD evaluation	"FWPCI5" on page 402
CA00E170	Start of PCI bus probe	"FWPCI5" on page 402
CA00E172	First pass PCI device probe	"FWPCI5" on page 402
CA00E174	Establishing host connection	"FWHOST" on page 398
CA00E175	BootP request	"FWHOST" on page 398
CA00E176	TFTP file transfer See "MAP4040 Isolating LPAR operating system boot problems" on page 654.	

Table 473. (CAxx) Partition firmware progress codes (continued)

Progress Code	Description/Action	Failing Item
CA00E177	Transfer failure due to TFTP error condition See "MAP4040 Isolating LPAR operating system boot problems" on page 654.	
CA00E17B	Processor clock speed measurement	"NEXTLVL" on page 899
CA00E199	The partition is rebooting to enact changes that were specified in the ELF header of the boot image. See "MAP4040 Isolating LPAR operating system boot problems" on page 654.	
CA00E19A	NVRAM auto-boot? variable not found - assume FALSE	"PFW1548" on page 909
CA00E19B	NVRAM menu? variable not found - assume FALSE	"PFW1548" on page 909
CA00E19D	Create NVRAM node	"PFW1548" on page 909
CA00E1A0	User requested boot to SMS menus by using keyboard entry	"PFW1548" on page 909
CA00E1A1	User requested boot to open firmware prompt by using keyboard entry	"PFW1548" on page 909
CA00E1A2	User requested boot using default service mode boot list by using keyboard entry	"PFW1548" on page 909
CA00E1A3	User requested boot using customized service mode boot list by using keyboard entry	"PFW1548" on page 909
CA00E1A4	User requested boot to SMS menus by using the Hardware Management Console or a service processor command	"PFW1548" on page 909
CA00E1A5	User requested boot to open firmware prompt by using the management console or a service processor command	"PFW1548" on page 909
CA00E1A6	User requested boot using default service mode boot list by using the management console or a service processor command	"PFW1548" on page 909
CA00E1A7	User requested boot using customized service mode boot list by using the management console or a service processor command	"PFW1548" on page 909
CA00E1AA	System boot check for NVRAM settings	"PFW1548" on page 909
CA00E1AB	System booting using the default service mode boot list	"PFW1548" on page 909
CA00E1AC	System booting using the customized service mode boot list	"PFW1548" on page 909
CA00E1AD	System booting to the operating system	"PFW1548" on page 909
CA00E1AE	System booted to SMS multiboot menu by using NVRAM settings	"FWMBOOT" on page 399

Table 473. (CAxx) Partition firmware progress codes (continued)

Progress Code	Description/Action	Failing Item
CA00E1AF	System booted to SMS utilities menu by using NVRAM settings	"PFW1548" on page 909
CA00E1B1	System booting with management console or hosting-partition directed boot-device repair	"PFW1548" on page 909
CA00E1B2	XOFF received, waiting for XON	"FWVTHMC" on page 406
CA00E1B3	XON received This checkpoint flashes by so quickly on the control panel that you can not see it. The progress indicators log might contain a reference to it, which you can access by using the ASMI menus. If a partition hangs on this checkpoint, perform the action specified in the Failing Items column.	"FWPCI5" on page 402
CA00E1B4	Management Console or hosting-partition directed boot-string didn't load an operating system repair	"NEXTLVL" on page 899
CA00E1D0	Create PCI SCSI node	"FWPCI5" on page 402
CA00E1D3	Create SCSI block device node (SD)	"FWPCI5" on page 402
CA00E1D4	Create SCSI byte device node (ST)	"FWPCI5" on page 402
CA00E1DC	Dynamic console selection	"FWCONS" on page 396
CA00E1F0	Start out-of-box experience	"PFW1542" on page 907
CA00E1F1	Start self test sequence on one or more devices	"PFW1542" on page 907
CA00E1F2	Power on password prompt	"FWPWD" on page 403
CA00E1F3	Privileged-access password prompt	"FWPWD" on page 403
CA00E1F4	Privileged-access password prompt	"PFW1542" on page 907
CA00E1F5	Build boot device list	"PFW1542" on page 907
CA00E1F6	Determine boot device sequence	"PFW1542" on page 907
CA00E1F7	No boot image located See "MAP4040 Isolating LPAR operating system boot problems" on page 654.	
CA00E1F8	Build boot device list for SCSI adapters (displays the location code of the SCSI adapter being scanned)	"FWPCI5" on page 402
CA00E1F9	Build boot device list for fibre-channel adapters (displays the location of the SAN adapter being scanned)	"FWPCI5" on page 402

Table 473. (CAxx) Partition firmware progress codes (continued)

Progress Code	Description/Action	Failing Item
CA00E1FA	Building device list for SCSI adapters (displays the device ID and device LUN of the devices being scanned)	"FWPCI5" on page 402
CA00E1FB	Scan SCSI bus for attached devices	"FWSCSIH" on page 406
CA00E1FC	Build boot device list for SSA adapters (displays the location code of the SSA adapter being scanned). 2107 does not use SSA adapters. Call the next level of support.	"FWPCI5" on page 402
CA00E1FE	Building device list for fibre channel (SAN) adapters (displays the WWPN of the fibre channel adapter being scanned)	"PFW1548" on page 909
CA00E1FF	Build device list for fibre-channel (SAN) adapters (displays the LUN for each device being scanned)	"PFW1548" on page 909
CA00E440	Validate NVRAM, initialize partitions as needed	"PFW1548" on page 909
CA00E441	Generate/options node NVRAM configuration variable properties	"PFW1548" on page 909
CA00E442	Validate NVRAM partitions	"PFW1548" on page 909
CA00E443	Generate NVRAM configuration variable dictionary words Suspect a platform firmware problem if this error code persists.	"PFW1548" on page 909
CA00E701	Create memory VPD	"PFW1548" on page 909
CA00E800	Initialize gdata for control panel	"PFW1548" on page 909
CA00E820	Initializing lpevent	"PFW1548" on page 909
CA00E830	Initializing event scan	"PFW1548" on page 909
CA00E840	Initializing hot plug	"PFW1548" on page 909
CA00E843	Initializing interface/aix access	"PFW1548" on page 909
CA00E850	Initializing dynamic reconfiguration	"PFW1548" on page 909
CA00E860	Initializing sensors	"PFW1548" on page 909
CA00E865	Initializing VPD	"PFW1548" on page 909
CA00E870	Initializing pfds memory manager	"PFW1548" on page 909
CA00E875	Initializing rtas_last_error	"PFW1548" on page 909

Table 473. (CAxx) Partition firmware progress codes (continued)

Progress Code	Description/Action	Failing Item
CA00E876	Initializing rtas_error_inject	"PFW1548" on page 909
CA00E877	Initializing dump interface	"PFW1548" on page 909
CA00E885	Initializing set-power-level	"PFW1548" on page 909
CA00E886	Initializing exit2c	"PFW1548" on page 909
CA00E887	Initialize gdata for activate_firmware	"PFW1548" on page 909
CA00E890	Starting to initialize open firmware	"PFW1548" on page 909
CA00E891	Finished initializing open firmware	"PFW1548" on page 909
CA00EAA1	Probe PCI-PCI bridge bus	
CA26ttss	Waiting for lpevent of type tt and subtype ss Reboot the system.	"FWPCI5" on page 402
CA2799FD	The service processor is receiving a server firmware update module. This checkpoint alternates in the control panel with CA2799FF. This pair of checkpoints might stay in the display for up to 30 minutes with no other indication of activity. Do not assume that the system is hung until ONLY CA2799FD has remained in the control panel for at least 30 minutes with no other indication of activity. If the system hangs on CA2799FD (it is NOT alternating with CA2799FF), power off the system and reboot from the permanent side. Reject the image on the temporary side.	
CA2799FF	The service processor is writing a server firmware update module. This checkpoint alternates in the control panel with CA2799FD. This pair of checkpoints might stay in the display for up to 30 minutes with no other indication of activity. Do not assume that the system is hung until ONLY CA2799FF has remained in the control panel for at least 30 minutes with no other indication of activity. If the system hangs on CA2799FF (it is NOT alternating with CA2799FD), power off the system and reboot from the permanent side. Reject the image on the temporary side.	

(D1*xxxxxx*) Service processor dump status codes, platform dump status codes, and service processor status progress codes

This section describes (D1*xxxxxx*) service processor dump status codes, platform dump status codes, and service processor status progress codes.

For use by authorized service providers.

- (D1xx1xxx and D101C00F) Service processor dump status codes
- (D1xx3xxx) Platform dump status codes
- (D1xx9xxx - D1xxCxxx) Service processor status progress codes

(D1xx1xxx and D101C00F) Service processor dump status codes

(D1xx1xxx and D101C00F) Service processor dump status codes, listed in Table 474, use the format of D1*yy*1*xxx*, where:

- *yy* indicates the type of data that is being dumped.
- *xxx* is a counter that increments each time the server stores 4 KB of data.

When these codes occur during a service processor dump, they appear in the control panel display.

For more information about using progress codes, see "Using progress codes" on page 1663.

Table 474. (D1xx1xxx and D101C00F) Service processor dump status codes

Status code	Description/Action	Failing items
D1001*xxx*	Dump error data.	"FSPSPD1" on page 396
D1011*xxx*	Dump sai_header management console file.	"FSPSPD1" on page 396
D101C00F	No power-off to allow debugging of CPU controls.	"FSPSPD1" on page 396
D1021*xxx*	Dump sai_header directory.	"FSPSPD1" on page 396
D1031*xxx*	Dump sai_header fips header.	"FSPSPD1" on page 396
D1041*xxx*	Dump sai_header entry header.	"FSPSPD1" on page 396
D1051*xxx*	Dump core file for failing component.	"FSPSPD1" on page 396
D1061*xxx*	Dump all NVRAM.	"FSPSPD1" on page 396
D1071*xxx*	Dump component trace for failing component.	"FSPSPD1" on page 396
D1081*xxx*	Dump component data from /opt/p0.	"FSPSPD1" on page 396
D1091*xxx*	Dump /opt/p1//*.	"FSPSPD1" on page 396

Table 474. (D1xx1xxx and D101C00F) Service processor dump status codes (continued)

Status code	Description/Action	Failing items
D10A1*xxx*	Dump safety net trace: SND_LTT_TRACE.	"FSPSPD1" on page 396
D10B1*xxx*	Dump safety net trace: SND_LTT_PROC.	"FSPSPD1" on page 396
D10C1*xxx*	Dump safety net trace: SND_PRINTK_BUF.	"FSPSPD1" on page 396
D10D1*xxx*	Dump safety net trace: SND_PRINTK_IDX.	"FSPSPD1" on page 396
D10E1*xxx*	Dump safety net trace: SND_INSMOD_BUF.	"FSPSPD1" on page 396
D10F1*xxx*	Dump safety net trace: SND_LTT_INTR.	"FSPSPD1" on page 396
D1101*xxx*	Dump safety net trace: SND_FSP_TRACE.	"FSPSPD1" on page 396
D1111*xxx*	Dump /opt/p0/*.	"FSPSPD1" on page 396
D1121*xxx*	Dump /opt/p1/*.	"FSPSPD1" on page 396
D1131*xxx*	Dump all traces.	"FSPSPD1" on page 396
D1141*xxx*	Dump code version.	"FSPSPD1" on page 396
D1151*xxx*	Dump all /opt/p3 except rtbl.	"FSPSPD1" on page 396
D1161*xxx*	Dump pddcustomize -r command.	"FSPSPD1" on page 396
D1171*xxx*	Dump registry -l command.	"FSPSPD1" on page 396
D1181*xxx*	Dump all /core/core.* files.	"FSPSPD1" on page 396
D1191*xxx*	Dump BDMP component trace (after dump, if enough space).	"FSPSPD1" on page 396
D11A1*xxx*	Dump any state information before dumping starts.	"FSPSPD1" on page 396
D1231*xxx*	Dump update dump headers.	"FSPSPD1" on page 396
D1241*xxx*	Dump CRC1 calculation off.	"FSPSPD1" on page 396
D1251*xxx*	Dump CRC1 calculation on.	"FSPSPD1" on page 396
D1261*xxx*	Dump CRC2 calculation off.	"FSPSPD1" on page 396
D1271*xxx*	Dump CRC2 calculation on.	"FSPSPD1" on page 396
D1281*xxx*	Dump output the calculated CRC1 (sai_headers).	"FSPSPD1" on page 396

Table 474. (D1xx1xxx and D101C00F) Service processor dump status codes (continued)

Status code	Description/Action	Failing items
D1291*xxx*	Dump output the calculated CRC2 (data and data headers).	"FSPSPD1" on page 396
D12A1*xxx*	Jump to the position in dump directly after CRC1.	"FSPSPD1" on page 396
D12B1*xxx*	Initialize the headers dump time and serial numbers.	"FSPSPD1" on page 396
D12C1*xxx*	Display final SRC to panel.	"FSPSPD1" on page 396
D12D1*xxx*	Remove /core/core.app.time.pid.	"FSPSPD1" on page 396
D12E1*xxx*	Remove /core/core.*.	"FSPSPD1" on page 396
D12F1*xxx*	Display beginning SRC to panel.	"FSPSPD1" on page 396
D1301*xxx*	Turn off error log capture into dump.	"FSPSPD1" on page 396
D1311*xxx*	Turn on error log capture into dump.	"FSPSPD1" on page 396
D1321*xxx*	Store information about existing core files.	"FSPSPD1" on page 396
D1381*xxx*	Invalidate the dump.	"FSPSPD1" on page 396
D1391*xxx*	Check for valid dump sequence.	"FSPSPD1" on page 396
D13A1*xxx*	Get dump identity sequence.	"FSPSPD1" on page 396
D13B1*xxx*	Get dump length sequence.	"FSPSPD1" on page 396
D1FF1*xxx*	Dump complete.	"FSPSPD1" on page 396

(D1xx3xxx) Platform dump status codes

(D1*xx*3*xxx*) Platform dump status codes, listed in Table 475, use the format of D1*yy*1*xxx*, where:

- *yy* indicates the type of data that is being dumped.
- *xxx* is a counter that increments each time the server stores 4 KB of data.

When these codes occur during a platform dump, they appear in the control panel display.

For more information about using progress codes, see "Using progress codes" on page 1663.

Table 475. (D1xx3xxx) Platform dump status codes

Status code	Description/Action	Failing items

Table 475. (D1xx3xxx) Platform dump status codes (continued)

D1*xx*3000 - D1*xx*3FFF	Platform dump status codes	"FSPSPD1" on page 396

(D1xx9xxx - D1xxCxxx) Service processor status progress codes

(D1xx9xxx - D1xxCxxx) Status progress codes, posted by the service processor, offer information about the state of the service processor during a power-off operation. Table 476 lists the service processor status progress codes.

For more information about using progress codes, see "Using progress codes" on page 1663.

Table 476. (D1xx9xxx - D1xxCxxx) Service processor status progress codes

Progress code	Description/Action	Failing items
D1*xx*900C	Breakpoint set in CPU controls has been hit.	"FSPSPD1" on page 396
D1*xx*B0FF	Request to initiate power-off program has been sent.	"FSPSPD1" on page 396
D1*xx*C000	Indicates a message is ready to send to the server firmware to power off.	"FSPSPD1" on page 396
D1*xx*C001	Waiting for the server firmware to acknowledge the delayed power-off notification.	"FSPSPD1" on page 396
D1*xx*C002	Waiting for the server firmware to send the power-off message.	"FSPSPD1" on page 396
D1*xx*C003	Server firmware handshaking is complete.	"FSPSPD1" on page 396

(D2*xxxxxx*) Partition status progress codes

D2*xxxxxx* SRCs are posted by the Virtual Service Processor (VSP) when powering down a partition.

For use by service providers.

Table 477. (D2xxxxxx) Partition status progress codes

Progress code	Description/Action (Perform all actions before exchanging failing items)	Failing items
D200A100	Received MSD SP attention.	
D200A110	Received CPM SP attention.	
D200A120	Received LL SP attention.	
D200A130	Received RPA end-of-life event.	

Table 477. (D2xxxxxx) Partition status progress codes (continued)

Progress code	Description/Action **(Perform all actions before exchanging failing items)**	Failing items
D200A200	Begin partition power down. SRC word 3 contains the reason for the power off. **SRC word 3 power-down reasons** • 1: White button power down (also known as delayed power off). • 2: Partition requested power down. • 3: Partition requested end of life. • 4: System wide shutdown. • 5: Attention link loader. • 6: Attention MSD. • 7: Panel function 3 requested. • 8: Panel function 8 requested. • 9: Panel function 22 requested. • A: Panel function 34 requested.	
D200B050	Begin transfer slot locks to VSP.	
D200B05F	End transfer slot locks to VSP.	
D200B060	Begin transfer VIO slot locks to VSP.	
D200B06F	End transfer VIO slot locks to VSP.	
D200B070	Begin reset slots.	
D200B077	Waiting for reset slots.	
D200B07F	End reset slots.	
D200B080	Begin reset VIO slots.	
D200B08F	End reset VIO slots.	
D200B090	Begin soft POR slots.	
D200B097	Waiting soft POR slots.	
D200B09F	End soft POR slots.	
D200B100	Sending Hypervisor reset.	
D200B1FF	Hypervisor reset successfully sent.	
D200B200	Begin forced LP reset (after the 1 second timeout).	
D200B210	Send CSP/FSP soft processor reset command (word 3 processor ID, word 4 thread ID).	
D200B2FF	End forced LP reset.	
D200B300	Closing Hypervisor events paths.	
D200B310	Deactivating panel functions.	
D200B3FF	Hypervisor reset complete successfully.	
D200C100	Sending Hypervisor I/O reset.	
D200C1FF	Hypervisor I/O reset sent successfully.	
D200C200	Deallocating events.	
D200C2FF	Hypervisor I/O reset complete successfully.	
D200D100	Removing partition configuration resources.	

Table 477. (D2xxxxxx) Partition status progress codes (continued)

Progress code	Description/Action (Perform all actions before exchanging failing items)	Failing items
D200D1FF	Partition resources removed successfully.	
D200E050	Begin power off slots.	
D200E057	Waiting power off slots.	
D200E05F	End power off slots.	
D200E060	Begin power off VIO slots.	
D200E06F	End power off VIO slots.	
D200E080	Begin release slot locks.	
D200E08F	End release slot locks.	
D200E090	Begin release VIO slot locks.	
D200E09F	End release VIO slot locks.	
D200E0A0	Begin disassociationof serial ports.	
D200E0A8	Disassociate serial ports from an RPA partition.	
D200E0AF	End disassociation of serial ports.	
D200E100	Power off SPCN racks.	
D200E110	Issuing a rack power off command.	
D200E120	Rack power off command complete successfully.	
D200E1FF	SPCN racks powered off phase complete.	

(D6*xxxxxx*) General status progress codes

This section describes (D6*xxxxxx*) general status progress codes.

For use by authorized service providers.

The following table lists general status progress codes with a format of D6*xxxxxx* in numeric order. The xx after D6 in each progress code represents two hexadecimal numbers that further define the progress code.

Table 478. (D6xxxxxx) General status progress codes

Progress Code	Description/Action
D6*xx*0298	Managed system power down started
D6*xx*0299	Managed system power down status
D6*xx*430A	Operating system service partition power down status: indicates that a server firmware code update is in progress for the P-side (permanent) of the managed system. Your server might display this progress code for an extended period of time where the ″xx″ increments periodically. Allow the server to complete the processing. Do not interrupt this process.
D6*xx*430B	Operating system service partition power down status: indicates that a server firmware code update is in progress for the T-side (temporary) of the managed system. Your server might display this progress code for an extended period of time where the ″xx″ increments periodically. Allow the server to complete the processing. Do not interrupt this process.

Table 478. (D6xxxxxx) General status progress codes (continued)

Progress Code	Description/Action
D60043BA	Operating system service partition power down status: indicates that a server firmware code update is in progress to copy the server firmware from the T-side (temporary) of the managed system to the P-side (permanent). Your server might display this progress code for an extended period of time. Allow the server to complete the processing. Do not interrupt this process.
D6*xx*0483	Power failed; delay timer is running
D6*xx*0484	MI run in progress
D6*xx*5500	Managed system power down status; attempting to delete information from the disk subsystem cache
D6*xx*5501	Managed system power down status; indicates that the information from the disk subsystem cache was deleted successfully
D6*xx*5502	Managed system power down status; indicates that the system failed to delete information from the disk subsystem cache
D6*xx*5503	Managed system power down status, which indicates the information from the disk subsystem cache was deleted with qualified success

(D9*xxxxxx*) General status progress codes

This section describes (D9*xxxxxx*) general status progress codes.

The D9*xxxxxx* progress codes indicate the progress of powering-off a partition. Not all progress codes below apply to all operating systems.

Table 479. (D9xxxxxx) General status progress codes

Progress Code	Description/Action
D9002740	Power off immediate
D9002750	All subsystems ended
D9002760	Device configuration shutdown
D9002770	QLUS job ending
D9002780	Close database cross-reference files
D9002790	QSYSARB job ending
D90027C0	System jobs are ending

(Exxx) System firmware progress codes

Table 480. (Exxx) System firmware progress codes

Progress Code	Description/Action	Failing Items
E101	Create RTAS node	"PFW1548" on page 909
E102	Load and initialize RTAS	"PFW1548" on page 909
E105	Transfer control to operating system (normal mode boot)	"PFW1548" on page 909
E10A	Load RTAS device tree	"PFW1548" on page 909
E10B	Set RTAS device properties	"PFW1548" on page 909

Table 480. (Exxx) System firmware progress codes (continued)

Progress Code	Description/Action	Failing Items
E130	Build device tree	"PFW1548" on page 909
E134	Create memory node	"PFW1548" on page 909
E138	Create options node	"PFW1548" on page 909
E139	Create aliases node and system aliases	"PFW1548" on page 909
E13A	Create packages node	"PFW1548" on page 909
E140	Loading operating system	"PFW1548" on page 909
E141	Synchronize operating system bootlist with management module bootlist	"PFW1548" on page 909
E142	Management module bootlist Set from operating system bootlist	"PFW1548" on page 909
E143	Operating system bootlist set from management module bootlist	"PFW1548" on page 909
E149	Create boot manager node	"PFW1548" on page 909
E14A	Build vital product data-to-operating system lookup table	"PFW1548" on page 909
E14C	Create terminal emulator node	"PFW1548" on page 909
E14D	Load boot image. See Problems with loading and starting the operating system (AIX® and Linux®)	"PFW1548" on page 909
E150	Create host (primary) PCI controller node	"PFW1548" on page 909
E151	Probing PCI bus	"FWPCI5" on page 402
E152	Probing for adapter FCODE; evaluate if present	"FWPCI5" on page 402
E153	End adapter FCODE probing and evaluation	"FWPCI5" on page 402
E154	Create PCI bridge node	"FWPCI5" on page 402
E155	Probing PCI bridge secondary bus	"FWPCI5" on page 402
E158	Reserved	"NEXTLVL" on page 899
E15B	Transfer control to operating system (service mode boot)	"PFW1548" on page 909
E15F	Adapter VPD evaluation	"FWPCI5" on page 402
E170	Beginning of PCI bus probe	"FWPCI5" on page 402
E172	First pass of PCI device probe	"FWPCI5" on page 402
E174	Establishing host connection	"FWHOST" on page 398
E175	Bootp request	"FWHOST" on page 398
E176	TFTP file transfer	
E177	Transfer failure due to TFTP error condition	
E17B	CPU clock speed measurement	"NEXTLVL" on page 899
E191	Create ISA reserved node	"PFW1548" on page 909
E19A	NVRAM auto-boot? variable not found - assume FALSE	"PFW1548" on page 909

Table 480. (Exxx) System firmware progress codes (continued)

Progress Code	Description/Action	Failing Items
E19B	NVRAM menu? variable not found - assume FALSE	"PFW1548" on page 909
E19D	Create NVRAM node	"PFW1548" on page 909
E19E	Real-time-clock initialization	"PFW1548" on page 909
E1A0	User requested boot to SMS menus via keyboard entry	"PFW1548" on page 909
E1A1	User requested boot to open firmware prompt via keyboard entry	"PFW1548" on page 909
E1A2	User requested boot using default service mode boot list via keyboard entry	"PFW1548" on page 909
E1A3	User requested boot using customized service mode boot list via keyboard entry	"PFW1548" on page 909
E1A4	User requested boot to SMS menus via service processor command	"PFW1548" on page 909
E1A5	User requested boot to open firmware prompt via service processor command	"PFW1548" on page 909
E1A6	User requested boot to open firmware prompt via service processor command	"PFW1548" on page 909
E1A7	User requested boot using customized service mode boot list via service processor command	"PFW1548" on page 909
E1A8	System booting to open firmware prompt	"PFW1548" on page 909
E1A9	System booting to SMS menus	"PFW1548" on page 909
E1AA	System NVRAM settings during boot	"PFW1548" on page 909
E1AB	System booting using default service mode boot list	"PFW1548" on page 909
E1AC	System booting using customized service mode boot list	"PFW1548" on page 909
E1AD	System booting to operating system	"PFW1548" on page 909
E1AE	System booted to multiboot menu via NVRAM settings	"FWMBOOT" on page 399
E1AF	System booted to utilities menu via NVRAM settings	"PFW1548" on page 909
E1B1	Create serial node	"PFW1548" on page 909
E1B2	XOFF received - waiting for XON	"FWCONS" on page 396
E1B3	XON received This checkpoint flashes by so quickly on the control panel that you cannot see it. If a partition hangs on this checkpoint, perform the action specified in the Failing Item column.	"FWPCI5" on page 402
E1B6	Reserved	"NEXTLVL" on page 899
E1BD	Reserved	"NEXTLVL" on page 899
E1C4	Create ISA timer chip node	"PFW1548" on page 909

Table 480. (Exxx) System firmware progress codes (continued)

Progress Code	Description/Action	Failing Items
E1C5	Create ISA Interrupt controller (PIC) node	"PFW1548" on page 909
E1C6	Create DMA node	"PFW1548" on page 909
E1D0	Create PCI SCSI node	"FWPCI5" on page 402
E1D3	Create SCSI block device node (SD)	"FWPCI5" on page 402
E1D4	Create SCSI byte device node (ST)	"FWPCI5" on page 402
E1DB	Reserved	"NEXTLVL" on page 899
E1DC	Reserved	"FWCONS" on page 396
E1F0	Start O. B. E.	"PFW1548" on page 909
E1F1	Begin self-test sequence on boot devices.	"PFW1548" on page 909
E1F2	Reserved	"NEXTLVL" on page 899
E1F3	Reserved	"NEXTLVL" on page 899
E1F4	End self-test sequence on boot devices; begin SMS.	"PFW1548" on page 909
E1F5	Build boot device list	"PFW1548" on page 909
E1F6	Determine boot device sequence	"PFW1548" on page 909
E1F7	No boot image located.	
E1F9	Building boot device list for fibre-channel adapters. (The location of the SAN adapter being scanned is also displayed.)	"FWPCI5" on page 402
E1FC	Building boot device list for SSA adapters. (The location code of the SSA adapter being scanned is also displayed.) 2107 does not use SSA adapters. Call the next level of support.	"FWPCI5" on page 402
E1FD	E1FD and another progress code (Exxx) will alternate in the operator panel. The other code is where the error occurred.	"PFW1548" on page 909
E1FE	Building boot device list for fibre-channel adapters. (The WWPN of the SAN adapter being scanned is also displayed.)	"PFW1548" on page 909
E1FF	Building boot device list for fibre-channel adapters. (The WWPN of the SAN adapter being scanned is also displayed.)	"PFW1548" on page 909
E200	Master I2C initialization	"PFW1548" on page 909
E201	Flash image or RAM image CRC checksum is valid	"PFW1548" on page 909
E202	MPIC initialization	"PFW1548" on page 909
E203	Disabling TB	"PFW1548" on page 909
E204	CRC check of the image in RAM	"PFW1548" on page 909
E206	Reenable TB	"PFW1548" on page 909
E209	SIO/COM1/GPIO initialization	"PFW1548" on page 909
E20A	Loading 256K flash code into L2 cache	"PFW1548" on page 909
E20B	Reading boot mode	"PFW1548" on page 909

Table 480. (Exxx) System firmware progress codes (continued)

Progress Code	Description/Action	Failing Items
E20C	Master goes to PFW	"PFW1548" on page 909
E20D	Boot mode has been obtained	"PFW1548" on page 909
E20F	Executing from L2 cache	"PFW1548" on page 909
E210	Load and relocate the HIL	"PFW1548" on page 909
E211	CRC check of the image in flash RAM	"PFW1548" on page 909
E212	Getting CPU status and presence	"PFW1548" on page 909
E213	Memory initialization	"PFW1548" on page 909
E214	Pattern 1 memory test	"PFW1548" on page 909
E215	Pattern 2 memory test	"PFW1548" on page 909
E216	Clear memory	"PFW1548" on page 909
E217	Start HIL-base and SDR1-base	"PFW1548" on page 909
E218	Copying the set of flash RAM to memory	"PFW1548" on page 909
E219	Saving the DIMM service processor and the CPU status and presence	"PFW1548" on page 909
E21A	Executing code from memory	"PFW1548" on page 909
E21B	Load PFW into memory	"PFW1548" on page 909
E21C	Executing HT initialization	"PFW1548" on page 909
E21D	Executing PCI initialization	"PFW1548" on page 909
E21E	Execute I/O APIC test	"PFW1548" on page 909
E21F	Building the PFDS structure	"PFW1548" on page 909
E251	The adapter in PCI slot 1 is being detected.	FWPCI6
E252	The adapter in PCI slot 2 is being detected.	FWPCI6
E253	The adapter in PCI slot 3 is being detected.	FWPCI6
E254	The adapter in PCI slot 4 is being detected.	FWPCI6
E255	The adapter in PCI slot 5 is being detected.	FWPCI6
E2B0	Reserved	"NEXTLVL" on page 899
E2B1	Reserved	"NEXTLVL" on page 899
E440	Validate NVRAM and initialize partitions as needed.	"PFW1548" on page 909
E441	Generate/options node and NVRAM configuration variable properties.	"PFW1548" on page 909
E442	Validate NVRAM partitions	"PFW1548" on page 909
E443	Generate NVRAM configuration variable dictionary words.	"PFW1548" on page 909
E444	Clearing and rebuilding of NVRAM's CHRP region was initiated by the operator	"PFW1548" on page 909
E800	Starting the instantiation of RTAS	"NEXTLVL" on page 899
E810	Initializing IOCONFIG pfds	"NEXTLVL" on page 899
E820	Initializing lpevent	"PFW1548" on page 909
E830	Initializing event scan	"PFW1548" on page 909
E840	Initializing hot plug	"PFW1548" on page 909

Table 480. (Exxx) System firmware progress codes (continued)

Progress Code	Description/Action	Failing Items
E842	Initializing check exception buffers	"PFW1548" on page 909
E843	Initializing interface/operating system access	"NEXTLVL" on page 899
E850	Initializing dynamic reconfiguration	"PFW1548" on page 909
E860	Initializing sensors	"PFW1548" on page 909
E865	Initializing vital product data	"PFW1548" on page 909
E870	Initializing pfds memory manager	"PFW1548" on page 909
E875	Initializing rtas_last_error	"PFW1548" on page 909
E876	Initializing rtas_error_inject	"PFW1548" on page 909
E880	Initializing I/O quiesce acknowledgment memory	"PFW1548" on page 909
E890	Initializing open firmware	"NEXTLVL" on page 899
EAA1	Probe PCI-PCI bridge bus	"FWPCI5" on page 402

Using progress codes

This section describes how to use progress codes.

Progress codes (or checkpoints) offer information about the stages involved in powering on and performing initial program load (IPL). Although progress codes do not always indicate an error, in some cases your server can pause indefinitely (hang) without displaying an 8-character reference code. Only when you experience such a hang condition should you take any action with respect to a progress code. When you look up a progress code, the information indicates the most appropriate action for that progress code.

Chapter 51. Service request numbers (SRNs) and failing function codes (FFCs)

This section describes service request numbers (SRNs) and failing function codes (FFCs) and how to use them.

List of service request numbers

The service request number (SRN) list is in numeric order.

For information about using this list of SRNs and about SRNs in general, see "Using service request numbers" on page 1842.

If you do not find the reference code that you are looking for in this list, ask your next level of support for assistance.

- "SRNs 101-000 through 59D-*xxx*" on page 1666
- "SRNs 60B-xxx through 6C9-600" on page 1681
- "SRNs 700-*xxx* through 7C1-117" on page 1712
- "SRNs 801-*xxx(x)* through 89c-302" on page 1742
- "SRNs 900-001 through 9CC-*xxx*" on page 1763
- "SRNs A00-FF0 through A25-001" on page 1818
- "SRNs 2512-101 through 25D0-108" on page 1836
- "SRNs 2600-101 through 2600-704" on page 1837
- "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840

General SCSI Configuration Checks

This procedure will help you to isolate failures that are causing problems with the configuration of SCSI devices.

Note: Storage Plex repair actions must always be managed from the management console. To replace any FRUs identified in this procedure, use the **HMC → Service Applications → Service Focal Point** option. If the FRUs are listed in the Serviceable Event, select them from there. Otherwise, use the **Exchange Parts** option.

Important: All DS8000 repair activity should be started from Chapter 1, "Start here," on page 1. If you have not started from that procedure, go there now and start from the section "Analyze and repair problems" on page 2. If you did start from that section and the analysis procedures produced an SRN, follow the steps below.

1. The addressing and termination of the SCSI devices is performed by the Disk Drive Enclosure. Replace the Disk Drive Enclosure. See "CEC enclosure part numbers" on page 1323. Is the problem resolved?
   - Yes, go to "MAP1500 Ending a service action" on page 546.
   - No, go to step 2.
2. Replace the I/O Backplane. See "CEC enclosure part numbers" on page 1323. Is the problem resolved?
   - Yes, go to "MAP1500 Ending a service action" on page 546.

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- No, go to step 3.

3. Replace in turn each of the Disk Drives on the failing SCSI BUS until the problem is resolved. See “CEC enclosure part numbers” on page 1323.

SRNs 101-000 through 59D-*xxx*

This section lists the SRNs 101-000 through 59D-*xxx*.

Replace FRU parts in the order by which the ″Failing Function Codes″ are listed. Go to “Failing function code list” on page 1843 to access the failing function codes.

Note: Some SRNs in this chapter might have 4 rather than 3 digits after the dash (-).

Service Request Number	Failing Function Codes	Description/Action
101-000		The system hung while attempting to configure a device. Action: Use “PFW1540” on page 905.
101-185		A checkstop occurred. Action: Use “PFW1540” on page 905.
101-517		The system unit failed to IPL. Action: Use “PFW1540” on page 905.
101-518		CD-ROM read problems after boot. **Note:** The boot record was read from the CD-ROM disk. However, errors occurred when trying to mount the CD-ROM file system. This problem can be caused by SCSI device addressing, SCSI terminator, open PTC, SCSI cable, etc. **Note:** Action: Go to “MAP0050 SCSI bus problems” on page 441.
101-521 to 101-538		The configuration manager detected an error. Action: If you are running the diagnostics from a disk, try running standalone diagnostics. If standalone diagnostics run correctly, the problem might be damaged data on the disk. Contact your software support facility. If a different problem occurs when you run standalone diagnostics, correct that problem. If you were running standalone at first, have the same problem running standalone diagnostics that you had when running diagnostics from disk, or these actions did not resolve the problem, go “PFW1540” on page 905.
101-544		Disk read problems occurred after booting. **Note:** The boot record was read from the disk. However, errors occurred when trying to open the disk drive. This problem can be caused by SCSI device addressing, SCSI terminator, open PTC, SCSI cable, etc. Action: Go to “MAP0050 SCSI bus problems” on page 441.

Service Request Number	Failing Function Codes	Description/Action
101-551 to 101-557		The system hung while loading the software. This can be caused by a hardware or software problem. Action: Run the standalone diagnostics. If the standalone diagnostics run correctly, the problem might be a damaged disk data. Consider having the customer contact Software Support before reinstalling the operating system on the disk. Otherwise, go to "MAP0020 Problem determination procedure" on page 441. If a different problem occurs when you run the standalone diagnostics, correct that problem. If the standalone diagnostics still produces the same SRN, go to "PFW1540" on page 905.
101-558		There is not enough memory to execute diagnostics. Action: There must be a minimum of 16 MB of installed memory. If the system has 16 MB or more of memory installed, suspect a problem with a memory card.
101-559 to 101-599		The system halted while software was loading. This problem might be attributed to either hardware or software. Action: Use the standalone diagnostics if not yet used. If the same SRN is generated from standalone diagnostics, go to "PFW1540" on page 905 for problem isolation. If a different problem occurs when you run the standalone diagnostics, correct that problem. If the SRN is not generated running standalone diagnostics, suspect a problem with the system's software.
101-662		An unexpected system interrupt. Action: Use "PFW1540" on page 905.
101-711 to 101-726	*xxx*	The system hung while trying to configure an unknown resource. Action: Run standalone diagnostics. Start at "MAP0020 Problem determination procedure" on page 441, step 14. If you still get the same SRN, refer to "Failing function code list" on page 1843 and find the FFC that matches the last three digits of the SRN. Suspect the device adapter or device itself. If more than one adapter or device is installed, isolate the failing resource by removing the adapters or devices one at a time and checking if the system stops with the same value in the three-digit display. **Note:** *xxx* corresponds to the last three digits of the SRN.
101-727		The system hung while trying to configure an asynchronous adapter. Action: Use "PFW1540" on page 905. Suspect a problem with one of the async adapters.
101-7C1	7C1	The system unit halted while configuring an audio subsystem. Action: Go to "MAP0210 General problem resolution" on page 442.
101-80c	80c	A potential problem with an SSA device exists. 2107 does not use SSA adapters. Call the next level of support.
101-840		An unexpected system interrupt. Action: Use "PFW1540" on page 905. Suspect either a SCSI adapter or integrated SCSI if so equipped.

Service Request Number	Failing Function Codes	Description/Action
101-888	210 227 E10	The system does not IPL. Action: Go to “MAP0210 General problem resolution” on page 442.
101-c32		The system hung while indicating that a direct-attached display was selected as the console. Action: Use “PFW1540” on page 905. Suspect the graphics adapter being used for the display console first.
101-c33		The system hung while indicating that a TTY terminal is the system console. Action: Use “PFW1540” on page 905. Suspect the graphics adapter being used for the display console first.
101-c70		A problem was encountered mounting the CD-ROM. Action: Use “PFW1540” on page 905.
101-2004		Maximum memory size of partition is too large with respect to the current partition memory size. Action: Specify a maximum memory size for the partition no larger than 64 times the starting memory size of the partition.
101-*xxxx*	*xxxx* E10	The system hung while configuring a resource. The last three or four digits after the dash (-) identify the failing function code for the resource being configured. Action: Go to “MAP0260 System hangs during resource configuration” on page 443.
103-151	151	The time-of-day battery failed. Action: Go to “MAP0210 General problem resolution” on page 442.
109-200		The system crashed while being run by the customer. Action: Use “MAP0020 Problem determination procedure” on page 441, and get a new SRN.
110-101		The diagnostics did not detect an installed resource. Action: If this SRN appeared when running concurrent diagnostics, and then run concurrent using the `diag -a` command, otherwise use “MAP0290 Missing Resource Problem Resolution” on page 445.
110-908	908 C33 C36	The system halted while diagnostics were executing. Action: Go to “MAP0210 General problem resolution” on page 442.
110-921 to 110-926	*xxx* 812	The system halted while diagnostics were executing. **Note:** *xxx* corresponds to the last three digits of the SRN. Action: Go to “MAP0210 General problem resolution” on page 442.
110-935	935 812	The system halted while diagnostics were executing. Action: Go to “MAP0210 General problem resolution” on page 442.
110-946	946 221	The system halted while diagnostics were executing. Action: Go to “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
110-*xxxx*	*xxxx* 221	The system halted while diagnostics were executing. **Note:** *xxxx* corresponds to the last three or four digits of the SRN following the dash (-). If your 110 SRN is not listed, substitute the last three or four digits of the SRN for *xxxx*, and then proceed to the FFC table using the substituted digits as your FFC. Action: Go to "MAP0210 General problem resolution" on page 442.
111-107		A machine check occurred. Action: Go to "MAP0020 Problem determination procedure" on page 441.
111-108		An encoded SRN was displayed. Action: Go to "MAP0020 Problem determination procedure" on page 441.
111-121		There is a display problem. Action: Do problem determination on the display. Action: Go to "MAP0210 General problem resolution" on page 442.
111-259		Cannot display readable information on the terminal. Action: Go to "MAP0280 Console and Keyboard Problem Resolution" on page 444 Entry 3.
111-725	725	Cannot display readable information on the display. **Note:** Suspect the display adapter attached to the console display. Action: Go to "MAP0280 Console and Keyboard Problem Resolution" on page 444.
111-736	736 821	The keyboard does not respond. Action: Go to "MAP0280 Console and Keyboard Problem Resolution" on page 444 Entry 1.
111-78C	PCI adapter 227 E10	I/O bus problem. Action: Go to "MAP0210 General problem resolution" on page 442 **Note:** PCI adapter refers to the adapters you made note of when using "MAP0280 Console and Keyboard Problem Resolution" on page 444.
111-82C		Cannot display readable information on the display. Action: Go to "MAP0280 Console and Keyboard Problem Resolution" on page 444, Entry 2.
111-921	921 821	The keyboard does not respond. Action: Go to "MAP0280 Console and Keyboard Problem Resolution" on page 444, Entry 1.
111-922	921 821	The keyboard does not respond. Action: Go to "MAP0280 Console and Keyboard Problem Resolution" on page 444, Entry 1.
111-923	923 821	The keyboard does not respond. Action: Go to "MAP0280 Console and Keyboard Problem Resolution" on page 444, Entry 1.

Service Request Number	Failing Function Codes	Description/Action
111-947	221	System beeper not functioning correctly. Action: Go to "MAP0210 General problem resolution" on page 442.
111-999	210	System does not perform a soft reset. Action: Go to "MAP0210 General problem resolution" on page 442.
199-102	199	A critical failure has occurred on an undefined element. Action: Go to "MAP2010 RPC card causing false fence" on page 547.
199-103	199	Non-critical failure has occurred on an undefined element. Action: Go to "MAP2010 RPC card causing false fence" on page 547.
199-104	199	An unrecoverable failure has occurred on an undefined element. Action: Go to "MAP2010 RPC card causing false fence" on page 547.
199-122	152	A critical power supply failure has occurred. Action: Go to "MAP2010 RPC card causing false fence" on page 547.
199-123	152	A non-critical power supply failure has occurred. Action: Go to "MAP2010 RPC card causing false fence" on page 547.
199-124	152	An unrecoverable power supply failure has occurred. Action: Go to "MAP2010 RPC card causing false fence" on page 547.
199-132	166 199	A critical fan failure has occurred. Action: Go to "MAP2010 RPC card causing false fence" on page 547.
199-133	166 199	A non-critical fan failure has occurred. Action: Go to "MAP2010 RPC card causing false fence" on page 547.
199-134	166 199	An unrecoverable fan failure has occurred. Action: Go to "MAP2010 RPC card causing false fence" on page 547.
199-148	166 199	The enclosure indicates a temperature threshold warning. Action: Go to "MAP2010 RPC card causing false fence" on page 547.
199-149	166 199	The enclosure indicates a temperature threshold failure. Action: Go to "MAP2010 RPC card causing false fence" on page 547.
199-152	199	A critical repeater card failure has occurred. Action: Go to "MAP2010 RPC card causing false fence" on page 547.
199-153	199	A non-critical repeater card failure has occurred. Action: Go to "MAP2010 RPC card causing false fence" on page 547.
199-154	199	An unrecoverable repeater card failure has occurred. Action: Go to "MAP2010 RPC card causing false fence" on page 547.
199-162	199	A critical VPD module failure has occurred. Action: Go to "MAP2010 RPC card causing false fence" on page 547.

Service Request Number	Failing Function Codes	Description/Action
199-163	199	A non-critical VPD module failure has occurred. Action: Go to “MAP2010 RPC card causing false fence” on page 547.
199-164	199	An unrecoverable VPD module failure has occurred. Action: Go to “MAP2010 RPC card causing false fence” on page 547.
199-172	199	A critical enclosure services failure has occurred. Action: Go to “MAP2010 RPC card causing false fence” on page 547.
199-173	199	A non-critical enclosure services failure has occurred. Action: Go to “MAP2010 RPC card causing false fence” on page 547.
199-174	199	An unrecoverable enclosure services failure has occurred. Action: Go to “MAP2010 RPC card causing false fence” on page 547.
199-182	199	A critical failure has occurred on a user defined element. Action: Go to “MAP2010 RPC card causing false fence” on page 547.
199-183	199	A non-critical failure has occurred on a user defined element. Action: Go to “MAP2010 RPC card causing false fence” on page 547.
199-184	199	An unrecoverable failure has occurred on a user defined element. Action: Go to “MAP2010 RPC card causing false fence” on page 547.
199-192	199	A critical failure has occurred on a user defined element. Action: Go to “MAP2010 RPC card causing false fence” on page 547.
199-193	199	A non-critical failure has occurred on a user defined element. Action: Go to “MAP2010 RPC card causing false fence” on page 547.
199-194	199	An unrecoverable failure has occurred on a user defined element. Action: Go to “MAP2010 RPC card causing false fence” on page 547.
199-201	199 891	Device configuration error. Action: Go to “MAP2010 RPC card causing false fence” on page 547.
199-202	199 891	The enclosure failed to open. Action: Go to “MAP2010 RPC card causing false fence” on page 547.
199-203	199 891	The enclosure failed to return inquiry data. Action: Go to “MAP2010 RPC card causing false fence” on page 547.
199-204	152 166	There is a critical power supply or fan failure. Action: Go to “MAP2010 RPC card causing false fence” on page 547.
199-205	152 166	There is a redundant power supply or fan failure. Action: Go to “MAP2010 RPC card causing false fence” on page 547.
2E6-101	221	Enhanced error handling failure on the bus. Action: Go to “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
2E6-102	293	Enhanced error handling failure on a PCI-PCI Bridge. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-103	2E6 221	Enhanced error handling failure on the adapter. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-212	2E6	FIFO empty bit set. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-213	2E6	FIFO empty bit clear. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-214	2E6	FIFO full bit set. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-215	2E6	FIFO full bit clear. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-216	2E6	FIFO data miscompare. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-217	2E6	SCSI FIFO data miscompare. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-218	2E6	SCSI FIFO underflow. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-219	2E6	SCSI parity error. Action: Go to “MAP0050 SCSI bus problems” on page 441.
2E6-220	2E6	SCSI FIFO flags error. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-221	2E6 221	Miscompare during the write/read of the configuration register. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-222	2E6	Error during the write/read of the memory register. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-223	2E6	Miscompare during the write/read of the memory I/O register. Action: Go to “MAP0050 SCSI bus problems” on page 441.
2E6-224	2E6 221	SCSI configuration register read or write error. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-225	2E6	Adapter POST failed. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-226		SCSI wrap or PTC failure. Action: Go to “MAP0050 SCSI bus problems” on page 441.

Service Request Number	Failing Function Codes	Description/Action
2E6-227	2E6 221	SCSI adapter test failure. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-230		Arbitration test failed. Action: Go to “MAP0050 SCSI bus problems” on page 441.
2E6-231	2E6 221	Function could not complete. Action: Go to “MAP0050 SCSI bus problems” on page 441.
2E6-232		SCSI bus data miscompare. Action: Go to “MAP0050 SCSI bus problems” on page 441.
2E6-240		No terminal power. Action: Go to “MAP0050 SCSI bus problems” on page 441.
2E6-242		SCSI bus problem. Action: Go to “MAP0050 SCSI bus problems” on page 441.
2E6-301	2E6 221	The parent device open failed. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-701	2E6	Error log analysis indicates a PCI SCSI adapter failure. Action: Go to “MAP0210 General problem resolution” on page 442.
2E6-801		Error log analysis indicates a terminator problem. Action: Run the diagnostics on the adapter in system verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in “General SCSI Configuration Checks” on page 1665 to resolve the problem.
2E6-802		Error log analysis indicates that multiple attempts to reset the SCSI bus have timed out. Action: Run the diagnostics on the adapter in system verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in“General SCSI Configuration Checks” on page 1665 to resolve the problem.
2E6-803		Error log analysis indicates that multiple SCSI bus errors have occurred. Action: Run the diagnostics on the adapter in system verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in “General SCSI Configuration Checks” on page 1665 to resolve the problem.
2E7-101	221	Enhanced error handling failure on the bus. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-102	293	Enhanced error handling failure on a PCI-PCI Bridge. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-103	2E7 221	Enhanced error handling failure on the adapter. Action: Go to “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
2E7-212	2E7	FIFO empty bit set. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-213	2E7	FIFO empty bit clear. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-214	2E7	FIFO full bit set. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-215	2E7	FIFO full bit clear. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-216	2E7	FIFO data miscompare. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-217	2E7	SCSI FIFO data miscompare. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-218	2E7	SCSI FIFO underflow. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-219		SCSI parity error. Action: Action: Go to “MAP0050 SCSI bus problems” on page 441.
2E7-220	2E7	SCSI FIFO flags error. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-221	2E7 221	Miscompare during the write/read of the configuration register. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-222	2E7	Error during the write/read of the memory register. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-223	2E7	Miscompare during the write/read of the memory I/O register. Action: Go to “MAP0050 SCSI bus problems” on page 441.
2E7-224	2E7 221	SCSI configuration register read or write error. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-225	2E7	Adapter POST failed. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-226		SCSI wrap or PTC failure. Action: Go to “MAP0050 SCSI bus problems” on page 441.
2E7-227	2E7 221	SCSI adapter test failure. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-230		Arbitration test failed. Action: Go to “MAP0050 SCSI bus problems” on page 441.

Service Request Number	Failing Function Codes	Description/Action
2E7-231		Function could not complete. Action: Go to “MAP0050 SCSI bus problems” on page 441.
2E7-232		SCSI bus data miscompare. Action: Go to “MAP0050 SCSI bus problems” on page 441.
2E7-240		No terminal power. Action: Go to “MAP0050 SCSI bus problems” on page 441.
2E7-242		SCSI bus problem. Action: Go to “MAP0050 SCSI bus problems” on page 441.
2E7-301	2E7	Configuration open failed for parent bus. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-701	2E7	Error log analysis indicates a PCI SCSI adapter failure. Action: Go to “MAP0210 General problem resolution” on page 442.
2E7-801		Error log analysis indicates a terminator problem. Action: Run the diagnostics on the adapter in system verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in “General SCSI Configuration Checks” on page 1665 to resolve the problem.
2E7-802		Error log analysis indicates that multiple attempts to reset the SCSI bus have timed out. Action: Run the diagnostics on the adapter in system verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in “General SCSI Configuration Checks” on page 1665 to resolve the problem.
2E7-803		Error log analysis indicates that multiple SCSI bus errors have occurred. Action: Run the diagnostics on the adapter in system verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in “General SCSI Configuration Checks” on page 1665 to resolve the problem.
2EF-101	751	Post indicates an adapter failure. Action: Go to “MAP0210 General problem resolution” on page 442.
440-*xxx* to 443-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
444-101	2C3 444	External wrap test failed on port 0. Action: Go to “MAP0210 General problem resolution” on page 442.
444-102	2C3 444	External wrap test failed on port 1. Action: Go to “MAP0210 General problem resolution” on page 442.
444-103	227	Enhanced error handling failure on bus. Action: Go to “MAP0210 General problem resolution” on page 442.
444-104	227	Enhanced error handling failure on Eads chip. Action: Go to “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
444-105	444	Enhanced error handling failure on adapter. Action: Go to “MAP0210 General problem resolution” on page 442.
444-106	776 646	Enhanced error handling failure on bus. Action: Go to “MAP0210 General problem resolution” on page 442.
444-107	776 646	EEH failure on Eads chip. Action: Go to “MAP0210 General problem resolution” on page 442.
444-108	776 646	Enhanced error handling failure on adapter. Action: Go to “MAP0210 General problem resolution” on page 442.
444-201	444 227	Internal adapter test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
444-202	444 227	External wrap test failed on port 0. Action: Go to “MAP0210 General problem resolution” on page 442.
444-203	444 227	External wrap test failed on port 1. Action: Go to “MAP0210 General problem resolution” on page 442.
444-204	2C3 444	External wrap test failed on port 0. Action: Go to “MAP0210 General problem resolution” on page 442.
444-205	2C3 444	External wrap test failed on port 1. Action: Go to “MAP0210 General problem resolution” on page 442.
444-206	2C3 444 software	External wrap test failed on port 0. Action: Go to “MAP0210 General problem resolution” on page 442.
444-207	2C3 444 software	External wrap test failed on port 1. Action: Go to “MAP0210 General problem resolution” on page 442.
444-208	444 227	Enhanced error handling failure opening the adapter. Action: Go to “MAP0210 General problem resolution” on page 442.
444-301	444 227 software	Internal adapter test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
444-302	444 227 software	External wrap test failed on port 0. Action: Go to “MAP0210 General problem resolution” on page 442.
444-303	444 227 software	External wrap test failed on port 1. Action: Go to “MAP0210 General problem resolution” on page 442.
444-304	2C3 444 software	External wrap test failed on port 0. Action: Go to “MAP0210 General problem resolution” on page 442.
444-305	2C3 444 software	External wrap test failed on port 1. Action: Go to “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
444-700	444 software	Error log analysis indicates a hardware problem. Action: Go to “MAP0210 General problem resolution” on page 442.
444-701	444 227	Error log analysis indicates that this adapter has failed to initialize due to enhanced error handling errors. Action: Go to “MAP0210 General problem resolution” on page 442.
447-101	444	The Fibre Channel Adapter configuration failed. Action: Go to “MAP0210 General problem resolution” on page 442.
447-102	444	The Reset test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
447-103	444	The Register test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
447-104	444	The SRAM test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
447-105	444	The Internal Wrap test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
447-106	444	Gigabaud Link Module (GLM) Wrap Test Failure. Action: Go to “MAP0210 General problem resolution” on page 442.
447-107	444	The External Wrap test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
447-109	221	Enhanced Error Handling Failure on EADs chip. Action: Go to “MAP0210 General problem resolution” on page 442.
447-110	444	Enhanced Error Handling Failure on adapter. Action: Go to “MAP0210 General problem resolution” on page 442.
447-201	447 221	The Configuration Register test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
447-202	447 221	The Interrupt test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
447-203	447 221	The PCI Wrap test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
447-204	447 221	The DMA test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
447-205	447 221	I/O error on a read/write operation. Action: Go to “MAP0210 General problem resolution” on page 442.
447-701	447 221	Error log analysis indicates that an error has occurred with the adapter. Action: Go to “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
447-703	447	Error log analysis indicates that an unknown adapter error has occurred. Action: Go to “MAP0210 General problem resolution” on page 442.
447-704	447	Error log analysis indicates that an adapter error has occurred. Action: Go to “MAP0210 General problem resolution” on page 442.
447-705	447	A parity error has been detected. The adapter must be replaced immediately. Failure to do so could result in data being read or written incorrectly. Action: Go to “MAP0210 General problem resolution” on page 442.
447-706	447	A fatal hardware error has occurred. This adapter was successfully taken offline. It will remain offline until reconfigured or the system is rebooted. This adapter must be replaced and not brought back online. Failure to adhere to this action could result in data being read or written incorrectly or in the loss of data.
451-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
453-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
458-110	458	The **Reserve** command failed. Action: Go to “MAP0210 General problem resolution” on page 442.
458-120	458	The **Inquiry** command failed. Action: Go to “MAP0210 General problem resolution” on page 442.
458-130	458 media	The **Load** command failed. Action: Go to “MAP0210 General problem resolution” on page 442.
458-135	458 media	The **Unload** command failed. Action: Go to “MAP0210 General problem resolution” on page 442.
458-140	458	The **Mode Select** command failed. Action: Go to “MAP0210 General problem resolution” on page 442.
458-150	458 media	The **Test Unit Ready** command failed. Action: Go to “MAP0210 General problem resolution” on page 442.
458-160	458 media	The **Send Diagnostic** command failed. Action: Go to “MAP0210 General problem resolution” on page 442.
458-169	458 media	The **Send Diagnostic** command failed. Action: Go to “MAP0210 General problem resolution” on page 442.
458-170	458 B58 media	The **Read, Write and Compare** test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
458-180	458 media	The **Load** command failed. Action: Go to “MAP0210 General problem resolution” on page 442.
458-185	458 media	The **Unload** command failed. Action: Go to “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
458-190	458	The **Mode Select** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
458-200	458 media	The **Test Unit Ready** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
458-210	458 B88	The device configuration failed. Action: Go to "MAP0210 General problem resolution" on page 442.
458-220	458	The **Release** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
458-230	458	The **Request Sense** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
458-240	458	The **Openx** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
458-300	458 software	The device configuration failed. Action: Go to "MAP0210 General problem resolution" on page 442.
458-310	458 B88 software	SCSI adapter configuration failed. Action: Go to "MAP0210 General problem resolution" on page 442.
458-320	458 media	Error log analysis indicates a failure. Action: Go to "MAP0210 General problem resolution" on page 442.
458-411 to 458-423	458 B88 software	A reservation conflict occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
458-511 to 458-523	458 B88	The drive returned bad or non-extended sense data. Action: Go to "MAP0210 General problem resolution" on page 442.
458-611 to 458-623	458 B88 software	An adapter or bus I/O error occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
458-711 to 458-723	458 B88 software	A device timeout error occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
459-110	459	The **Reserve** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-120	459	The **Inquiry** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-130	459 media	The **Load** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-135	459 media	The **Unload** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action
459-140	459	The **Mode Select** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-150	459 media	The **Test Unit Ready** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-160	459 media	The **Send Diagnostic** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-169	459 media	The **Send Diagnostic** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-170	459 B88 media	The **Read, Write and Compare** test failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-180	459 media	The **Load** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-185	459 media	The **Unload** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-190	459	The **Mode Select** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-200	459 media	The **Test Unit Ready** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-210	459 B88	The device configuration failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-220	459	The **Release** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-230	459	The **Request Sense** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-240	459	The **Openx** command failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-300	459 software	The device configuration failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-310	B88 459 software	SCSI adapter configuration failed. Action: Go to "MAP0210 General problem resolution" on page 442.
459-320	459 media	Error log analysis indicates a failure. Action: Go to "MAP0210 General problem resolution" on page 442.
459-411 to 459-423	459 B88 media	A reservation conflict occurred. Action: Go to "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action
459-511 to 459-523	459 B88	The drive returned bad or non-extended sense data. Action: Go to “MAP0210 General problem resolution” on page 442.
459-611 to 459-623	459 B88 software	An adapter or bus I/O error occurred. Action: Go to “MAP0210 General problem resolution” on page 442.
459-711 to 459-723	459 B88 software	A device timeout error occurred. Action: Go to “MAP0210 General problem resolution” on page 442.
541-*xxx*	541	A DLT tape device problem has occurred. Action: Refer to the DLT tape device documentation.
542-*xxx*	542	An 8mm 60GB tape device problem has occurred. Action: Refer to the 8mm 60GB tape device documentation.
56B-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
56D-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
57B-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
57D-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
58B-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
58D-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
59B-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
59D-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.

SRNs 60B-xxx through 6C9-600

This section lists the SRNs 60B-xxx through 6C9-600.

Replace FRU parts in the order by which the ″Failing Function Codes″ are listed. Go to “Failing function code list” on page 1843 to access the failing function codes.

Note: Some SRNs in this chapter might have 4 rather than 3 digits after the dash (-).

Service Request Number	Failing Function Codes	Description/Action
601-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
60B-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
613-*xxx*	613	An 8-mm 80-GB VXA-2 tape device problem has occurred. Action: Use “MAP0210 General problem resolution” on page 442.
61B-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
61D-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
61E-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
621-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
623-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
624-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
62D-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.

Service Request Number	Failing Function Codes	Description/Action
62E-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
636-101	636	EPROM test failure. Action: Use "MAP0210 General problem resolution" on page 442.
636-102	636	Adapter SDRAM failure. Action: Use "MAP0210 General problem resolution" on page 442.
636-103	636	Adapter checksum failure. Action: Use "MAP0210 General problem resolution" on page 442.
636-104	636	Adapter memory test failure. Action: Use "MAP0210 General problem resolution" on page 442.
636-105	636	Adapter buffer test failure. Action: Use "MAP0210 General problem resolution" on page 442.
636-106	636	Adapter cache test failure. Action: Use "MAP0210 General problem resolution" on page 442.
636-107	636	Internal loop-back test failure. Action: Use "MAP0210 General problem resolution" on page 442.
636-108	636	External wrap test failure. Action: Use "MAP0210 General problem resolution" on page 442.
636-109	221	Enhanced error handling failure on the bus. Action: Use "MAP0210 General problem resolution" on page 442.
636-110	221	Enhanced error handling failure on the Eads chip. Action: Use "MAP0210 General problem resolution" on page 442.
636-111	636	Enhanced error handling failure on the adapter. Action: Use "MAP0210 General problem resolution" on page 442.
636-201	636 221	Hardware failure opening adapter. Action: Use "MAP0210 General problem resolution" on page 442.
636-202	636 221	Interrupt test failure. Action: Use "MAP0210 General problem resolution" on page 442.
636-203	636 221	Adapter DMA test failure. Action: Use "MAP0210 General problem resolution" on page 442.
636-204	636 221	Enhanced error handling failure opening the adapter. Action: Use "MAP0210 General problem resolution" on page 442.
636-701	636	ELA indicates an I/O failure on the adapter. Action: Use "MAP0210 General problem resolution" on page 442.
638-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
639-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
63A-*xxx* to 63F-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.

Service Request Number	Failing Function Codes	Description/Action
640-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
643-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
644-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
646-101	D46	External Test Failure. Action: Use “MAP0210 General problem resolution” on page 442.
646-102	240	External Test Failure. Action: Use “MAP0210 General problem resolution” on page 442.
646-103	646	I/O Test Failure. Action: Use “MAP0210 General problem resolution” on page 442.
646-104	646 221	Adapter On-card Test Failure. Action: Use “MAP0210 General problem resolution” on page 442.
646-105	646	Wrap Test Failure. Action: Use “MAP0210 General problem resolution” on page 442.
646-106	646	Enhanced Error Handling failure on bus. Action: Use “MAP0210 General problem resolution” on page 442.
646-107	646	EEH failure on PCI-PCI bridge chip. Action: Use “MAP0210 General problem resolution” on page 442.
646-108	646	Enhanced Error Handling failure on adapter. Action: Use “MAP0210 General problem resolution” on page 442.
646-201	646 221	Configuration Register Test Failure. Action: Use “MAP0210 General problem resolution” on page 442.
646-202	646 221	Wrap Test Failure. Action: Use “MAP0210 General problem resolution” on page 442.
646-204	D46 240	External Test Failure. Action: Use “MAP0210 General problem resolution” on page 442.
646-205	D46 646	External Test Failure. Action: Run advanced diagnostics with wrap test for this resource to obtain a correct problem resolution.
646-206	240 646	External Test Failure. Action: Run advanced diagnostics with wrap test for this resource to obtain a correct problem resolution.
646-302	240 D46 221	External Test Failure. Action: Run advanced diagnostics with wrap test for this resource to obtain a correct problem resolution.
646-303	646 D46 221	External Test Failure. Action: Run advanced diagnostics with wrap test for this resource to obtain a correct problem resolution.

Service Request Number	Failing Function Codes	Description/Action
646-401	240 646 D46 221	External Test Failure. Action: Run advanced diagnostics with wrap test for this resource to obtain a correct problem resolution. Action: Use “MAP0210 General problem resolution” on page 442.
646-701	646	Error log analysis indicates that an adapter error has occurred. Action: Use “MAP0210 General problem resolution” on page 442.
646-702	646	Error log analysis indicates that an adapter check has occurred. Action: Use “MAP0210 General problem resolution” on page 442.
646-703	646 221	Error log analysis indicates that a DMA failure has occurred. Action: Use “MAP0210 General problem resolution” on page 442.
646-704	646 221	Error log analysis indicates that a PCI Bus error has occurred. Action: Use “MAP0210 General problem resolution” on page 442.
646-705	646 221	Error log analysis indicates that a Programmed I/O error has occurred. Action: Use “MAP0210 General problem resolution” on page 442.
646-706	646	ELA indicates a command write failure occurred. Action: Use “MAP0210 General problem resolution” on page 442.
646-707	646	ELA indicates an internal adapter error has occurred. Action: Use “MAP0210 General problem resolution” on page 442.
64A-*xxx* to 64F-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
650-*xxx*	650	Disk drive configuration failed. Action: Use “MAP0210 General problem resolution” on page 442.
653-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
657-001	software 657	Software error. Action: Use “MAP0210 General problem resolution” on page 442.
657-002	software 655	Adapter failure. Action: Use “MAP0210 General problem resolution” on page 442.
657-003	657 227	Adapter failure. Action: Use “MAP0210 General problem resolution” on page 442.
657-004	657 Monitor/Cable	Display failure. Action: Use “MAP0210 General problem resolution” on page 442.
657-005	657 227 Monitor/Cable	Adapter failure. Action: Use “MAP0210 General problem resolution” on page 442.
65A-*xxx* to 65F-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
662-101	221	Enhanced error handling failure on the bus. Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
662-102	293	Enhanced error handling failure on a PCI-PCI Bridge. Action: Use “MAP0210 General problem resolution” on page 442.
662-103	662 221	Enhanced error handling failure on the adapter. Action: Use “MAP0210 General problem resolution” on page 442.
662-212	662	FIFO empty bit set. Action: Use “MAP0210 General problem resolution” on page 442.
662-213	662	FIFO empty bit clear. Action: Use “MAP0210 General problem resolution” on page 442.
662-214	662	FIFO full bit set. Action: Use “MAP0210 General problem resolution” on page 442.
662-215	662	FIFO full bit clear. Action: Use “MAP0210 General problem resolution” on page 442.
662-216	662	FIFO data miscompare. Action: Use “MAP0210 General problem resolution” on page 442.
662-217	662	SCSI FIFO data miscompare. Action: Use “MAP0210 General problem resolution” on page 442.
662-218	662	SCSI FIFO underflow. Action: Use “MAP0210 General problem resolution” on page 442.
662-219		SCSI parity error. Action: Go to “MAP0050 SCSI bus problems” on page 441.
662-220	662	SCSI FIFO flags error. Action: Use “MAP0210 General problem resolution” on page 442.
662-221	662 221	Miscompare during the write/read of the configuration register. Action: Use “MAP0210 General problem resolution” on page 442.
662-222	662	Error during the write/read of the memory register. Action: Use “MAP0210 General problem resolution” on page 442.
662-223	662	Miscompare during the write/read of the memory I/O register. Action: Go to “MAP0050 SCSI bus problems” on page 441.
662-224	662 221	SCSI configuration register read or write error. Action: Use “MAP0210 General problem resolution” on page 442.
662-225	662	Adapter POST failed. Action: Use “MAP0210 General problem resolution” on page 442.
662-226		SCSI wrap or PTC failure. Action: Go to “MAP0050 SCSI bus problems” on page 441.

Service Request Number	Failing Function Codes	Description/Action
662-227	662 221	SCSI adapter test failure. Action: Use “MAP0210 General problem resolution” on page 442.
662-230		Arbitration test failed. Action: Go to “MAP0050 SCSI bus problems” on page 441.
662-231		Function could not complete. Action: Go to “MAP0050 SCSI bus problems” on page 441.
662-232		SCSI bus data miscompare. Action: Go to “MAP0050 SCSI bus problems” on page 441.
662-240		No terminal power. Action: Go to “MAP0050 SCSI bus problems” on page 441.
662-242		SCSI bus problem. Action: Go to “MAP0050 SCSI bus problems” on page 441.
662-301	662 221	The parent device open failed. Action: Use “MAP0210 General problem resolution” on page 442.
662-701	662	Error log analysis indicates a PCI SCSI adapter failure. Action: Use “MAP0210 General problem resolution” on page 442.
662-801		Error log analysis indicates a terminator problem. Action: Run the diagnostics on the adapter in system verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in “General SCSI Configuration Checks” on page 1665 to resolve the problem.
662-802		Error log analysis indicates that multiple attempts to reset the SCSI bus have timed out. Action: Run the diagnostics on the adapter in system verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in “General SCSI Configuration Checks” on page 1665 to resolve the problem.
662-803		Error log analysis indicates that multiple SCSI bus errors have occurred. Action: Run the diagnostics on the adapter in system verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in “General SCSI Configuration Checks” on page 1665 to resolve the problem.
663-101	663 C94 C95	IBM ARTIC960RxD or RxF PCI Adapter Central Processing Unit test failure. Action: Use “MAP0210 General problem resolution” on page 442.
663-102	663 C94 C95	IBM ARTIC960RxD or RxF PCI Adapter Timer test failure. Action: Use “MAP0210 General problem resolution” on page 442.
663-103	663 C94 C95	IBM ARTIC960RxD or RxF PCI Adapter Bus Interface test failure. Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
663-104	663 C94 C95	IBM ARTIC960RxD or RxF PCI Adapter Dynamic Random Access Memory test failure. Action: Use “MAP0210 General problem resolution” on page 442.
663-105	663 C94 C95	IBM ARTIC960RxD or RxF PCI Adapter Memory Protection test failure. Action: Use “MAP0210 General problem resolution” on page 442.
663-106	663 C94 C95	IBM ARTIC960RxD PCI Adapter Debug Port test failure. Action: Use “MAP0210 General problem resolution” on page 442.
663-107	C95 663 C97	Interface board wrap test failure. Action: Use “MAP0210 General problem resolution” on page 442.
663-110	C94 663 C95	IBM ARTIC960RxD or RxF PCI Adapter Download Diagnostics test failure. Action: Use “MAP0210 General problem resolution” on page 442.
663-123	C95 663 C97	Interface board non-wrap test failure. Action: Use “MAP0210 General problem resolution” on page 442.
663-150	663 software 227	Device configuration failure. Action: Use “MAP0210 General problem resolution” on page 442.
663-151	663 software 227	Device driver indicates a hardware failure. Action: Use “MAP0210 General problem resolution” on page 442.
663-152	663	Failure and error in determining which type of IBM ARTIC960RxD PCI Adapter. Action: Use “MAP0210 General problem resolution” on page 442.
663-153	663 227 C94 software	Error log analysis indicates a IBM ARTIC960RxD or RxF PCI Adapter failure. Action: Use the **errpt** command to check error log. Action: Use “MAP0210 General problem resolution” on page 442.
663-154	C94 663 C95	IBM ARTIC960RxD or RxF PCI Adapter initialization failure. Action: Use “MAP0210 General problem resolution” on page 442.
663-155	C94 663 C95	IBM ARTIC960RxD or RxF PCI Adapter initialization failure. Action: Use “MAP0210 General problem resolution” on page 442.
663-156	C94 663 C95	IBM ARTIC960RxD or RxF PCI Adapter initialization failure. Action: Use “MAP0210 General problem resolution” on page 442.
663-157	C98 C97 C95	Cable wrap test failure. Action: Use “MAP0210 General problem resolution” on page 442.
669-101	221	Enhanced error handling failure on bus. Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
669-102	221	Enhanced error handling failure on Eads chip. Action: Use "MAP0210 General problem resolution" on page 442.
669-103	669	Enhanced error handling failure on adapter. Action: Use "MAP0210 General problem resolution" on page 442.
669-201	669 221	Configuration register test failure. Action: Before going to MAP 210, look at the label on the adapter. If the label is A-A, use SRN 66C-201 instead, and go to "MAP0210 General problem resolution" on page 442.
669-202	669	I/O register test failure. Action: Use "MAP0210 General problem resolution" on page 442.
669-203	669	Adapter memory test failure. Action: Use "MAP0210 General problem resolution" on page 442.
669-204	669	Adapter initialization test failure. Action: Use "MAP0210 General problem resolution" on page 442.
669-205	669	Internal loopback test failure. Action: Use "MAP0210 General problem resolution" on page 442.
669-206	669	External wrap test failure (1000 Mbps). Action: Use "MAP0210 General problem resolution" on page 442.
669-701	669	Error Log Analysis indicates that this device failed to initialize because it is not the IBM version of this adapter. AIX operating system cannot configure this non-IBM version of the adapter. Action: Use "MAP0210 General problem resolution" on page 442.
669-702	669	Error Log Analysis indicates that this device failed to initialize due to a problem with the EEPROM on the adapter. Action: Use "MAP0210 General problem resolution" on page 442.
669-703		Error Log Analysis indicates that this device has failed to initialize due to a self-test failure. Action: Use "MAP0210 General problem resolution" on page 442.
669-704		Error Log Analysis indicates that this device has failed to initialize due to firmware download error. Action: Use "MAP0210 General problem resolution" on page 442.
66A-101		Diagnostics indicates adapter configuration failure. Action: Use "MAP0210 General problem resolution" on page 442.
66C-101	221	Enhanced error handling failure on bus. Action: Use "MAP0210 General problem resolution" on page 442.
66C-102	221	Enhanced error handling failure on Eads chip. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action
66C-103	66C	Enhanced error handling failure on adapter. Action: Use “MAP0210 General problem resolution” on page 442.
66C-201	66C 221	Configuration register test failure. Action: Use “MAP0210 General problem resolution” on page 442.
66C-202	66C	I/O register test failure. Action: Use “MAP0210 General problem resolution” on page 442.
66C-203	66C	Adapter memory test failure. Action: Use “MAP0210 General problem resolution” on page 442.
66C-204	66C	Adapter initialization test failure. Action: Use “MAP0210 General problem resolution” on page 442.
66C-205	66C	Internal loopback test failure. Action: Use “MAP0210 General problem resolution” on page 442.
66C-206	66C	External wrap test failure (1000 Mbps). Action: Use “MAP0210 General problem resolution” on page 442.
66C-207	66C	External wrap test failure (10 Mbps). Action: Use “MAP0210 General problem resolution” on page 442.
66C-208	66C	External wrap test failure (100 Mbps). Action: Use “MAP0210 General problem resolution” on page 442.
66C-702	66C	Error Log Analysis indicates that this device failed to initialize due to a problem with the EEPROM on the adapter. Action: Use “MAP0210 General problem resolution” on page 442.
66C-703	66C	Error Log Analysis indicates that this device has failed to initialize due to a self-test failure. Action: Use “MAP0210 General problem resolution” on page 442.
66C-704	66C	Error Log Analysis indicates that this device has failed to initialize due to firmware download error. Action: Use “MAP0210 General problem resolution” on page 442.
66D-101	66D 227	The PCI wrap test failed. Action: Use “MAP0270 SCSI RAID problem resolution and verification” on page 443.
66D-102	66D E2A	The POST indicates an adapter failure. Action: Use “MAP0270 SCSI RAID problem resolution and verification” on page 443.
66D-103	66D	The POST indicates an adapter channel failure. Action: Use “MAP0270 SCSI RAID problem resolution and verification” on page 443.
66D-104	190 B3A	The POST indicates a defective cable. Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
66D-105	722	The POST indicates a defective backplane or external enclosure. Action: Use “MAP0210 General problem resolution” on page 442.
66D-106	722	The POST indicates the last disk drive reconnected caused a channel failure. Action: Use “MAP0270 SCSI RAID problem resolution and verification” on page 443.
66D-108	221	Enhanced error handling failure on bus. Action: Use “MAP0210 General problem resolution” on page 442.
66D-109	66D	The test indicates an adapter failure. Action: Use “MAP0270 SCSI RAID problem resolution and verification” on page 443.
66D-110	722	The disk reported a Predictive Failure Analysis error (PFA). Action: Use “MAP0270 SCSI RAID problem resolution and verification” on page 443.
66D-111	722	The disk drive has been failed by the adapter. Action: Use “MAP0270 SCSI RAID problem resolution and verification” on page 443.
66D-112	722	ELA indicates that the disk reported a hard data error. Action: Use “MAP0270 SCSI RAID problem resolution and verification” on page 443.
66D-113	722	ELA indicates that the disk reported a hard equipment error. Action: Use “MAP0270 SCSI RAID problem resolution and verification” on page 443.
66D-114	E2A	ELA indicates a cache failure. Action: Use “MAP0270 SCSI RAID problem resolution and verification” on page 443.
66D-115	E3A	ELA indicates that the cache battery is either low on power or has failed. Action: Use “MAP0270 SCSI RAID problem resolution and verification” on page 443.
66D-116	66D	Failed to disable data scrub. Action: Use “MAP0270 SCSI RAID problem resolution and verification” on page 443.
66D-117	E2A	POST indicates cache failure. Action: Use “MAP0270 SCSI RAID problem resolution and verification” on page 443.
66D-118	E2A	Adapter test indicates a cache failure. Action: Use “MAP0270 SCSI RAID problem resolution and verification” on page 443.

Service Request Number	Failing Function Codes	Description/Action
66D-119	E2A	Adapter test indicates that write cache is missing. Action: Use "MAP0270 SCSI RAID problem resolution and verification" on page 443.
66D-120	E2A	Adapter test indicates that cache size is invalid. Action: Use "MAP0270 SCSI RAID problem resolution and verification" on page 443.
66D-121	E3A	Adapter test indicates that the cache battery is low on power. Action: Use "MAP0270 SCSI RAID problem resolution and verification" on page 443.
66D-122	66D	Adapter test indicates cache battery failure. Action: Use "MAP0270 SCSI RAID problem resolution and verification" on page 443.
66D-123	221	ELA indicates an adapter failure. Action: Use "MAP0270 SCSI RAID problem resolution and verification" on page 443.
66D-124	221	Enhanced error handling failure on PCI-PCI Bridge. Action: Use "MAP0210 General problem resolution" on page 442.
66D-125	66D 221	Enhanced error handling failure on adapter. Action: Use "MAP0210 General problem resolution" on page 442.
66D-400	66D 190 B3A 722	The POST test indicates a channel failure. Action: Use "MAP0270 SCSI RAID problem resolution and verification" on page 443.
66D-701	66D 221	Error Log Analysis indicates an enhanced error handling error. Action: Use "MAP0210 General problem resolution" on page 442.
66E-100	66E	Unable to configure the parent device. Action: Use "MAP0210 General problem resolution" on page 442.
66E-102	66E	SCSI command Inquiry has failed. Unable to get Additional Vital Product Data. Action: Use "MAP0210 General problem resolution" on page 442.
66E-103	66E	SCSI command Reserve has failed. Action: Use "MAP0210 General problem resolution" on page 442.
66E-104	66E	SCSI command Mode Sense has failed. Action: Use "MAP0210 General problem resolution" on page 442.
66E-105	66E	SCSI command Mode Select has failed. Action: Use "MAP0210 General problem resolution" on page 442.
66E-106	66E	SCSI command Allow Media Removal has failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action
66E-107	66E	SCSI command Prevent Media Removal has failed. Action: Use “MAP0210 General problem resolution” on page 442.
66E-108	66E	SCSI command Start Stop Unit has failed. Action: Use “MAP0210 General problem resolution” on page 442.
66E-109	66E	SCSI command Test Unit Ready has failed. Action: Use “MAP0210 General problem resolution” on page 442.
66E-10A	66E	SCSI command Send Diagnostic has failed. Action: Use “MAP0210 General problem resolution” on page 442.
66E-10B	66E	SCSI command Release has failed. Action: Use “MAP0210 General problem resolution” on page 442.
66E-10F	66E	Undetermined hardware error has occurred. Action: Use “MAP0210 General problem resolution” on page 442.
66E-200	66E B88	Unable to configure the device. Action: Use “MAP0210 General problem resolution” on page 442.
66E-201	media 66E	DVD-RAM drive is unable to eject the tray. Action: Verify that no external object prevents the drive from ejecting the tray. Verify that no media is stuck inside the drive. Otherwise, use “MAP0210 General problem resolution” on page 442.
66E-202	media 66E	DVD-RAM drive is unable to load the tray. Action: Verify that no external object prevents the drive from ejecting the tray. Verify that no media is stuck inside the drive. Otherwise, use “MAP0210 General problem resolution” on page 442.
66E-203	media 66E	DVD-RAM drive is unable to detect the test medium. Action: Verify that no external object prevents the drive from ejecting the tray. Verify that no media is stuck inside the drive. Otherwise, use “MAP0210 General problem resolution” on page 442.
66E-204	66E B88	A SCSI reservation conflict has occurred. Action: Use “MAP0210 General problem resolution” on page 442.
66E-205	media 66E	The Random Write/Read/Compare Test has detected a medium error while testing the DVD-RAM test medium. Action: Run Diagnostic on this drive with another DVD-RAM test medium. Use “MAP0210 General problem resolution” on page 442.
66E-206	media 66E	The Random Write/Read/Compare Test has detected a hardware error while testing the DVD-RAM test medium. Action: Run Diagnostic on this drive with another DVD-RAM test medium. Use “MAP0210 General problem resolution” on page 442.
66E-207	media 66E	The Random Read Test has detected a medium error while testing the CD-ROM test medium. Action: Run Diagnostic on this drive with another DVD-RAM test medium. Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
66E-208	media 66E	The Random Read Test has detected a hardware error while testing the CD-ROM test medium. Action: Run Diagnostic on this drive with another DVD-RAM test medium. Use "MAP0210 General problem resolution" on page 442.
66E-209	media 66E	DVD-RAM drive is unable to determine the media type. Action: 1. Verify that the proper test medium is inserted. 2. Clean the drive. 3. Run Diagnostic on this drive with another test medium. 4. Use "MAP0210 General problem resolution" on page 442.
66E-20A	media 66E	DVD-RAM drive has faulty write-protect-detection mechanism. Action: 1. Verify that the DVD-RAM test medium is not write-protected. 2. Run Diagnostic on this drive with another DVD-RAM test medium. 3. Use "MAP0210 General problem resolution" on page 442.
66E-20B	media 66E	DVD-RAM drive has detected a media error. Action: 1. Verify that the DVD-RAM test medium is inserted properly. 2. Run Diagnostic on this drive with another DVD-RAM test medium. 3. If the test fails with the new test media, use "MAP0210 General problem resolution" on page 442 to replace the defective DVD-ROM drive.
66E-300	66E B88 190	SCSI command timeout has occurred. Action: Use "MAP0210 General problem resolution" on page 442 to replace the defective DVD-ROM drive.
66E-301	66E B88 190	Unit Attention has occurred. Action: Use "MAP0210 General problem resolution" on page 442.
66E-700	66E	ELA indicates an irrecoverable hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
66E-701	66E	ELA indicates an undetermined hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
670-*xxx* to 673-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
674-101	674 C94 C95	IBM ARTIC960Rx PCI Adapter Central Processing Unit (CPU) test failure. Action: Use "MAP0210 General problem resolution" on page 442.
674-102	674 C94 C95	IBM ARTIC960Rx PCI Adapter Timer test failure. Action: Use "MAP0210 General problem resolution" on page 442.
674-103	674 C94 C95	IBM ARTIC960Rx PCI Adapter Bus Interface test failure. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action
674-104	674 C94 C95	IBM ARTIC960Rx PCI Adapter Dynamic Random Access Memory (DRAM) test failure. Action: Use “MAP0210 General problem resolution” on page 442.
674-105	674 C94 C95	IBM ARTIC960Rx PCI Adapter Memory Protection test failure. Action: Use “MAP0210 General problem resolution” on page 442.
674-106	674 C94 C95	IBM ARTIC960Rx PCI Adapter Debug Port test failure. Action: Use “MAP0210 General problem resolution” on page 442.
674-107	674 C94 C95	Interface board wrap test failure. Action: Use “MAP0210 General problem resolution” on page 442.
674-110	674 C94 C95	IBM ARTIC960Rx PCI Adapter Download Diagnostics test failure. Action: Use “MAP0210 General problem resolution” on page 442.
674-123	C94 C95	Interface board non-wrap test failure. Action: Use “MAP0210 General problem resolution” on page 442.
674-150	674 software 227	Device configuration failure. Action: Use “MAP0210 General problem resolution” on page 442.
674-151	674 software 227	Device driver indicates a hardware failure. Action: Use “MAP0210 General problem resolution” on page 442.
674-152	674	Failure and error in determining which type of IBM ARTIC960Rx PCI Adapter. Action: Use “MAP0210 General problem resolution” on page 442.
674-153	674 software C94 227	Error log analysis indicates a IBM ARTIC960Rx PCI Adapter failure. Action: Use the errpt command to check error log. Action: Use “MAP0210 General problem resolution” on page 442.
674-154	C94 674 C95	IBM ARTIC960Rx PCI Adapter initialization failure. Action: Use “MAP0210 General problem resolution” on page 442.
674-155	C94 674 C95	IBM ARTIC960Rx PCI Adapter initialization failure. Action: Use “MAP0210 General problem resolution” on page 442.
674-156	C94 674 C95	IBM ARTIC960Rx PCI Adapter initialization failure. Action: Use “MAP0210 General problem resolution” on page 442.
674-157	C94 674 C95	Cable wrap test failure. Action: Use “MAP0210 General problem resolution” on page 442.
675-101	C94 674 C95	IBM ARTIC960Hx Adapter Central Processing Unit (CPU) test failure. Action: Use “MAP0210 General problem resolution” on page 442.
675-102	C94 674 C95	IBM ARTIC960Hx Adapter Timer test failure. Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
675-103	C94 674 C95	IBM ARTIC960Hx Adapter Bus Interface test failure. Action: Use "MAP0210 General problem resolution" on page 442.
675-104	C94 674 C95	IBM ARTIC960Hx Adapter Dynamic Random Access Memory (DRAM) test failure. Action: Use "MAP0210 General problem resolution" on page 442.
675-105	C94 674 C95	IBM ARTIC960Hx Adapter Memory Protection test failure. Action: Use "MAP0210 General problem resolution" on page 442.
675-106	C94 674 C95	IBM ARTIC960Hx Adapter Debug Port test failure. Action: Use "MAP0210 General problem resolution" on page 442.
675-107	C94 674 C95	Interface board wrap test failure. Action: Use "MAP0210 General problem resolution" on page 442.
675-110	C94 674 C95	IBM ARTIC960Hx Adapter Download Diagnostics test failure. Action: Use "MAP0210 General problem resolution" on page 442.
675-123	C94 674 C95	Interface board non-wrap test failure. Action: Use "MAP0210 General problem resolution" on page 442.
675-150	675 software 227	Device configuration failure. Action: Use "MAP0210 General problem resolution" on page 442.
675-151	675 software 227	Device driver indicates a hardware failure. Action: Use "MAP0210 General problem resolution" on page 442.
675-152	675	Failure and error in determining which type of IBM ARTIC960Hx Adapter. Action: Use "MAP0210 General problem resolution" on page 442.
675-153	675 software C94 227	Error log analysis indicates a IBM ARTIC960Hx Adapter failure. Action: Use the errpt command to check error log. "MAP0210 General problem resolution" on page 442.
675-154	C94 675 C95	IBM ARTIC960Hx Adapter initialization failure. Action: Use "MAP0210 General problem resolution" on page 442.
675-155	C94 675 C95	IBM ARTIC960Hx Adapter initialization failure. Action: Use "MAP0210 General problem resolution" on page 442.
675-156	C94 675 C95	IBM ARTIC960Hx Adapter initialization failure. Action: Use "MAP0210 General problem resolution" on page 442.
675-157	C94 675 C95	Cable wrap test failure. Action: Use "MAP0210 General problem resolution" on page 442.
677-101	677	The Fibre Channel Adapter configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
677-102	677	The Reset test failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action
677-103	677	The Register test failed. Action: Use “MAP0210 General problem resolution” on page 442.
677-104	677	The SRAM test failed. Action: Use “MAP0210 General problem resolution” on page 442.
677-105	677	The Internal Wrap test failed. Action: Use “MAP0210 General problem resolution” on page 442.
677-106	677	The Gigabaud Link Module (GLM) Wrap Test Failure. Action: Use the “MAP0210 General problem resolution” on page 442 The External Wrap test failed. Action: Use the “MAP0210 General problem resolution” on page 442.
677-107	677	The External Wrap test failed. Action: Use the “MAP0210 General problem resolution” on page 442.
677-109	221	Enhanced Error Handling Failure on EADs chip. Action: Use the “MAP0210 General problem resolution” on page 442.
677-110	677	Enhanced Error Handling Failure on adapter. Action: Use the “MAP0210 General problem resolution” on page 442.
677-201	677 221	The Configuration Register test failed. Action: Use the “MAP0210 General problem resolution” on page 442.
677-202	677 221	The Interrupt test failed. Action: Use “MAP0210 General problem resolution” on page 442.
677-203	677 221	The PCI Wrap test failed. Action: Use “MAP0210 General problem resolution” on page 442.
677-204	677 221	The DMA test failed. Action: Use “MAP0210 General problem resolution” on page 442.
677-205	677 221	I/O error on a read/write operation. Action: Use “MAP0210 General problem resolution” on page 442.
677-701	677 221	Error log analysis indicates that an error has occurred with the adapter. Action: Use the “MAP0210 General problem resolution” on page 442.
677-703	677	Error log analysis indicates that an unknown adapter error has occurred. Action: Use the “MAP0210 General problem resolution” on page 442.
677-704	677	Error log analysis indicates that an adapter error has occurred. Action: Use “MAP0210 General problem resolution” on page 442.
677-705	677	A parity error has been detected. The adapter must be replaced immediately. Failure to do so could result in data being read or written incorrectly. Action: Use “MAP0210 General problem resolution” on page 442.
677-706	677	A fatal hardware error has occurred. This adapter was successfully taken offline. It will remain offline until reconfigured or the system is rebooted. This adapter must be replaced and not brought back online. Failure to adhere to this action could result in data being read or written incorrectly or in the loss of data.
678-098	678	Tape drive indicates an error. Action: Use “MAP0210 General problem resolution” on page 442.
678-099	678 B88	Tape drive not found. Action: Use “MAP0210 General problem resolution” on page 442
678-101	678	Timeout while attempting to communicate with SCSI device. Action: Use “MAP0210 General problem resolution” on page 442.
678-102	678	e SCSI device indicates busy. Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
678-103	678	The SCSI device indicates a reservation conflict. Action: Use “MAP0210 General problem resolution” on page 442.
678-104	678	The SCSI device indicates a check condition. Action: Use “MAP0210 General problem resolution” on page 442.
678-105	678	An error is detected in request sense data. Action: Use “MAP0210 General problem resolution” on page 442.
678-107	678	Sense data from the SCSI drive has unexpected data. Action: Use “MAP0210 General problem resolution” on page 442.
678-110	678	The Reserve command failed. Action: Use “MAP0210 General problem resolution” on page 442.
678-111	678	Invalid condition from the drive after a reserve. Action: Use “MAP0210 General problem resolution” on page 442.
678-112	678	The write-protect sensor test failed. Action: Use “MAP0210 General problem resolution” on page 442.
678-113	678	Invalid condition from drive after a request sense. Action: Use “MAP0210 General problem resolution” on page 442.
678-114	678	Timeout while attempting to communicate with the SCSI device. Action: Use “MAP0210 General problem resolution” on page 442.
678-120	678	The Inquiry command failed. Action: Use “MAP0210 General problem resolution” on page 442.
678-130	678 media	Load command failed. Action: Use “MAP0210 General problem resolution” on page 442
678-134	B88 software	The adapter failed to configure. Action: Use “MAP0210 General problem resolution” on page 442.
678-135	678 media	The Unload command failed. Action: Use “MAP0210 General problem resolution” on page 442.
678-140	678	The Mode Select command failed. Action: Use “MAP0210 General problem resolution” on page 442.
678-150	678 media	The Test Unit Ready command failed. Action: Use “MAP0210 General problem resolution” on page 442.
678-160	678 media	The Send Diagnostic command failed. Action: Use “MAP0210 General problem resolution” on page 442.
678-161	678 B88	Invalid condition from the drive after a reserve. Action: Use “MAP0210 General problem resolution” on page 442.
678-163	678 B88	Invalid condition from the drive after a request sense. Action: Use “MAP0210 General problem resolution” on page 442.
678-164	678 B88	Timeout while attempting to communicate with the SCSI device. Action: Use “MAP0210 General problem resolution” on page 442.
678-165	678 B88 276	Write, Read and Compare Test failed. Action: Use “MAP0210 General problem resolution” on page 442.
678-166	678 B88 software	Unable to configure the device. Action: Use “MAP0210 General problem resolution” on page 442.
678-167	678 B88	An unexpected SCSI error occurred. Action: Use “MAP0210 General problem resolution” on page 442.
678-168	B88 software	The adapter failed to configure. Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
678-169	678 media	The Send Diagnostic command failed. Action: Use “MAP0210 General problem resolution” on page 442.
678-170	678 B88 media	The Read, Write and Compare test failed. Action: Use “MAP0210 General problem resolution” on page 442.
678-180	678 media	The Load command failed. Action: Use “MAP0210 General problem resolution” on page 442
678-185	678 media	The Unload command failed. Action: Use “MAP0210 General problem resolution” on page 442
678-190	678	The Mode Select command failed. Action: Use “MAP0210 General problem resolution” on page 442
678-200	678 media	The Test Unit Ready command failed. Action: Use “MAP0210 General problem resolution” on page 442
678-201	678 B88	Error diagnosed from error log analysis. Action: Use “MAP0210 General problem resolution” on page 442.
678-210	678 B88	The device configuration failed. Action: Use “MAP0210 General problem resolution” on page 442
678-211	678 B88	The device open failed. Action: Use “MAP0210 General problem resolution” on page 442
678-220	678	The Release command failed. Action: Use “MAP0210 General problem resolution” on page 442
678-230	678	The Request Sense command failed. Action: Use “MAP0210 General problem resolution” on page 442
678-240	678	The Openx command failed. Action: Use “MAP0210 General problem resolution” on page 442
678-260	678	The device configuration failed. Action: Use “MAP0210 General problem resolution” on page 442.
678-261	678	The device open failed. Action: Use “MAP0210 General problem resolution” on page 442
678-300	678 software	The device configuration failed. Action: Use “MAP0210 General problem resolution” on page 442.
678-310	678 B88 software	SCSI adapter configuration failed. Action: Use “MAP0210 General problem resolution” on page 442.
678-320	678 media	Error log analysis indicates a failure. Action: Use “MAP0210 General problem resolution” on page 442.
678-411 to 678-423	678 B88 software	A reservation conflict occurred. Action: Use “MAP0210 General problem resolution” on page 442.
678-511 to 678-523	678 B88	The drive returned bad or non-extended sense data. Action: Use “MAP0210 General problem resolution” on page 442.
678-611 to 678-623	678 B88 software	An adapter or bus I/O error occurred. Action: Use “MAP0210 General problem resolution” on page 442.
678-711 to 678-723	678 B88 software	A device timeout error occurred. Action: Use “MAP0210 General problem resolution” on page 442.
679-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.

Service Request Number	Failing Function Codes	Description/Action
67B-100	67B	POST failed: Catastrophic error detected. Action: Use “MAP0210 General problem resolution” on page 442.
67B-601	11A	ELA indicates a low battery warning. Action: Use “MAP0210 General problem resolution” on page 442.
67B-602	67B	ELA indicates a mesh violation - tamper. Action: Use “MAP0210 General problem resolution” on page 442.
67B-603	67B	ELA indicates the coprocessor is held in a reset condition. Action: Use “MAP0210 General problem resolution” on page 442.
67B-604	67B	ELA indicates a +3, +5, or +12 V over-voltage condition. Action: Use “MAP0210 General problem resolution” on page 442.
67B-605	67B	ELA indicates an out-of-temperature specification. Action: Use “MAP0210 General problem resolution” on page 442.
67B-606	67B	ELA indicates a X-ray or dead battery condition. Action: Use “MAP0210 General problem resolution” on page 442.
67B-607	67B	ELA indicates: Intrusion latch. Action: Use “MAP0210 General problem resolution” on page 442.
67E-001	67E 221 Monitor/Cable	Adapter problem. Action: Use “MAP0210 General problem resolution” on page 442
67E-002	67E Monitor/Cable	Display problem. Action: Use “MAP0210 General problem resolution” on page 442
67E-003	67E software	Software error. Action: Use “MAP0210 General problem resolution” on page 442.
67E-004	67E 221 Monitor/Cable	The monitor test failed. Action: Use “MAP0210 General problem resolution” on page 442.
681-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
682-111	682 B88	Unable to reserve device. Action: Use “MAP0210 General problem resolution” on page 442.
682-112	682 B88	Unable to do configuration. Action: Use “MAP0210 General problem resolution” on page 442.
682-113	682 B88	Unable to open the device driver. Action: Use “MAP0210 General problem resolution” on page 442
682-121	682	The CD-ROM drive indicates an error. Action: Use “MAP0210 General problem resolution” on page 442
682-122	682	The CD-ROM drive indicates an error. Action: Use “MAP0210 General problem resolution” on page 442
682-123	682	The CD-ROM drive indicates an error. Action: Use “MAP0210 General problem resolution” on page 442
682-125	682 B88	The CD-ROM drive indicates an error. Action: Use “MAP0210 General problem resolution” on page 442
682-126	682	The CD-ROM drive indicates an error. Action: Use “MAP0210 General problem resolution” on page 442
682-127	682	The CD-ROM drive indicates an error. Action: Use “MAP0210 General problem resolution” on page 442
682-128	682	The CD-ROM drive indicates an error. Action: Use “MAP0210 General problem resolution” on page 442

Service Request Number	Failing Function Codes	Description/Action
682-129	682	The CD-ROM drive indicates an error. Action: Use “MAP0210 General problem resolution” on page 442
682-150	682 Test Disc	A media error was detected. Action: Use “MAP0210 General problem resolution” on page 442
682-151	682 B88	A command timeout was detected. Action: Use “MAP0210 General problem resolution” on page 442
682-152	682	A command reservation conflict was detected. Action: Use “MAP0210 General problem resolution” on page 442.
682-162	682	The CD-ROM drive indicates an error. Action: Use “MAP0210 General problem resolution” on page 442.
682-171	682	Unable to reserve device. Action: Use “MAP0210 General problem resolution” on page 442.
682-172	682	Unable to do configuration. Action: Use “MAP0210 General problem resolution” on page 442.
682-173	682	Unable to open device driver. Action: Use “MAP0210 General problem resolution” on page 442.
682-175	682	The CD-ROM drive indicates an error. Action: Use “MAP0210 General problem resolution” on page 442.
682-198	682 B88	Undefined error detected. Action: Use “MAP0210 General problem resolution” on page 442.
682-199	682	Undefined error detected. Action: Use “MAP0210 General problem resolution” on page 442.
682-211	682	The LED test failed. Action: Use “MAP0210 General problem resolution” on page 442.
682-281	682	No tone during audio test. Action: Use “MAP0210 General problem resolution” on page 442.
682-301	682	Errors found during ELA. Action: Use “MAP0210 General problem resolution” on page 442.
682-302	682 B88	Errors found during ELA. Action: Use “MAP0210 General problem resolution” on page 442.
683-128	683	Error Log Analysis Indicates hardware failure VSS2105 Model B09. Action: Use “MAP0210 General problem resolution” on page 442.
686-114	686	The register verification test failed. Action: Use “MAP0210 General problem resolution” on page 442
686-124	686	The adapter RAM verification test failed. Action: Use “MAP0210 General problem resolution” on page 442
686-152	686 D57	The data wrap communication test failed. Action: Use “MAP0210 General problem resolution” on page 442
686-153	686	The modem control line test failed. Action: Use “MAP0210 General problem resolution” on page 442.
686-252	686	The data wrap communication test failed. Action: Use “MAP0210 General problem resolution” on page 442.
686-253	686	The modem control line test failed. Action: Use “MAP0210 General problem resolution” on page 442.
686-501	686	Adapter Reset failed Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
686-511	686	Adapter to host memory test failed (byte tag test). Action: Use “MAP0210 General problem resolution” on page 442.
686-512	686	Adapter to host memory test failed (word tag test). Action: Use “MAP0210 General problem resolution” on page 442.
686-513	686	Adapter to host memory test failed (byte pattern test). Action: Use “MAP0210 General problem resolution” on page 442.
686-514	686	Adapter to host memory test failed (word pattern test). Action: Use “MAP0210 General problem resolution” on page 442.
686-521	686	Adapter BIOS POST CPU failed. Action: Use “MAP0210 General problem resolution” on page 442.
686-522	686	Adapter BIOS POST Checksum failed. Action: Use “MAP0210 General problem resolution” on page 442.
686-523	686	Adapter BIOS POST Timer failed. Action: Use “MAP0210 General problem resolution” on page 442.
686-524	686	Adapter BIOS POST RAM failed. Action: Use “MAP0210 General problem resolution” on page 442.
686-526	686	Adapter BIOS POST Async Ports failed. Action: Use “MAP0210 General problem resolution” on page 442.
686-527	686	Adapter BIOS test failed. Action: Use “MAP0210 General problem resolution” on page 442.
686-528	686	Adapter BIOS Reset failed. Action: Use “MAP0210 General problem resolution” on page 442.
686-529	686	Adapter BIOS Download failed. Action: Use “MAP0210 General problem resolution” on page 442.
686-531	686	Adapter BIOS Command failed. Action: Use “MAP0210 General problem resolution” on page 442.
686-533	686	Adapter BIOS Timer test failed. Action: Use “MAP0210 General problem resolution” on page 442.
686-534	686	Adapter BIOS RAM test failed. Action: Use “MAP0210 General problem resolution” on page 442.
686-541	686	Port async internal loopback test failed (general). Action: Use “MAP0210 General problem resolution” on page 442.
686-542	686	Port async internal loopback test failed (no response from the port). Action: Use “MAP0210 General problem resolution” on page 442.
686-551	686	Port async external loopback test failed (general). Action: Use “MAP0210 General problem resolution” on page 442.
686-552	686	Port async external loopback test failed (data signals). Action: Use “MAP0210 General problem resolution” on page 442.
686-553	686	Port async external loopback test failed (control signals). Action: Use “MAP0210 General problem resolution” on page 442.
686-554	686	Port async external loopback test failed (modem signals). Action: Use “MAP0210 General problem resolution” on page 442.
686-555	686	Port async external loopback test failed (no response from port). Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
686-901 to 686-920	software 686	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use MAP 210 with a FFC of 686; otherwise, suspect a software problem.
686-921	software 686	The adapter failed to configure. Action: Use “MAP0210 General problem resolution” on page 442.
686-922 to 686-924	software 686	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use “MAP0210 General problem resolution” on page 442 with a FFC of 686; otherwise, suspect a software problem.
686-925	686	The adapter failed to configure software Action: Use “MAP0210 General problem resolution” on page 442.
686-926 to 686-950	software 686	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use “MAP0210 General problem resolution” on page 442 with a FFC of 686; otherwise, suspect a software problem.
687-111	687	The controller register test failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-114	687	The register verification test failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-124	687	The adapter RAM verification test failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-144	687	The sync line test failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-152	837 684 687 152	The data wrap communication test failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-153	687	The modem control line test failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-244	687	The sync line test failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-252	687	The data wrap communication test failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-253	687	The modem control line test failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-501	687	Adapter Reset failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-502	687	Adapter Fuse failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-511	687	Adapter to host memory test failed (byte tag test). Action: Use “MAP0210 General problem resolution” on page 442.
687-512	687	Adapter to host memory test failed (word tag test). Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
687-513	687	Adapter to host memory test failed (byte pattern test). Action: Use “MAP0210 General problem resolution” on page 442.
687-514	687	Adapter to host memory test failed (word pattern test). Action: Use “MAP0210 General problem resolution” on page 442.
687-521	687	Adapter BIOS POST CPU failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-522	687	Adapter BIOS POST Checksum failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-523	687	Adapter BIOS POST Timer failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-524	687	Adapter BIOS POST RAM failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-525	687	Adapter BIOS POST Sync Line failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-527	687	Adapter BIOS test failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-528	687	Adapter BIOS Reset failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-529	687	Adapter BIOS Download failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-531	687	Adapter BIOS Command failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-533	687	Adapter BIOS Timer test failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-534	687	Adapter BIOS RAM test failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-541	687	Port sync internal loopback test failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-551	687	Port sync external loopback test failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-600	687	232RAN status test failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-700	687	422RAN status test failed. Action: Use “MAP0210 General problem resolution” on page 442.
687-901 to 687-920	software 687	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use “MAP0210 General problem resolution” on page 442 with a FFC of 687; otherwise, suspect a software problem.
687-921	software 687	The adapter failed to configure. Action: Use “MAP0210 General problem resolution” on page 442.
687-922 to 687-924	software 687	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use “MAP0210 General problem resolution” on page 442. with a FFC of 687; otherwise, suspect a software problem.

Service Request Number	Failing Function Codes	Description/Action
687-925	software 687	The adapter failed to configure. Action: Use “MAP0210 General problem resolution” on page 442.
687-926 to 687-950	software 687	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use “MAP0210 General problem resolution” on page 442 with a FFC of 687; otherwise, suspect a software problem.
689-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
68C-101	68C	Timeout while attempting to communicate with SCSI device. Action: Use “MAP0210 General problem resolution” on page 442.
68C-102	68C	The SCSI device indicates busy. Action: Use “MAP0210 General problem resolution” on page 442.
68C-103	68C	The SCSI device indicates a reservation conflict. Action: Use “MAP0210 General problem resolution” on page 442.
68C-104	68C	The SCSI device indicates a check condition. Action: Use “MAP0210 General problem resolution” on page 442.
68C-105	68C	An error is detected in request sense data. Action: Use “MAP0210 General problem resolution” on page 442.
68C-107	68C	Sense data from the SCSI drive has unexpected data. Action: Use “MAP0210 General problem resolution” on page 442.
68C-110	68C	The Reserve command failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-111	68C	Invalid condition from the drive after a reserve. Action: Use “MAP0210 General problem resolution” on page 442.
68C-112	68C	The write-protect sensor test failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-113	68C	Invalid condition from drive after a request sense. Action: Use “MAP0210 General problem resolution” on page 442.
68C-114	68C	Timeout while attempting to communicate with the SCSI device. Action: Use “MAP0210 General problem resolution” on page 442.
68C-120	68C	The Inquiry command failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-130	68C media	The Load command failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-134	B88 software	The adapter failed to configure. Action: Use “MAP0210 General problem resolution” on page 442.
68C-135	68C media	The Unload command failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-140	68C	The Mode Select command failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-150	68C media	The Test Unit Ready command failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-160	68C media	The Send Diagnostic command failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-161	68C B88	Invalid condition from the drive after a reserve. Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
68C-163	68C B88	Invalid condition from the drive after a request sense. Action: Use “MAP0210 General problem resolution” on page 442.
68C-164	68C B88	Timeout while attempting to communicate with the SCSI device. Action: Use “MAP0210 General problem resolution” on page 442.
68C-165	68C B88 276	Write, Read and Compare Test failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-166	68C B88 software	Unable to configure the device. Action: Use “MAP0210 General problem resolution” on page 442.
68C-167	68C B88	An unexpected SCSI error occurred. Action: Use “MAP0210 General problem resolution” on page 442.
68C-168	B88 software	The adapter failed to configure. Action: Use “MAP0210 General problem resolution” on page 442.
68C-169	68C media	The Send Diagnostic command failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-170	68C B88 media	The Read, Write and Compare test failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-180	68C media	The Load command failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-185	68C media	The Unload command failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-190	68C	The Mode Select command failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-200	68C media	The Test Unit Ready command failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-201	68C B88	Error diagnosed from error log analysis. Action: Use “MAP0210 General problem resolution” on page 442.
68C-210	68C B88	The device configuration failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-211	68C B88	The device open failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-220	68C	The Release command failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-230	68C	The Request Sense command failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-240	68C	The Openx command failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-260	68C	The device configuration failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-261	68C	The device open failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-300	68C software	The device configuration failed. Action: Use “MAP0210 General problem resolution” on page 442.
68C-310	B88 68C software	SCSI adapter configuration failed. Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
68C-320	68C media	Error log analysis indicates a failure. Action: Use “MAP0210 General problem resolution” on page 442.
68C-411 to 68C-423	B88 68C software	A reservation conflict occurred. Action: Use “MAP0210 General problem resolution” on page 442.
68C-511 to 68C-523	B88 68C	The drive returned bad or non-extended sense data. Action: Use “MAP0210 General problem resolution” on page 442.
68C-611 to 68C-623	B88 68C software	An adapter or bus I/O error occurred. Action: Use “MAP0210 General problem resolution” on page 442.
68C-711 to 68C-723	B88 68C software	A device timeout error occurred. Action: Use “MAP0210 General problem resolution” on page 442.
68E-001	Software 68E	Software error. Action: Use “MAP0210 General problem resolution” on page 442.
68E-002	Software 68E	Adapter failure. Action: Use “MAP0210 General problem resolution” on page 442.
68E-003	68E 227	Adapter failure. Action: Use “MAP0210 General problem resolution” on page 442.
68E-004	68E Monitor/Cable	Display failure. Action: Use “MAP0210 General problem resolution” on page 442.
68E-005	68E 227 Monitor/Cable	Adapter failure. Action: Use “MAP0210 General problem resolution” on page 442.
690-*xxx*	691 227	See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
692-110	692	The **Reserve** command failed. Action: Use “MAP0210 General problem resolution” on page 442.
692-120	692	The **Inquiry** command failed. Action: Use “MAP0210 General problem resolution” on page 442.
692-130	692 media	The **Load** command failed. Action: Use “MAP0210 General problem resolution” on page 442.
692-135	692 media	The **Unload** command failed. Action: Use “MAP0210 General problem resolution” on page 442.
692-140	692	The **Mode Select** command failed. Action: Use “MAP0210 General problem resolution” on page 442.
692-150	692 media	The **Test Unit Ready** command failed. Action: Use “MAP0210 General problem resolution” on page 442.
692-160	692 media	The **Send Diagnostic** command failed. Action: Use “MAP0210 General problem resolution” on page 442.
692-169	692 media	The **Send Diagnostic** command failed. Action: Use “MAP0210 General problem resolution” on page 442.
692-170	692 B88 media	The Read, Write and Compare test failed. Action: Use “MAP0210 General problem resolution” on page 442.
692-180	692 media	The Load command failed. Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
692-185	692 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
692-190	692	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
692-200	692 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
692-210	692 B88	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
692-220	692	The **Release** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
692-230	692	The **Request Sense** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
692-240	692	The **Openx** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
692-300	692 software	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
692-310	B88 692 software	SCSI adapter configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
692-320	692 media	Error log analysis indicates a failure. Action: Use "MAP0210 General problem resolution" on page 442.
692-411 to 692-423	B88 692 software	A reservation conflict occurred. Action: Use "MAP0210 General problem resolution" on page 442.
692-511 to 692-523	B88 692	The drive returned bad or non-extended sense data. Action: Use "MAP0210 General problem resolution" on page 442.
692-611 to 692-623	B88 692 software	An adapter or bus I/O error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
692-711 to 692-723	B88 692 software	A device timeout error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
697-103	697 software 227	Charm software reset failure. Action: Use "MAP0210 General problem resolution" on page 442.
697-104	697 software 227	Packet memory error. Action: Use "MAP0210 General problem resolution" on page 442.
697-105	697 software 227	Control memory failure. Action: Use "MAP0210 General problem resolution" on page 442.
697-106	697	Link-R detected bad parity. Action: Use "MAP0210 General problem resolution" on page 442.
697-107	697	Suni detected bad parity. Action: Use "MAP0210 General problem resolution" on page 442.
697-108	697	Suni initialization failure. Action: Use "MAP0210 General problem resolution" on page 442.
697-109	Wrap Plug 697	Loss of light detected in Link test. Action: Check wrap plug installation. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action
697-10B	Wrap Plug 697	External Loopback failed Action: Check wrap plug installation. Action: Use “MAP0210 General problem resolution” on page 442.
697-10C	697 software 227	Internal Loopback failed. Action: Use “MAP0210 General problem resolution” on page 442.
697-10D	697 software 227	DMS failed. Action: Use “MAP0210 General problem resolution” on page 442.
697-121	697	Adapter memory test failure. Action: Use “MAP0210 General problem resolution” on page 442.
697-122	697	Adapter checksum failure. Action: Use “MAP0210 General problem resolution” on page 442.
697-123	697	Internal wrap test failure Action: Use “MAP0210 General problem resolution” on page 442.
697-124	697	External wrap test failure Action: Use “MAP0210 General problem resolution” on page 442.
697-125	221	Enhanced Error Handling failure on bus Action: Use “MAP0210 General problem resolution” on page 442.
697-126	221	Enhanced Error Handling failure on EADS chip Action: Use “MAP0210 General problem resolution” on page 442.
697-127	697	Enhanced Error Handling failure on adapter Action: Use “MAP0210 General problem resolution” on page 442.
697-1FF	697 software 227	EPROM checksum failed Action: Use “MAP0210 General problem resolution” on page 442.
697-200	697 software 227	Klog error Action: Use “MAP0210 General problem resolution” on page 442.
697-201	697 software 227	ASL error Action: Use “MAP0210 General problem resolution” on page 442.
697-202	697 software 227	ODM Initialization error Action: Use “MAP0210 General problem resolution” on page 442.
697-203	697 software 227	Diagnostic configuration failure. Action: Use “MAP0210 General problem resolution” on page 442.
697-205	697 software 227	Error in diag open. Action: Use “MAP0210 General problem resolution” on page 442.
697-206	697 221	Error in releasing adapter Action: Use “MAP0210 General problem resolution” on page 442.
697-221	697 221	Hardware failure opening the adapter Action: Use “MAP0210 General problem resolution” on page 442.
697-222	697 221	Enhanced Error Handling failure opening the adapter Action: Use “MAP0210 General problem resolution” on page 442.
697-223	697 221	Interrupt test failure Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
697-224	697 221	Adapter DMA test failure Action: Use “MAP0210 General problem resolution” on page 442.
697-701	697 221	Error Log Analysis indicates an I/O failure on the adapter. Action: Use “MAP0210 General problem resolution” on page 442.
697-702	697	Error Log Analysis indicates an unrecovered interrupt error. Action: Use “MAP0210 General problem resolution” on page 442.
698-100	697 software 227	Charm memory write failure. Action: Use “MAP0210 General problem resolution” on page 442.
698-101	697 software 227	Charm memory read failure. Action: Use “MAP0210 General problem resolution” on page 442.
698-102	697 software 227	PCI configuration register write failure. Action: Use “MAP0210 General problem resolution” on page 442.
698-103	697 software 227	Charm software reset failure. Action: Use “MAP0210 General problem resolution” on page 442.
698-104	697 software 227	Packet memory error Action: Use “MAP0210 General problem resolution” on page 442.
698-105	697 software 227	Control memory failure. Action: Use “MAP0210 General problem resolution” on page 442.
698-106	698	Link-R detected bad parity. Action: Use “MAP0210 General problem resolution” on page 442.
698-107	698	Suni detected bad parity. Action: Use “MAP0210 General problem resolution” on page 442.
698-108	698	Suni initialization failure. Action: Use “MAP0210 General problem resolution” on page 442.
698-109	Wrap Plug 698	Loss of light detected in Link test. Action: Check wrap plug installation. Action: Use “MAP0210 General problem resolution” on page 442.
698-10B	Wrap Plug 698	External Loopback failed Action: Check wrap plug installation. Action: Use “MAP0210 General problem resolution” on page 442.
698-10C	698 software 227	Internal Loopback failed. Action: Use “MAP0210 General problem resolution” on page 442.
698-10D	698 software 227	DMS failed. Action: Use “MAP0210 General problem resolution” on page 442.
698-121	698	Adapter memory test failure. Action: Use “MAP0210 General problem resolution” on page 442.
698-122	698	Adapter checksum failure. Action: Use “MAP0210 General problem resolution” on page 442.
698-123	698	Internal wrap test failure. Action: Use “MAP0210 General problem resolution” on page 442.
698-124	698	External wrap test failure. Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
698-125	221	Enhanced Error Handling failure on bus. Action: Use “MAP0210 General problem resolution” on page 442.
698-126	221	Enhanced Error Handling failure on EADS chip. Action: Use “MAP0210 General problem resolution” on page 442.
698-127	698	Enhanced Error Handling failure on adapter. Action: Use “MAP0210 General problem resolution” on page 442.
698-1FF	698 software 227	EPROM checksum failed. Action: Use “MAP0210 General problem resolution” on page 442.
698-200	698 software 227	Klog error. Action: Use “MAP0210 General problem resolution” on page 442.
698-201	698 software 227	ASL error. Action: Use “MAP0210 General problem resolution” on page 442.
698-202	698 software 227	ODM Initialization error. Action: Use “MAP0210 General problem resolution” on page 442.
698-203	698 software 227	Diagnostic configuration failure. Action: Use “MAP0210 General problem resolution” on page 442.
698-205	698 software 227	Error in diag open. Action: Use “MAP0210 General problem resolution” on page 442.
698-206	698 software 227	Error in releasing adapter. Action: Use “MAP0210 General problem resolution” on page 442.
698-221	698 221	Hardware failure opening the adapter. Action: Use “MAP0210 General problem resolution” on page 442.
698-222	698 221	Enhanced Error Handling failure opening the adapter. Action: Use “MAP0210 General problem resolution” on page 442.
698-223	698 221	Interrupt test failure. Action: Use “MAP0210 General problem resolution” on page 442.
698-224	698 221	Adapter DMA test failure. Action: Use “MAP0210 General problem resolution” on page 442.
698-701	698 221	Error Log Analysis indicates an I/O failure on the adapter. Action: Use “MAP0210 General problem resolution” on page 442.
698-702	698	Error Log Analysis indicates an unrecovered interrupt error. Action: Use “MAP0210 General problem resolution” on page 442.
69b-101	69b	EPROM test failure. Action: Use “MAP0210 General problem resolution” on page 442.
69b-102	69b	Adapter SDRAM failure. Action: Use “MAP0210 General problem resolution” on page 442.
69b-103	69b	Adapter checksum failure. Action: Use “MAP0210 General problem resolution” on page 442.
69b-104	69b	Adapter memory test failure. Action: Use “MAP0210 General problem resolution” on page 442.
69b-105	69b	Adapter buffer test failure. Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
69b-106	69b	Adapter cache test failure. Action: Use “MAP0210 General problem resolution” on page 442.
69b-107	69b	Internal loopback test failure. Action: Use “MAP0210 General problem resolution” on page 442.
69b-108	69b	External wrap test failure. Action: Use “MAP0210 General problem resolution” on page 442.
69b-109	221	Enhanced Error Handling failure on bus. Action: Use “MAP0210 General problem resolution” on page 442.
69b-110	221	Enhanced Error Handling failure on Eads chip. Action: Use “MAP0210 General problem resolution” on page 442.
69b-111	69b	Enhanced Error Handling failure on adapter.Action: Use “MAP0210 General problem resolution” on page 442.
69b-201	69b 221	Hardware failure opening adapter. Action: Use “MAP0210 General problem resolution” on page 442.
69b-202	69b 221	Interrupt test failure. Action: Use “MAP0210 General problem resolution” on page 442.
69b-203	69b 221	Adapter DMA test failure. Action: Use “MAP0210 General problem resolution” on page 442.
69b-204	69b 221	Enhanced error handling failure opening the adapter. Action: Use “MAP0210 General problem resolution” on page 442.
69b-701	69b	Error Log Analysis indicates an I/O failure on the adapter. Action: Use “MAP0210 General problem resolution” on page 442.
69d-101	69d	EPROM test failure. Action: Use “MAP0210 General problem resolution” on page 442.
69d-102	69d	Adapter SDRAM failure. Action: Use “MAP0210 General problem resolution” on page 442.
69d-103	69d	Adapter checksum failure. Action: Use “MAP0210 General problem resolution” on page 442.
69d-104	69d	Adapter memory test failure. Action: Use “MAP0210 General problem resolution” on page 442.
69d-105	69d	Adapter buffer test failure. Action: Use “MAP0210 General problem resolution” on page 442.
69d-106	69d	Adapter cache test failure. Action: Use “MAP0210 General problem resolution” on page 442.
69d-107	69d	Internal loopback test failure. Action: Use “MAP0210 General problem resolution” on page 442.
69d-108	69d	External wrap test failure. Action: Use “MAP0210 General problem resolution” on page 442.
69d-109	221	Enhanced Error Handling failure on bus. Action: Use “MAP0210 General problem resolution” on page 442.
69d-110	221	Enhanced Error Handling failure on Eads chip. Action: Use “MAP0210 General problem resolution” on page 442.
69d-111	69d	Enhanced Error Handling failure on adapter. Action: Use “MAP0210 General problem resolution” on page 442.
69d-201	69d 221	Hardware failure opening adapter. Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
69d-202	69d 221	Interrupt test failure. Action: Use “MAP0210 General problem resolution” on page 442.
69d-203	69d 221	Adapter DMA test failure. Action: Use “MAP0210 General problem resolution” on page 442.
69d-204	69d 221	Enhanced error handling failure opening the adapter. Action: Use “MAP0210 General problem resolution” on page 442.
69d-701	69d	Error Log Analysis indicates an I/O failure on the adapter. Action: Use “MAP0210 General problem resolution” on page 442.

SRNs 700-*xxx* through 7C1-117

Note: Some SRNs in this chapter might have 4 rather than 3 digits after the dash (-).

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use “MAP0210 General problem resolution” on page 442)
700-*xxx* to 707-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
721-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
722-*xxx*	722	Unknown disk drive type is failing. Action: “MAP0210 General problem resolution” on page 442.
723-*xxx*	723	Unknown CD-ROM type is failing. Action: “MAP0210 General problem resolution” on page 442.
724-*xxx*	724	Unknown tape drive failure. Action: “MAP0210 General problem resolution” on page 442.
733-110 to 733-120	733	The **Reserve** command failed, or the **Inquiry** command failed. Action: “MAP0210 General problem resolution” on page 442.
733-130 to 733-135	733 media	The **Load** command failed, or the **Unload** command failed. Action: “MAP0210 General problem resolution” on page 442.
733-140	733	The **Mode Select** command failed. Action: “MAP0210 General problem resolution” on page 442.
733-150 to 733-169	733 media	The **Test Unit Ready** command failed, or the **Send Diagnostic** command failed. Action: “MAP0210 General problem resolution” on page 442.
733-170	733 B88 media	The Read, Write and Compare test failed. Action: “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
733-180 to 733-185	733 media	The **Load** command failed, or the **Unload** command failed. Action: "MAP0210 General problem resolution" on page 442.
733-190	733	The **Mode Select** command failed. Action: "MAP0210 General problem resolution" on page 442.
733-200	733 media	The **Test Unit Ready** command failed. Action: "MAP0210 General problem resolution" on page 442.
733-210	733 B88	The device configuration failed. Action: "MAP0210 General problem resolution" on page 442.
733-220 to 733-240	733	140 GB 8 mm tape drive failed. Action: "MAP0210 General problem resolution" on page 442.
733-300	733 software	The device configuration failed. Action: "MAP0210 General problem resolution" on page 442.
733-310	B88 733 software	SCSI adapter configuration failed. Action: "MAP0210 General problem resolution" on page 442.
733-320	733 media	Error log analysis indicates a failure. Action: "MAP0210 General problem resolution" on page 442.
733-411 to 733-423	733 B88 software	A reservation conflict occurred. Action: "MAP0210 General problem resolution" on page 442.
733-511 to 733-523	733 B88	The drive returned bad or non-extended sense data. Action: "MAP0210 General problem resolution" on page 442.
733-611 to 733-723	733 B88 software	An adapter, device, or bus I/O error occurred. Action: "MAP0210 General problem resolution" on page 442.
736-101	821	An unexpected adapter error occurred. Action: "MAP0210 General problem resolution" on page 442.
736-102	736 821	An unexpected device or adapter error occurred. Action: "MAP0210 General problem resolution" on page 442.
736-103	736 821	The keyboard reset failed. Action: "MAP0210 General problem resolution" on page 442.
736-104	736	Unknown keyboard. Action: "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
736-105	736 821	The keyboard light-on test failed. Action: "MAP0210 General problem resolution" on page 442.
736-106	736 821	The keyboard light-off test failed. Action: "MAP0210 General problem resolution" on page 442.
736-201	821	An unexpected adapter error occurred. Action: "MAP0210 General problem resolution" on page 442.
736-202	736 821	An unexpected device or adapter error occurred. Action: "MAP0210 General problem resolution" on page 442.
736-203	736 821	The read keyboard ID test failed. Action: "MAP0210 General problem resolution" on page 442.
736-204	736	The keyboard layout ID test failed. Action: "MAP0210 General problem resolution" on page 442.
736-205	736 821	The keyboard echo test failed. Action: "MAP0210 General problem resolution" on page 442.
736-206	736 821	The select scan code set test failed. Action: "MAP0210 General problem resolution" on page 442.
736-301	821	An unexpected adapter error occurred. Action: "MAP0210 General problem resolution" on page 442.
736-302	736 821	An unexpected device or adapter error occurred. Action: "MAP0210 General problem resolution" on page 442.
736-303	736	An error occurred in turning on the lamps. Action: "MAP0210 General problem resolution" on page 442.
736-304	736	An error occurred in turning off the lamps. Action: "MAP0210 General problem resolution" on page 442.
736-401	821	An unexpected adapter error occurred. Action: "MAP0210 General problem resolution" on page 442.
736-402	736 821	An unexpected device or adapter error occurred. Action: "MAP0210 General problem resolution" on page 442.
736-403	736	Unable to recognize the keyboard. Action: "MAP0210 General problem resolution" on page 442.
736-404	736 821	The keyboard is failing. Action: "MAP0210 General problem resolution" on page 442.
736-701	736 821	Error configuring the device. Action: "MAP0210 General problem resolution" on page 442.
736-901	821	The error log analysis indicates an adapter failure. Action: "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
736-902	736 821	The error log analysis indicates a device failure. Action: "MAP0210 General problem resolution" on page 442.
736-903	736 821	The error log analysis indicates an unknown failure. Action: "MAP0210 General problem resolution" on page 442.
741-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
742-101	742	Configuration register test failed. Action: "MAP0210 General problem resolution" on page 442
742-102	742	I/O register test failed. Action: "MAP0210 General problem resolution" on page 442
742-104	742	Internal loopback test failed. Action: "MAP0210 General problem resolution" on page 442
742-105	742	Internal loopback test failed. Action: "MAP0210 General problem resolution" on page 442
742-106	742	External loopback test failed. Action: "MAP0210 General problem resolution" on page 442
742-121	D59	Configuration register test failed. Action: "MAP0210 General problem resolution" on page 442
742-122	D59	I/O register test failed. Action: "MAP0210 General problem resolution" on page 442
742-124	D59	Internal loopback test failed. Action: "MAP0210 General problem resolution" on page 442
742-125	D59	Internal loopback test failed. Action: "MAP0210 General problem resolution" on page 442
742-126	D59	External loopback test failed. Action: "MAP0210 General problem resolution" on page 442
742-141	D60	Configuration register test failed. Action: "MAP0210 General problem resolution" on page 442
742-142	D60	I/O register test failed. Action: "MAP0210 General problem resolution" on page 442
742-144	D60	Internal loopback test failed. Action: "MAP0210 General problem resolution" on page 442
742-145	D60	Internal loopback test failed. Action: "MAP0210 General problem resolution" on page 442
742-160	B08	10Base-T transceiver test failed. Action: "MAP0210 General problem resolution" on page 442
742-161	B09	10Base-2 transceiver test failed. Action: "MAP0210 General problem resolution" on page 442
742-203	742 software	Device configuration failed. Action: "MAP0210 General problem resolution" on page 442
742-223	D59 software	Device configuration failed. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
742-224	B08 D59	10 Base-T transceiver test failed. Action: "MAP0210 General problem resolution" on page 442
742-225	B09 D59	10 Base-2 transceiver test failed. Action: "MAP0210 General problem resolution" on page 442
742-243	D60 software	Device configuration failed. Action: "MAP0210 General problem resolution" on page 442
742-700	742 software	Error log analysis indicates a hardware problem. Action: "MAP0210 General problem resolution" on page 442
742-720	D59 software	Error log analysis indicates a hardware problem. Action: "MAP0210 General problem resolution" on page 442
742-740	D60 software	Error log analysis indicates a hardware problem. Action: "MAP0210 General problem resolution" on page 442
745-100	media 745	Recovered error. Action: No action required.
745-200	media 745	Drive Not Ready. Action: Install media, refer to the tape autoloader service information.
745-300 to 745-350	media 745	4-mm Tape Auto Loader problem. Action: Replace media, clean drive, refer to the tape autoloader service information.
745-400	745 magazine media	General Hardware Failure. Action: Replace media, clean drive, refer to the tape autoloader service information.
745-410 to 745-435	745 media	Internal Hardware Failure Action: Replace drive, refer to the tape autoloader service information.
745-440	745 SCSI Adapter	SCSI Hardware Failure. Action: Replace drive, refer to the tape autoloader service information.
745-441 to 745-443	745 media	4-mm Tape Auto Loader problem. Action: Replace drive, refer to the tape autoloader service information.
745-444	745 environ- ment media	Humidity too High Action: Lower humidity, replace media, refer to the tape autoloader service information.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
745-445	clean media drive	Drive Requires Cleaning Action: Clean drive, replace media, refer to the tape autoloader service information.
745-460 to 745-465	745 magazine media	Magazine Movement Failure Action: Check magazine and media, clean rollers, refer to the tape autoloader service information.
745-470 to 745-475	745 magazine media	Media Insert/Eject Failure Action: Check clean magazine and media, clean rollers, refer to the tape autoloader service information.
745-480 to 745-485	745 magazine media	Drawer Open/Close Failure Action: Check magazine and media, refer to the tape autoloader service information.
745-500	745 system	Illegal request to drive Action: Software conflict, refer to the tape autoloader service information.
745-600	745 system	Unit Attention Action: Software conflict, media changed, refer to the tape autoloader service information.
745-700	745 media	Not Writeable Action: Check media for write-protect, refer to the tape autoloader service information.
745-800	745 media	Blank Media Action: Check media, refer to the tape autoloader service information.
745-B00	745 SCSI Adapter	SCSI Interface Failure Action: Check SCSI interface, refer to the tape autoloader service information.
745-D00	745 media	Tape Full Action: Check replace media, refer to the tape autoloader service information.
746-101	221	Enhanced error handling failure on the bus. Action: "MAP0210 General problem resolution" on page 442
746-102	293	Enhanced error handling failure on a PCI-PCI Bridge. Action: "MAP0210 General problem resolution" on page 442
746-103	746 221	Enhanced error handling failure on the adapter. Action: "MAP0210 General problem resolution" on page 442
746-212	746	FIFO empty bit set. Action: "MAP0210 General problem resolution" on page 442
746-213	746	FIFO empty bit clear. Action: "MAP0210 General problem resolution" on page 442
746-214	746	FIFO full bit set. Action: "MAP0210 General problem resolution" on page 442
746-215	746	FIFO full bit clear. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use “MAP0210 General problem resolution” on page 442)
746-216	746	FIFO data miscompare. Action: “MAP0210 General problem resolution” on page 442
746-217	746	SCSI FIFO data miscompare. Action: “MAP0210 General problem resolution” on page 442
746-218	746	SCSI FIFO underflow. Action: “MAP0210 General problem resolution” on page 442
746-219		SCSI parity error. Action: “MAP0050 SCSI bus problems” on page 441
746-220	746	SCSI FIFO flags error. Action: “MAP0210 General problem resolution” on page 442
746-221	746 221	Miscompare during the write/read of the configuration register. Action: “MAP0210 General problem resolution” on page 442
746-222	746	Error during the write/read of the memory register. Action: “MAP0210 General problem resolution” on page 442
746-223	746	Miscompare during the write/read of the memory I/O register. Action: “MAP0050 SCSI bus problems” on page 441
746-224	746 221	SCSI configuration register read or write error. Action: “MAP0210 General problem resolution” on page 442
746-225	746	Adapter POST failed. Action: “MAP0210 General problem resolution” on page 442
746-226		SCSI wrap or PTC failure. Action: “MAP0050 SCSI bus problems” on page 441
746-227	746 221	SCSI adapter test failure. Action: “MAP0210 General problem resolution” on page 442
746-230		Arbitration test failed. Action: “MAP0050 SCSI bus problems” on page 441
746-231		Function could not complete. Action: “MAP0050 SCSI bus problems” on page 441
746-232		SCSI bus data miscompare. Action: “MAP0050 SCSI bus problems” on page 441
746-240		No terminal power. Action: “MAP0050 SCSI bus problems” on page 441
746-242		SCSI bus error. Action: “MAP0050 SCSI bus problems” on page 441
746-301	746 221	The parent device open failed. Action: “MAP0210 General problem resolution” on page 442
746-701	746	Error log analysis indicates a PCI SCSI adapter failure. Action: “MAP0210 General problem resolution” on page 442
746-801		Error log analysis indicates a terminator problem. Action: Run the diagnostics on the adapter in system verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in General SCSI configuration checks to resolve the problem.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
746-802		Error log analysis indicates that multiple attempts to reset the SCSI bus have timed out. Action: Run the diagnostics on the adapter in System Verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in General SCSI configuration checks to resolve the problem.
746-803		Error log analysis indicates that multiple SCSI bus errors have occurred. Action: Run the diagnostics on the adapter in system verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in General SCSI configuration checks to resolve the problem.
747-101	221	Enhanced error handling failure on the bus. Action: "MAP0210 General problem resolution" on page 442
747-102	293	Enhanced error handling failure on a PCI-PCI Bridge. Action: "MAP0210 General problem resolution" on page 442
747-103	747 221	Enhanced error handling failure on the adapter. Action: "MAP0210 General problem resolution" on page 442
747-212	747	FIFO empty bit set. Action: "MAP0210 General problem resolution" on page 442
747-213	747	FIFO empty bit clear. Action: "MAP0210 General problem resolution" on page 442
747-214	747	FIFO full bit set. Action: "MAP0210 General problem resolution" on page 442
747-215	747	FIFO full bit clear. Action: "MAP0210 General problem resolution" on page 442
747-216	747	FIFO data miscompare. Action: "MAP0210 General problem resolution" on page 442
747-217	747	SCSI FIFO data miscompare. Action: "MAP0210 General problem resolution" on page 442
747-218	747	SCSI FIFO underflow. Action: "MAP0210 General problem resolution" on page 442
747-219		SCSI parity error. Action: "MAP0050 SCSI bus problems" on page 441
747-220	747	SCSI FIFO flags error. Action: "MAP0210 General problem resolution" on page 442
747-221	747 221	Miscompare during the write/read of the configuration register. Action: "MAP0210 General problem resolution" on page 442
747-222	747	Error during the write/read of the memory register. Action: "MAP0210 General problem resolution" on page 442
747-223	747	Miscompare during the write/read of the memory I/O register. Action: "MAP0050 SCSI bus problems" on page 441
747-224	747 221	SCSI configuration register read or write error. Action: "MAP0210 General problem resolution" on page 442
747-225	747	Adapter POST failed. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
747-226		SCSI wrap or PTC failure. Action: "MAP0050 SCSI bus problems" on page 441
747-227	747 221	SCSI adapter test failure. Action: "MAP0210 General problem resolution" on page 442
747-230		Arbitration test failed. Action: "MAP0050 SCSI bus problems" on page 441
747-231		Function could not complete. Action: "MAP0050 SCSI bus problems" on page 441
747-232		SCSI bus data miscompare. Action: "MAP0050 SCSI bus problems" on page 441
747-240		No terminal power. Action: "MAP0050 SCSI bus problems" on page 441
747-242		SCSI bus error. Action: "MAP0050 SCSI bus problems" on page 441
747-301	747 221	The parent device open failed. Action: "MAP0210 General problem resolution" on page 442
747-701	747	Error log analysis indicates a PCI SCSI adapter failure. Action: "MAP0210 General problem resolution" on page 442
747-801		Error log analysis indicates a terminator problem. Action: Run the diagnostics on the adapter in system verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in General SCSI configuration checks to resolve the problem.
747-802		Error log analysis indicates that multiple attempts to reset the SCSI bus have timed out. Action: Run the diagnostics on the adapter in system verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in General SCSI configuration checks to resolve the problem.
747-803		Error log analysis indicates that multiple SCSI bus errors have occurred. Action: Run the diagnostics on the adapter in system verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in General SCSI configuration checks to resolve the problem.
749-*xxx*	749	7331 Model 205 Tape Library. Refer to service documentation for this device.
757-110	757	The **Reserve** command failed. Action: "MAP0210 General problem resolution" on page 442
757-120	757	The **Inquiry** command failed. Action: "MAP0210 General problem resolution" on page 442
757-130	757 media	The **Load** command failed. Action: "MAP0210 General problem resolution" on page 442
757-135	757 media	The **Unload** command failed. Action: "MAP0210 General problem resolution" on page 442
757-140	757	The **Mode Select** command failed. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
757-150	757 media	The **Test Unit Ready** command failed. Action: "MAP0210 General problem resolution" on page 442
757-160	757 media	The **Send Diagnostic** command failed. Action: "MAP0210 General problem resolution" on page 442
757-169	757 media	The **Send Diagnostic** command failed. Action: "MAP0210 General problem resolution" on page 442
757-170	757 B88 media	The Read, Write and Compare test failed. Action: "MAP0210 General problem resolution" on page 442
757-180	757 media	The **Load** command failed. Action: "MAP0210 General problem resolution" on page 442
757-185	757 media	The **Unload** command failed. Action: "MAP0210 General problem resolution" on page 442
757-190	757	The **Mode Select** command failed. Action: "MAP0210 General problem resolution" on page 442
757-200	757 media	The **Test Unit Ready** command failed. Action: "MAP0210 General problem resolution" on page 442
757-210	757 B88	The device configuration failed. Action: "MAP0210 General problem resolution" on page 442
757-220	757	The **Release** command failed. Action: "MAP0210 General problem resolution" on page 442
757-230	757	The **Request Sense** command failed. Action: "MAP0210 General problem resolution" on page 442
757-240	757	The **Openx** command failed. Action: "MAP0210 General problem resolution" on page 442
757-300	757 software	The device configuration failed. Action: "MAP0210 General problem resolution" on page 442
757-310	B88 757 software	SCSI adapter configuration failed. Action: "MAP0210 General problem resolution" on page 442
757-320	757 media	Error log analysis indicates a failure. Action: "MAP0210 General problem resolution" on page 442
757-411 to 757-423	757 B88 software	A reservation conflict occurred. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
757-511 to 757-523	757 B88	The drive returned bad or non-extended sense data. Action: "MAP0210 General problem resolution" on page 442
757-611 to 757-623	757 B88 software	An adapter or bus I/O error occurred. Action: "MAP0210 General problem resolution" on page 442
757-711 to 757-723	757 B88 software	A device timeout error occurred. Action: "MAP0210 General problem resolution" on page 442
759-*xxx*		See. Action: "MAP0210 General problem resolution" on page 442
763-1xx	763 software 221	Problem detected with a device or device data corrupted. **Note:** You might need to reinstall **ssp.css** software.
763-200 to 763-299	ext clock 763 wrap plug	Problem detected with the external clock (SP switch). **Notes:** 1. Refer to your *SP Maintenance Information* for the external clock FRU part number. 2. The wrap plug FRU part number is listed under the 763 FFC.
763-2A0 to 763-2A9	763	Problem detected with the internal clock. Action: "MAP0210 General problem resolution" on page 442
763-3xx	763 221	Problem detected with the POS registers. Action: "MAP0210 General problem resolution" on page 442
763-4xx	763 software	TBIC test failed. Action: "MAP0210 General problem resolution" on page 442
763-5xx	763	SRAM test failed. Action: "MAP0210 General problem resolution" on page 442
763-6xx	763	Microprocessor test failed. Action: "MAP0210 General problem resolution" on page 442
763-7xx	763	Interrupt test failed. Action: "MAP0210 General problem resolution" on page 442
763-8xx	763	FIFO test failed. Action: "MAP0210 General problem resolution" on page 442
763-9xx	763 221 Switch- cable	DMA engine test failed. **Note:** Refer to your *SP Maintenance Information* for the switch cable FRU part number.
763-Ax3	763 terminator	Card wrap test failed. **Note:** The terminator FRU part number is listed under the 763 FFC.Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
763-Ax4	Switch- cable wrap plug	Card wrap test failed. **Notes:** 1. Refer to your *SP Maintenance Information* for the switch cable FRU part number. 2. The wrap plug FRU part number is listed under the 763 FFC.
763-xx2	763	Bad adapter card. (except for SRN 763-282) Action: Replace the SP Switch MX Adapter.
764-1xx	764 software 221	Problem detected with a device or device data corrupted. **Note:** You might need to reinstall **ssp.css** software.
764-200 to 764-299	ext clock 764 wrap plug	Problem detected with the external clock (SP switch). **Notes:** 1. Refer to your *SP Maintenance Information* for the external clock FRU part number. 2. The wrap plug FRU part number is listed under the 763 FFC.
764-2A0 to 764-2A9	764	Problem detected with the internal clock. Action: "MAP0210 General problem resolution" on page 442
764-3xx	764 221	Problem detected with the POS registers. Action: "MAP0210 General problem resolution" on page 442
764-4xx	764 software	TBIC test failed. Action: "MAP0210 General problem resolution" on page 442
764-5xx	764	SRAM test failed. Action: "MAP0210 General problem resolution" on page 442
764-6xx	764	Microprocessor test failed. Action: "MAP0210 General problem resolution" on page 442
764-7xx	764	Interrupt test failed. Action: "MAP0210 General problem resolution" on page 442
764-8xx	764	FIFO test failed. Action: "MAP0210 General problem resolution" on page 442
764-9xx	764 221 switch- cable	DMA engine test failed. **Note:** Refer to your *SP Maintenance Information* for the switch cable FRU part number.
764-Ax3	764 terminator	Card wrap test failed. **Note:** The terminator FRU part number is listed under the 763 FFC.
764-Ax4	Switch- cable wrap plug	Card wrap test failed. **Notes:** 1. Refer to your *SP Maintenance Information* for the switch cable FRU part number. 2. The wrap plug FRU part number is listed under the 763 FFC.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
764-xx2	764	Bad adapter card. (except for SRN 764-282) Action: Replace the SP Switch MX Adapter.
772-*xxx* to 774-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
776-101	D46	External Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-102	240	External Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-103	776	I/O Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-104	776 221	Adapter On-card Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-105	776	Wrap Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-106	D46	Wrap Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-106	776	Enhanced error handling failure on bus. Action: "MAP0210 General problem resolution" on page 442
776-107	776	Enhanced error handling failure on Eads chip. Action: "MAP0210 General problem resolution" on page 442
776-108	776	Enhanced error handling failure on adapter. Action: "MAP0210 General problem resolution" on page 442
776-201	776 221	Configuration Register Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-202	776 221	Wrap Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-203	D46 776	Wrap Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-204	776 221	Connect Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-205	D46 776	External Test Failure. **Action:** Run advanced diagnostics with wrap test for this resource to obtain correct problem isolation. Action: "MAP0210 General problem resolution" on page 442
776-206	776 221	Wrap Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-301	D46 240 776	External Test Failure. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
776-302	D46 776 221	External Test Failure. Action: Run advanced diagnostics with wrap test for this resource to obtain correct problem isolation.
776-303	240 D46 776	External Test Failure. Action: Run advanced diagnostics with wrap test for this resource to obtain correct problem isolation.
776-304	D46 776 221	Connect Wrap Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-305	D46 776 221	Wrap Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-306	D46 776 221	Wrap Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-401	240 D46 776 221	External Test Failure. Action: Run advanced diagnostics with wrap test for this resource to obtain correct problem isolation.
776-404	240 D46 776 221	Connect Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-405	240 D46 776 221	Wrap Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-406	240 D46 776 221	Wrap Test Failure. Action: "MAP0210 General problem resolution" on page 442
776-414	240 D46 776 221	Connect Test Failure. This failure occurs if not connected to a functional Token-Ring network. Action: Run advanced diagnostics for this resource to obtain correct problem isolation.
776-415	240 D46 776 221	Wrap Test Failure. This failure occurs if not connected to a functional Token-Ring network. Action: Run advanced diagnostics for this resource to obtain correct problem isolation.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
776-416	240 D46 776 221	Wrap Test Failure. This failure occurs if not connected to a functional Token-Ring network. Action: Run advanced diagnostics for this resource to obtain correct problem isolation.
776-701	776	ELA indicates an adapter error occurred. Action: "MAP0210 General problem resolution" on page 442
776-702	776 221	ELA indicates an adapter check occurred. Action: "MAP0210 General problem resolution" on page 442
776-703	776 221	ELA indicates a DMA failure occurred. Action: "MAP0210 General problem resolution" on page 442
776-704	776 221	ELA indicates a PCI bus failure occurred. Action: "MAP0210 General problem resolution" on page 442
776-705	776 221	ELA indicates a Programmed I/O failure occurred. Action: "MAP0210 General problem resolution" on page 442
776-706	776	ELA indicates a command write failure occurred. Action: "MAP0210 General problem resolution" on page 442
776-707	776	ELA indicates an internal adapter error has occurred. Action: "MAP0210 General problem resolution" on page 442
778-002	software 778	Software error. Action: "MAP0210 General problem resolution" on page 442
778-004	software 778	Software error. Action: "MAP0210 General problem resolution" on page 442
778-009	software 778	Software error. Action: "MAP0210 General problem resolution" on page 442
778-011	software 778	Software error. Action: "MAP0210 General problem resolution" on page 442
778-017	software 778	Software error. Action: "MAP0210 General problem resolution" on page 442
778-019	778 software	Adapter failure. Action: "MAP0210 General problem resolution" on page 442
778-030	778 221	Adapter failure. Action: "MAP0210 General problem resolution" on page 442
778-032	software 778	Software error. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
778-033	software 778	Software error. Action: "MAP0210 General problem resolution" on page 442
778-035	778 software	Adapter failure. Action: "MAP0210 General problem resolution" on page 442
778-036 to 778-072	software 778	Software error. Action: "MAP0210 General problem resolution" on page 442
778-073	778 221	Adapter failure. Action: "MAP0210 General problem resolution" on page 442
778-075	software 778	Software error. Action: "MAP0210 General problem resolution" on page 442
778-076	778 software	Software error. Action: "MAP0210 General problem resolution" on page 442
778-301 to 778-D02	778 221	Adapter failure. Action: "MAP0210 General problem resolution" on page 442
778-E01	software 778	Software error. Action: "MAP0210 General problem resolution" on page 442
778-E02 to 778-1401	778 221	Adapter failure. Action: "MAP0210 General problem resolution" on page 442
778-1402	software 778	Software error. Action: "MAP0210 General problem resolution" on page 442
778-1403 to 778-1405	778 221	Adapter failure. Action: "MAP0210 General problem resolution" on page 442
778-1500	778 software	Adapter failure. Action: "MAP0210 General problem resolution" on page 442
778-1600 to 778-1604	778 902	Adapter failure. Action: "MAP0210 General problem resolution" on page 442
778-2501 to 778-2508	778 221	Adapter error. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
778-2509 to 778-2511	software 778	Software error. Action: "MAP0210 General problem resolution" on page 442
778-2601 to 778-2602	778 221	Adapter error. Action: "MAP0210 General problem resolution" on page 442
778-2603	software 778	Software error. Action: "MAP0210 General problem resolution" on page 442
77C-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
780-101	780 227	Adapter logic test failure. Action: "MAP0210 General problem resolution" on page 442
780-102	780	Adapter logic test failure. Action: "MAP0210 General problem resolution" on page 442
780-109	780	Adapter channel Input/Output test failure. Action: "MAP0210 General problem resolution" on page 442
780-113	780	Adapter Serial Communication Controller (SCC) test failure. Action: "MAP0210 General problem resolution" on page 442
780-114	780 227	Adapter logic test failure. Action: "MAP0210 General problem resolution" on page 442
780-120	780 227 software	Adapter could not be detected or configured. Action: "MAP0210 General problem resolution" on page 442
780-140	271 780	An error was found with the X.21 interface adapter cable. Action: "MAP0210 General problem resolution" on page 442
780-150	272 780	An error was found with the X.24 interface adapter cable. Action: "MAP0210 General problem resolution" on page 442
780-160	273 780	An error was found with the X.35 interface adapter cable. Action: "MAP0210 General problem resolution" on page 442
780-170	780	The adapter hardware failed. Action: "MAP0210 General problem resolution" on page 442
780-180	780	The adapter hardware failed. Action: "MAP0210 General problem resolution" on page 442
780-190	780	The adapter hardware failed. Action: "MAP0210 General problem resolution" on page 442
780-210	780 185	An error was found on the adapter. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
780-211	780 227	The adapter card POST test failed. Action: "MAP0210 General problem resolution" on page 442
780-230	780	The adapter card hardware failed. Action: "MAP0210 General problem resolution" on page 442
780-232	780 227	The adapter card hardware failed. Action: "MAP0210 General problem resolution" on page 442
780-240	780	The adapter card hardware failed. Action: "MAP0210 General problem resolution" on page 442
780-250	185 780	An error was found on the adapter. Action: "MAP0210 General problem resolution" on page 442
780-260	780	The adapter card hardware failed. Action: "MAP0210 General problem resolution" on page 442
780-270	780	The adapter card hardware failed. Action: "MAP0210 General problem resolution" on page 442
780-280	780	The adapter card hardware failed. Action: "MAP0210 General problem resolution" on page 442
780-290	780	The adapter card hardware failed. Action: "MAP0210 General problem resolution" on page 442
780-300	780	An adapter error was found during error log analysis. Action: "MAP0210 General problem resolution" on page 442
780-310	780 185	An adapter error was found during error log analysis. Action: "MAP0210 General problem resolution" on page 442
780-320	780 227	An adapter error was found during error log analysis. Action: "MAP0210 General problem resolution" on page 442
780-330	780 227	Error log analysis indicates a hardware problem. Action: "MAP0210 General problem resolution" on page 442
780-400	780 227	A software error was caused by a hardware failure. Action: "MAP0210 General problem resolution" on page 442
780-700	780 227 software	The adapter failed to configure. Action: "MAP0210 General problem resolution" on page 442
780-720	780	Cable wrap test failed. Action: "MAP0210 General problem resolution" on page 442
780-721	780	Port wrap test failed. Action: "MAP0210 General problem resolution" on page 442
780-722	780	Cable wrap test failed. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
781-101	781 227	ROS POST adapter software initialization error. Action: "MAP0210 General problem resolution" on page 442
781-102	781	Extended DRAM SIP test failed. Action: "MAP0210 General problem resolution" on page 442
781-103	781	ROS checksum test failed. Action: "MAP0210 General problem resolution" on page 442
781-104	781 227	Adapter download diagnostics failed Action: "MAP0210 General problem resolution" on page 442
781-105	781 227	Memory size test failed. Action: "MAP0210 General problem resolution" on page 442
781-106	781 227	Interface ID test failed. Action: "MAP0210 General problem resolution" on page 442
781-107	781 227	EIB ID test failed. Action: "MAP0210 General problem resolution" on page 442
781-108	781 227	ROS version test failed. Action: "MAP0210 General problem resolution" on page 442
781-109	781	DUSCC register test failed. Action: "MAP0210 General problem resolution" on page 442
781-111	781	DMA register test failed. Action: "MAP0210 General problem resolution" on page 442
781-112	781	X.21 PAL test failed. Action: "MAP0210 General problem resolution" on page 442
781-113	781	External wrap test failed. Action: "MAP0210 General problem resolution" on page 442
781-114	781 227	Twin tail logic test failed. Action: "MAP0210 General problem resolution" on page 442
781-116	254	The RS232 cable wrap test failed. Action: "MAP0210 General problem resolution" on page 442
781-117	253	The RS422A cable wrap test failed. Action: "MAP0210 General problem resolution" on page 442
781-118	257	The V.35 cable wrap test failed. Action: "MAP0210 General problem resolution" on page 442
781-119	260	The X.21 cable wrap test failed. Action: "MAP0210 General problem resolution" on page 442
781-120	781 227 software	The adapter was not detected or could not be configured. test failed. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
781-121	781 227 software	The 4-port jumper cable assembly wrap test failed. Action: "MAP0210 General problem resolution" on page 442
781-200	781	The error log analysis indicates the adapter failed. Action: "MAP0210 General problem resolution" on page 442
781-221	781 227	The error log analysis indicates the adapter hardware failed. Action: "MAP0210 General problem resolution" on page 442
781-231	227	No interface card detected. Action: "MAP0210 General problem resolution" on page 442
781-501	B77 B69 227	The power-on self-test (POST) failed. Action: "MAP0210 General problem resolution" on page 442
781-502	B77	The memory module failed. Action: "MAP0210 General problem resolution" on page 442
781-503	781 227	Adapter hardware failure. Action: "MAP0210 General problem resolution" on page 442
781-504	B69	Adapter hardware failure. Action: "MAP0210 General problem resolution" on page 442
781-505	B71 B69	Adapter hardware failure. Action: "MAP0210 General problem resolution" on page 442
781-506	B72 B69	Adapter hardware failure. Action: "MAP0210 General problem resolution" on page 442
781-507	B73 B69	Adapter hardware failure. Action: "MAP0210 General problem resolution" on page 442
781-508	B74 B69	Adapter hardware failure. Action: "MAP0210 General problem resolution" on page 442
781-516	B77 B69	Adapter Test Failure. Action: "MAP0210 General problem resolution" on page 442
781-517	B69 B77	Adapter Test Failure. Action: "MAP0210 General problem resolution" on page 442
781-720	258 781	4-port multiprotocol cable Action: "MAP0210 General problem resolution" on page 442
783-110	783	The **Reserve** command failed. Action: "MAP0210 General problem resolution" on page 442
783-120	783	The **Inquiry** command failed. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
783-130	783 media	The **Load** command failed. Action: "MAP0210 General problem resolution" on page 442
783-135	783 media	The **Unload** command failed. Action: "MAP0210 General problem resolution" on page 442
783-140	783	The **Mode Select** command failed. Action: "MAP0210 General problem resolution" on page 442
783-150	783 media	The **Test Unit Ready** command failed. Action: "MAP0210 General problem resolution" on page 442
783-160	783 media	The **Send Diagnostic** command failed. Action: "MAP0210 General problem resolution" on page 442
783-169	783 media	The **Send Diagnostic** command failed. Action: "MAP0210 General problem resolution" on page 442
783-170	783 B88 media	The Read, Write and Compare test failed. Action: "MAP0210 General problem resolution" on page 442
783-180	783 media	The **Load** command failed. Action: "MAP0210 General problem resolution" on page 442
783-185	783 media	The **Unload** command failed. Action: "MAP0210 General problem resolution" on page 442
783-190	783	The **Mode Select** command failed. Action: "MAP0210 General problem resolution" on page 442
783-200	783 media	The **Test Unit Ready** command failed. Action: "MAP0210 General problem resolution" on page 442
783-210	783 B88	The device configuration failed. Action: "MAP0210 General problem resolution" on page 442
783-220	783	The **Release** command failed. Action: "MAP0210 General problem resolution" on page 442
783-230	783	The **Request Sense** command failed. Action: "MAP0210 General problem resolution" on page 442
783-240	783	The **Openx** command failed. Action: "MAP0210 General problem resolution" on page 442
783-300	783 software	The device configuration failed. Action: "MAP0210 General problem resolution" on page 442
783-310	B88 783 software	SCSI adapter configuration failed. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
783-320	783 media	Error log analysis indicates a failure. Action: "MAP0210 General problem resolution" on page 442
783-411 to 783-423	783 B88 software	A reservation conflict occurred. Action: "MAP0210 General problem resolution" on page 442
783-511 to 783-523	783 B88	The drive returned bad or non-extended sense data. Action: "MAP0210 General problem resolution" on page 442
783-611 to 783-623	783 B88 software	An adapter or bus I/O error occurred. Action: "MAP0210 General problem resolution" on page 442
783-711 to 783-723	783 B88 software	A device timeout error occurred. Action: "MAP0210 General problem resolution" on page 442
784-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
785-111	785 227	Could not do the test because the device driver detected a hardware error. Action: "MAP0210 General problem resolution" on page 442
785-114	785	The register verification test failed. Action: "MAP0210 General problem resolution" on page 442
785-121	785 227	Could not do the test because the device driver detected a hardware error. Action: "MAP0210 General problem resolution" on page 442
785-122	785 227	The data wrap communication test failed. Action: "MAP0210 General problem resolution" on page 442
785-123	785 227	The modem control line test failed. Action: "MAP0210 General problem resolution" on page 442
785-124	785	The memory test failed. Action: "MAP0210 General problem resolution" on page 442
785-151	785 D57	Could not do the test because the device driver detected a hardware error. Action: "MAP0210 General problem resolution" on page 442
785-152	785 D57	The data wrap communication test failed. Action: "MAP0210 General problem resolution" on page 442
785-153	785 D57	The modem control line test failed. Action: "MAP0210 General problem resolution" on page 442
785-171	259	Could not do the test because the device driver detected a hardware error. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
785-172	259	The data wrap communication test failed. Action: "MAP0210 General problem resolution" on page 442
785-173	259	The modem control line test failed. Action: "MAP0210 General problem resolution" on page 442
785-181	261	Could not do the test because the device driver detected a hardware error. Action: "MAP0210 General problem resolution" on page 442
785-182	261	The data wrap communication test failed. Action: "MAP0210 General problem resolution" on page 442
785-183	261	The modem control line test failed. Action: "MAP0210 General problem resolution" on page 442
785-251	785 D57	Could not perform because the device driver detected a hardware error. Action: "MAP0210 General problem resolution" on page 442
785-252	785 D57	The data wrap communication test failed. Action: "MAP0210 General problem resolution" on page 442
785-253	785 D57	The modem control line test failed. Action: "MAP0210 General problem resolution" on page 442
785-271	785 D57	Could not perform because the device driver detected a hardware error. Action: "MAP0210 General problem resolution" on page 442
785-272	785 D57	The data wrap communication test failed. Action: "MAP0210 General problem resolution" on page 442
785-273	785 D57	The modem control line test failed. Action: "MAP0210 General problem resolution" on page 442
785-281	785 D57	Could not perform because the device driver detected a hardware error. Action: "MAP0210 General problem resolution" on page 442
785-282	785 D57	The data wrap communication test failed. Action: "MAP0210 General problem resolution" on page 442
785-283	785 D57	The modem control line test failed. Action: "MAP0210 General problem resolution" on page 442
785-481	D57	Could not do the test because the device driver detected a hardware error. Action: "MAP0210 General problem resolution" on page 442
785-482	D57	The data wrap communication test failed. Action: "MAP0210 General problem resolution" on page 442
785-483	D57	The modem control line test failed. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
785-901 to 785-920	software 785	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, "MAP0210 General problem resolution" on page 442 with a FFC of 785; otherwise, suspect a software problem.
785-921	785 software	The adapter failed to configure. Action: "MAP0210 General problem resolution" on page 442
785-922 to 785-924	software 785	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, "MAP0210 General problem resolution" on page 442 with a FFC of 785; otherwise, suspect a software problem.
785-925	785 software	The adapter failed to configure. Action: "MAP0210 General problem resolution" on page 442
785-926 to 785-943	software 785	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, "MAP0210 General problem resolution" on page 442 with a FFC of 785; otherwise, suspect a software problem.
786-200	786 D96 227	Initiation failed. **Note:** You must determine which of the first two FFCs is installed in the system unit.Action: "MAP0210 General problem resolution" on page 442
786-210	786 227	The adapter test failed. Action: "MAP0210 General problem resolution" on page 442
786-211	D96 227	The adapter test failed. Action: "MAP0210 General problem resolution" on page 442
786-220	786 Cable Monitor	The display test failed. Action: "MAP0210 General problem resolution" on page 442
786-221	D96 Cable Monitor	The display test failed. Action: "MAP0210 General problem resolution" on page 442
786-710	786 227	The ELA indicates HW failure. Action: "MAP0210 General problem resolution" on page 442
786-711	D96 227	The ELA indicates HW failure. Action: "MAP0210 General problem resolution" on page 442
787-100	787	GXT500P Graphics Adapter. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
787-101	787 227	GXT500P Graphics Adapter. Action: "MAP0210 General problem resolution" on page 442
787-1AA	787 RGB Cable Display	GXT500P Graphics Adapter. Action: "MAP0210 General problem resolution" on page 442
787-1xx	787	GXT500P Graphics Adapter. Action: "MAP0210 General problem resolution" on page 442
787-200	D95	GXT550P Graphics Adapter. Action: "MAP0210 General problem resolution" on page 442
787-201	D95 227	GXT550P Graphics Adapter. Action: "MAP0210 General problem resolution" on page 442
787-2AA	D95 RGB Cable Display	GXT550P Graphics Adapter. Action: "MAP0210 General problem resolution" on page 442
787-2xx	D95	GXT550P Graphics Adapter. Action: "MAP0210 General problem resolution" on page 442
788-001	788 227	Adapter Error. Action: "MAP0210 General problem resolution" on page 442
788-002	software 788	System Error. Action: "MAP0210 General problem resolution" on page 442
788-003	software 788	System Error. Action: "MAP0210 General problem resolution" on page 442
788-004	788 software	System Error. Action: "MAP0210 General problem resolution" on page 442
789-101	789	Failed to release the device. Action: "MAP0210 General problem resolution" on page 442
789-102	789	Failed to reserve the device. Action: "MAP0210 General problem resolution" on page 442
789-103	789	The device motor failed to start. Action: "MAP0210 General problem resolution" on page 442
789-104	789	Failed to make the device ready. Action: "MAP0210 General problem resolution" on page 442
789-105	789	Failed to get the inquiry data. Action: "MAP0210 General problem resolution" on page 442
789-106	789	The **Prevent Media Removal** command failed. Action: "MAP0210 General problem resolution" on page 442
789-107	789	The **Allow Media Removal** command failed. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
789-200	789 Optical- Disk	The optical disk failed to load. Action: Change the media. Run diagnostics on the changed media in system verification mode. If the error reoccurs "MAP0210 General problem resolution" on page 442 ; otherwise, replace the media.
789-201	789 Optical- Disk	Failed to unload the optical disk. Action: Change the media. Run diagnostics on the changed media in system verification mode. If the errors reoccur "MAP0210 General problem resolution" on page 442 ; otherwise, replace the media.
789-202	789 Optical- Disk	The diagnostic test failed. Action: Change the media. Run diagnostics on the changed media in system verification mode. If errors do not reoccur, replace the media; otherwise, run the drive cleaning procedures if applicable and rerun the diagnostics. If errors reoccur, or the drive does not support the cleaning procedures "MAP0210 General problem resolution" on page 442
789-204	789 B88	The device failed to configure. Action: "MAP0210 General problem resolution" on page 442
789-205	789 Optical- Disk	The **Test Unit Ready** command failed. Action: Change the media. Run diagnostics on the changed media in system verification mode. If the error reoccurs, "MAP0210 General problem resolution" on page 442 ; otherwise, replace the media.
789-206	789 Optical- Disk	The random write, read and compare test failed. Action: Change the media. Run diagnostics on the changed media in system verification mode. If the errors do not reoccur, replace the media; otherwise, run the drive cleaning procedures if applicable, and rerun diagnostics. If the errors reoccur, or the drive does not support cleaning procedures, "MAP0210 General problem resolution" on page 442
789-207	789 Optical- Disk	A hardware error occurred. Action: Change the media. Run diagnostics on the changed media in system verification mode. If the errors do not reoccur, replace the media; otherwise, run the drive cleaning procedures if applicable, and rerun diagnostics. If the errors reoccur, or the drive does not support cleaning procedures, "MAP0210 General problem resolution" on page 442
789-208	789 Optical- Disk	The **Mode Sense** command failed. Action: Change the media. Run diagnostics on the changed media in system verification mode. If the errors do not reoccur, replace the media; otherwise, run the drive cleaning procedures if applicable, and rerun diagnostics. If the errors reoccur, or the drive does not support cleaning procedures, "MAP0210 General problem resolution" on page 442
789-209	789 Optical- Disk	The **Mode Select** command failed. Action: Change the media. Run diagnostics on the changed media in system verification mode. If the errors do not reoccur, replace the media; otherwise, run the drive cleaning procedures if applicable, and rerun diagnostics. If the errors reoccur, or the drive does not support cleaning procedures, "MAP0210 General problem resolution" on page 442
789-300	789 B88 software	A SCSI reservation conflict has occurred. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use “MAP0210 General problem resolution” on page 442)
789-400	789 B88 Cables software	A SCSI command time out has occurred. Action: “MAP0210 General problem resolution” on page 442
789-401	Optical- Disk 190 B88 software	An unknown error has occurred. Action: “MAP0210 General problem resolution” on page 442
789-402	Optical- Disk 190 B88 software	Unit attention condition has occurred. Action: “MAP0210 General problem resolution” on page 442
789-600	Optical- Disk	ELA indicates that the spare sectors on the disk are exhausted. Action: Backup the media and replace it. **Note:** Use the time when the error occurred and the ″Spare Sector Availability″ service aid to identify the disk that has the error.
789-700	789 Optical- Disk	The ELA indicates an equipment error. Action: Run diagnostics in system verification mode to isolate the problem. If errors are reported, “MAP0210 General problem resolution” on page 442 ; otherwise, the error is due to faulty media. Backup the media and then replace it. **Note:** Use the time when the error occurred to identify the faulty media.
789-701	Optical- Disk 789	ELA indicates an irrecoverable data error. Action: Run diagnostics in system verification mode to isolate the problem. If errors are reported, “MAP0210 General problem resolution” on page 442 ; otherwise, the error is due to faulty media. Backup the media and then replace it. **Note:** Use the time when the error occurred to identify the faulty media.
789-702	789 B88 Cables	ELA indicates that the adapter detected an error. Action: Use the 7209 Installation and Service information. If the unit checks out to be good, “MAP0210 General problem resolution” on page 442
78B-001	Software 78B	Software error. Action: “MAP0210 General problem resolution” on page 442
78B-002	78B Software	Adapter failure. Action: “MAP0210 General problem resolution” on page 442
78B-003	78B 227	Adapter failure. Action: “MAP0210 General problem resolution” on page 442
78B-004	78B Monitor/ Cable	Adapter or display failure. Action: “MAP0210 General problem resolution” on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
78B-005	78B 227 Monitor/ Cable	Adapter failure. Action: "MAP0210 General problem resolution" on page 442
78D-001	software 78D	Software error. Action: "MAP0210 General problem resolution" on page 442
78D-002	78D software	Adapter failure. Action: "MAP0210 General problem resolution" on page 442
78D-003	78D 227	Adapter failure. Action: "MAP0210 General problem resolution" on page 442
78D-004	78D Monitor/ Cable	Display failure. Action: "MAP0210 General problem resolution" on page 442
78D-005	78D 227 Monitor/ Cable	Adapter failure. Action: "MAP0210 General problem resolution" on page 442
790-101	790	Configuration Register Test failure. Action: "MAP0210 General problem resolution" on page 442
790-102	790	I/O test failure. Action: "MAP0210 General problem resolution" on page 442
790-103	790	Adapter initialization test failure. Action: "MAP0210 General problem resolution" on page 442
790-104	790	Internal wrap test failure. Action: "MAP0210 General problem resolution" on page 442
790-105	790	Internal wrap test failure. Action: "MAP0210 General problem resolution" on page 442
790-106	790	External wrap (10 Mbps) test failure. Action: "MAP0210 General problem resolution" on page 442
790-107	790	Internal wrap test failure. Action: "MAP0210 General problem resolution" on page 442
790-108	790	External wrap (100 Mbps) test failure. Action: "MAP0210 General problem resolution" on page 442
790-109	790	External wrap (10 Mbps) test failure. Action: "MAP0210 General problem resolution" on page 442
790-121	790	Configuration register test failure. Action: "MAP0210 General problem resolution" on page 442
790-122	790	I/O register test failure. Action: "MAP0210 General problem resolution" on page 442
790-124	790	Internal loopback test failure. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
790-125	790	Internal loopback test failure. Action: "MAP0210 General problem resolution" on page 442
790-126	790	External loopback test failure. Action: "MAP0210 General problem resolution" on page 442
790-150	B08	10Base-T transceiver test failure. Action: "MAP0210 General problem resolution" on page 442
790-151	B09	10Base-2 transceiver test failure. Action: "MAP0210 General problem resolution" on page 442
790-223	790 software	Device configuration failure. Action: "MAP0210 General problem resolution" on page 442
790-224	B08 790	10 Base-T transceiver test failure. Action: "MAP0210 General problem resolution" on page 442
790-225	B09 790	10 Base-2 transceiver test failure. Action: "MAP0210 General problem resolution" on page 442
790-250	B08 790	10 Base-T transceiver test failure. Action: "MAP0210 General problem resolution" on page 442
790-251	B09 790	10 Base-2 transceiver test failure. Action: "MAP0210 General problem resolution" on page 442
790-701	790	Error Log Analysis indicates that the adapter is not responding to initialization commands. Action: "MAP0210 General problem resolution" on page 442
790-702	790	Error Log Analysis indicates that the device driver has detected a PIO error which it was unable to correct. Action: "MAP0210 General problem resolution" on page 442
790-703	790	Error Log Analysis indicates that the adapter has been shutdown due to an unrecoverable error. Action: "MAP0210 General problem resolution" on page 442
790-704	790	Error Log Analysis indicates a problem with EEPROM on the adapter. Action: "MAP0210 General problem resolution" on page 442
790-720	790 software	Error log analysis indicates a hardware problem. Action: "MAP0210 General problem resolution" on page 442
791-*xxx* to 793-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
799-101	2C3 799	External wrap test failed on port 0. Action: "MAP0210 General problem resolution" on page 442
799-102	2C3 799	External wrap test failed on port 1. Action: "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
799-201	799 227	Internal adapter test failed. Action: "MAP0210 General problem resolution" on page 442
799-202	799 227	External wrap test failed on port 0. Action: "MAP0210 General problem resolution" on page 442
799-203	799 227	External wrap test failed on port 1. Action: "MAP0210 General problem resolution" on page 442
799-204	2C3 799	External wrap test failed on port 0. Action: "MAP0210 General problem resolution" on page 442
799-205	2C3 799	External wrap test failed on port 1. Action: "MAP0210 General problem resolution" on page 442
799-206	2C3 799 software	External wrap test failed on port 0. Action: "MAP0210 General problem resolution" on page 442
799-207	2C3 799 software	External wrap test failed on port 1. Action: "MAP0210 General problem resolution" on page 442
799-301	799 227 software	Internal adapter test failed. Action: "MAP0210 General problem resolution" on page 442
799-302	799 227 software	External wrap test failed on port 0. Action: "MAP0210 General problem resolution" on page 442
799-303	799 227 software	External wrap test failed on port 1. Action: "MAP0210 General problem resolution" on page 442
799-304	2C3 799 software	External wrap test failed on port 0. Action: "MAP0210 General problem resolution" on page 442
799-305	2C3 799 software	External wrap test failed on port 1. Action: "MAP0210 General problem resolution" on page 442
799-700	799 software	Error log analysis indicates a hardware problem. Action: "MAP0210 General problem resolution" on page 442

SRNs 801-*xxx(x)* through 89c-302

Note: Some SRNs in this chapter might have 4 rather than 3 digits after the dash (-).

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
801-*xxxx*	*xxxx* E10 227	No LED value could be determined for the missing resource. **Note:** To obtain the FFC substitute the last three or four digits of the SRN following the dash (-) for *xxxx*. (The substituted *xxxx* is the FFC).Action: Use "MAP0210 General problem resolution" on page 442.
802-655	655	A resource was not detected that was previously installed. Action: Use "MAP0210 General problem resolution" on page 442.
802-657	657	A resource was not detected that was previously installed. Action: Use "MAP0210 General problem resolution" on page 442.
802-67E	67E	A resource was not detected that was previously installed. Action: Use "MAP0210 General problem resolution" on page 442.
802-684	684 687	A potential problem with the RS422 concentrator exists. Action: Use "MAP0210 General problem resolution" on page 442.
802-787	787 D95	The diagnostics did not detect an installed resource. Action: Use "MAP0210 General problem resolution" on page 442.
802-78D	78D	A resource was not detected that was previously installed. Action: Use "MAP0210 General problem resolution" on page 442.
802-80c	80c	A potential problem with an SSA adapter exists. 2107 does not use SSA adapters. Call the next level of support.
802-837	837 687 E10 227	A potential problem with the Enhanced Remote Async Node exists. Action: Use "MAP0210 General problem resolution" on page 442.
802-2592	2592 199 E10 227	The DVD-ROM that was previously installed was not detected. Action: Use "MAP0210 General problem resolution" on page 442.
802-*xxxx*	*xxxx* E10 227	The diagnostics did not detect an installed resource. **Note:** To obtain the FFC substitute the last three or four digits of the SRN following the dash (-) for *xxxx*. (The substituted *xxxx* is the FFC). Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
803-*xxxx*	*xxxx*	A software error occurred while running the diagnostics which could be caused by either hardware or software. **Note:** This SRN can also occur if the file system is full, particularly in the **/** , **/var**, or **/tmp** directories (verify using the **df** command at the AIX prompt, make sure %Use d is 90% or less for each file system).Action: Run standalone diagnostics. If you get a different SRN, use it in place of the original SRN. If you get the same SRN, use the last three or four digits of the 803-*xxx(x)* as the FFC and go to "MAP0210 General problem resolution" on page 442. If you get no error from the standalone diagnostics, you might have a problem with the software, contact your support center. **Note:** *xxxx* corresponds to the last three or four digits of the SRN. If your 803-*xxx(x)* SRN is not listed, substitute the last three or four digits of the SRN after the dash (-) for *xxx(x)*, and then proceed to the FFC table using the substituted digits as your FFC.
807-102	807	A critical failure has occurred on an undefined element. Action: Go to "MAP0210 General problem resolution" on page 442.
807-103	807	Non-critical failure has occurred on an undefined element. Action: Go to "MAP0210 General problem resolution" on page 442.
807-104	807	An unrecoverable failure has occurred on an undefined element. Action: Go to "MAP0210 General problem resolution" on page 442.
807-122	807	A critical power supply failure has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
807-123	807	A non-critical power supply failure has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
807-124	807	An unrecoverable power supply failure has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
807-132	807	A critical fan failure has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
807-133	807	A non-critical fan failure has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
807-134	807	An unrecoverable fan failure has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
807-152	807	A critical repeater card failure has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
807-153	807	A critical repeater card failure has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
807-154	807	An unrecoverable repeater card failure has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
807-162	807	A critical VPD module failure has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
807-163	807	A critical vpd module failure has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
807-164	807	An unrecoverable VPD module failure has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
807-172	807	A critical enclosure services failure has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
807-173	807	A non-critical enclosure services failure has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
807-174	807	An unrecoverable enclosure services failure has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
807-182	807	A critical failure has occurred on a user defined element. Action: Go to "MAP0210 General problem resolution" on page 442.
807-183	807	A non-critical failure has occurred on a user defined element. Action: Go to "MAP0210 General problem resolution" on page 442.
807-184	807	An unrecoverable failure has occurred on a user defined element. Action: Go to "MAP0210 General problem resolution" on page 442.
807-192	807	A critical failure has occurred on a user defined element. Action: Go to "MAP0210 General problem resolution" on page 442.
807-193	807	A non-critical failure has occurred on a user defined element. Action: Go to "MAP0210 General problem resolution" on page 442.
807-194	807	An unrecoverable failure has occurred on a user defined element. Action: Go to "MAP0210 General problem resolution" on page 442.
807-201	807 891	Device configuration error. Action: Go to "MAP0210 General problem resolution" on page 442.
807-202	807 891	The enclosure failed to open. Action: Go to "MAP0210 General problem resolution" on page 442.
807-203	807 891	The enclosure failed to return inquiry data. Action: Go to "MAP0210 General problem resolution" on page 442.
807-204	807	A critical power supply or fan failure has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
807-205	807	A failure has occurred on a redundant power supply or fan. Action: Go to "MAP0210 General problem resolution" on page 442.
80A-*xxx*	80A	A potential problem with an SSA device exists. DS8000 series does not use SSA adapters. Call the next level of support.
814-112	814	The NVRAM test failed. Action: Use "MAP0210 General problem resolution" on page 442.
814-113	221	The VPD test failed. Action: Use "MAP0210 General problem resolution" on page 442.
814-114	814	I/O Card NVRAM test failed. Action: Use "MAP0210 General problem resolution" on page 442.
815-100	815	The floating-point processor test failed. Action: Use "MAP0210 General problem resolution" on page 442.
815-101	815	Floating point processor failed. Action: Use "MAP0210 General problem resolution" on page 442.
815-102	815	Floating point processor failed. Action: Use "MAP0210 General problem resolution" on page 442.
815-200	815 7C0	Power-on self-test indicates a processor failure. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
815-201	815	Processor has a status of failed. Processors with a failed status are deconfigured and therefore cannot be tested or used by the system. Action: Use "MAP0210 General problem resolution" on page 442.
816-140	165 816	The four-digit display test failed. Action: Use "MAP0210 General problem resolution" on page 442.
817-123	817	The I/O planar time-of-day clock test failed. Action: Use "MAP0210 General problem resolution" on page 442.
817-124	817	Time of day RAM test failed. Action: Use "MAP0210 General problem resolution" on page 442.
817-210	817	The time-of-day clock is at POR. Action: Use "MAP0210 General problem resolution" on page 442.
817-211	817 169	Time of day POR test failed. Action: Use "MAP0210 General problem resolution" on page 442.
817-212	151 816	The battery is low. Action: Use "MAP0210 General problem resolution" on page 442.
817-213	817	The real-time clock is not running. Action: Use "MAP0210 General problem resolution" on page 442.
817-215	817	Time of day clock not running test failed. Action: Use "MAP0210 General problem resolution" on page 442.
817-217	817 169	Time of day clock not running. Action: Use "MAP0210 General problem resolution" on page 442.
821-111	821 B31	Unexpected results from the test. Action: Use "MAP0210 General problem resolution" on page 442.
821-332	821 software	Cannot open device. Action: Use "MAP0210 General problem resolution" on page 442.
823-111	823	Standard Mouse adapter failed. Action: Use "MAP0210 General problem resolution" on page 442.
823-134	823 software	Cannot open device. Action: Use "MAP0210 General problem resolution" on page 442.
823-211	925 823	Standard mouse adapter failed. Action: Use "MAP0210 General problem resolution" on page 442.
824-220	B10 824	The tablet adapter fuse failed. Action: Use "MAP0210 General problem resolution" on page 442.
824-331	824 227	An unexpected error occurred. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
824-332	824 227	The enable/disable device test failed. **Note:** Ensure that the wrap plug was not attached when the test was run. If the wrap plug was attached, remove it, and rerun the test.Action: Use "MAP0210 General problem resolution" on page 442.
824-333	824	The internal wrap test failed. Action: Use "MAP0210 General problem resolution" on page 442.
824-334	B10 824	The tablet adapter fuse failed. Action: Use "MAP0210 General problem resolution" on page 442.
824-441	824	An unexpected error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
824-442	824	The wrap test failed. Action: Use "MAP0210 General problem resolution" on page 442.
824-450	227	Software error caused by hardware failure. Action: Use "MAP0210 General problem resolution" on page 442.
824-461	227	The error log analysis indicates a hardware failure. Action: Use "MAP0210 General problem resolution" on page 442.
824-511	824	An unexpected error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
824-512	824	Tablet adapter reset test failed. Action: Use "MAP0210 General problem resolution" on page 442.
824-522	B10 824	Adapter fuse failure. Action: Use "MAP0210 General problem resolution" on page 442.
824-523	824	Device cannot be configured. Action: Use "MAP0210 General problem resolution" on page 442.
824-524	824 software	Cannot open device. Action: Use "MAP0210 General problem resolution" on page 442.
826-111	221	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
826-112	221	Unable to determine the type of adapter from the VPD. Action: Use "MAP0210 General problem resolution" on page 442.
826-113	826	The VPD verification test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-114	826	The register verification test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-121	221	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
826-122	221	The data-wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-123	221	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-131	221	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
826-132	221	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
826-133	221	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-161	252	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
826-162	252	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-163	252	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-171	259	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
826-172	259	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-173	259	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-181	261	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
826-182	261	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-183	261	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-271	826 259	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
826-272	826 259	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-273	826 259	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-281	826 259	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
826-282	826 259	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-283	826 259	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-321	826	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
826-322	826	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-323	826	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-331	826	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
826-332	826	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-333	826	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-371	826	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
826-372	826	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-373	826	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442
826-381	826	Could not do the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442
826-382	826	The data wrap communication test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-383	826	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442
826-481	D56	Could not do the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
826-482	D56	The data wrap communication test failed. Action: Use "MAP0210 General problem resolution" on page 442
826-483	D56	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
826-581	826 D56	Could not do the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442
826-582	826 D56	The data wrap communication test failed. Action: Use "MAP0210 General problem resolution" on page 442
826-583	826 D56	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442
826-901 to 826-920	software 826	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use "MAP0210 General problem resolution" on page 442 with a FFC of 826; otherwise, suspect a software problem.
826-921	826 software	The adapter failed to configure. Action: Use "MAP0210 General problem resolution" on page 442
826-922 to 826-924	software 826	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use "MAP0210 General problem resolution" on page 442 with a FFC of 826; otherwise, suspect a software problem.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
826-925	826 software	The adapter failed to configure. Action: Use "MAP0210 General problem resolution" on page 442
826-926 to 826-943	software 826	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use "MAP0210 General problem resolution" on page 442 with a FFC of 826; otherwise, suspect a software problem.
827-112	221	The parallel port data register write/read test failed. Action: Use "MAP0210 General problem resolution" on page 442.
827-121	827	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
827-122	827	The parallel port data register write/read test failed. Action: Use "MAP0210 General problem resolution" on page 442.
827-123	827	The parallel port control register write/read test failed. Action: Use "MAP0210 General problem resolution" on page 442.
827-124	827	The parallel port data register read test failed. Action: Use "MAP0210 General problem resolution" on page 442.
827-125	827	The parallel port control register read test failed. Action: Use "MAP0210 General problem resolution" on page 442.
827-126	827	The parallel port control register read test failed. Action: Use "MAP0210 General problem resolution" on page 442.
827-131	827	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
827-132	827	The control port register direction bit (write) test with BIDI enabled failed. Action: Use "MAP0210 General problem resolution" on page 442.
827-133	827	The control port register direction bit (read) test with BIDI enabled failed. Action: Use "MAP0210 General problem resolution" on page 442.
827-141	827	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
827-142	827	The parallel port control register write/read test with BIDI enabled failed. Action: Use "MAP0210 General problem resolution" on page 442.
827-151	221	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
827-152	827	The parallel port status register read test failed. Action: Use "MAP0210 General problem resolution" on page 442.
827-161	827	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
827-162	221	The parallel port interrupt test failed. Action: Use "MAP0210 General problem resolution" on page 442.
827-163	221	The parallel port interrupt test failed. Action: Use "MAP0210 General problem resolution" on page 442.
827-201	827	The extend control register of the parallel port failed a read/write test. Action: Use "MAP0210 General problem resolution" on page 442.
827-202	827	Input/output to the FIFO (without interrupts) failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
827-203	827	Input/output to the FIFO (with interrupts) failed. Action: Use "MAP0210 General problem resolution" on page 442.
827-204	827	Direct memory access to the FIFO failed. Action: Use "MAP0210 General problem resolution" on page 442.
828-501	828	The diskette adapter test failed. Action: Use "MAP0210 General problem resolution" on page 442.
82C-102	82C	Adapter test failed. Action: Use "MAP0210 General problem resolution" on page 442.
82C-104	82C 725	Display test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-111	221	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
831-112	221	Unable to determine the type of adapter from the VPD. Action: Use "MAP0210 General problem resolution" on page 442.
831-113	831	The VPD verification test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-114	831	The register verification test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-121	221	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
831-122	221	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-123	221	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-131	221	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
831-132	221	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-133	221	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-161	252	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
831-162	252	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-163	252	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-164	221 252	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
831-165	221 252	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-166	221 252	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
831-171	259	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
831-172	259	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-173	259	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-181	261	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
831-182	261	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-183	261	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-271	831 259	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
831-272	831 259	The data wrap communication test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-273	831 259	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-281	831 259	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
831-282	831 259	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-283	831 259	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-321	831	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
831-322	831	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-323	831	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-331	831	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
831-332	831	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-333	831	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
831-371	831	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
831-372	831	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use “MAP0210 General problem resolution” on page 442)
831-373	831	The modem control line test failed. Action: Use “MAP0210 General problem resolution” on page 442.
831-381	831	Cannot run the test because the device driver detected a hardware error. Action: Use “MAP0210 General problem resolution” on page 442.
831-382	831	The data wrap communications test failed. Action: Use “MAP0210 General problem resolution” on page 442.
831-383	831	The modem control line test failed. Action: Use “MAP0210 General problem resolution” on page 442.
831-481	D56	Could not do the test because the device driver detected a hardware error. Action: Use “MAP0210 General problem resolution” on page 442.
831-482	D56	The data wrap communication test failed. Action: Use “MAP0210 General problem resolution” on page 442.
831-483	D56	The modem control line test failed. Action: Use “MAP0210 General problem resolution” on page 442.
831-581	831 D56	Could not do the test because the device driver detected a hardware error. Action: Use “MAP0210 General problem resolution” on page 442.
831-582	831 D56	The data wrap communication test failed. Action: Use “MAP0210 General problem resolution” on page 442.
831-583	831 D56	The modem control line test failed. Action: Use “MAP0210 General problem resolution” on page 442.
831-901 to 831-920	software 831	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use “MAP0210 General problem resolution” on page 442 with a FFC of 831; otherwise, suspect a software problem.
831-921	831 software	The adapter failed to configure. Action: Use “MAP0210 General problem resolution” on page 442.
831-922 to 831-924	software 831	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use“MAP0210 General problem resolution” on page 442 with a FFC of 831; otherwise, suspect a software problem.
831-925	831 software	The adapter failed to configure. Action: Use “MAP0210 General problem resolution” on page 442.
831-926 to 831-943	software 831	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use “MAP0210 General problem resolution” on page 442 with a FFC of 831; otherwise, suspect a software problem.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
832-*xxxx*	*xxxx*	I/O bridge/device internal error **Note:** *xxxx* represents the last 3 or 4 digits of the SRN after the dash (-).Action: Use "MAP0210 General problem resolution" on page 442.
833-*xxxx*	*xxxx* 296 2C9	PCI device address parity error, PCI device data parity error, or PCI device abort error. The diagnostics screen indicates the actual error. **Note:** *xxxx* represents the last 3 or 4 digits of the SRN after the dash (-).Action: Use "MAP0210 General problem resolution" on page 442.
836-101	836	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
836-111	836 227	Cannot run test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
836-112	836 227	Unable to determine the type of adapter from the VPD. Action: Use "MAP0210 General problem resolution" on page 442.
836-113	836	The VPD verification test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-114	836	The register verification test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-115	836	The VPD verification test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-116	B54 836	The 128-port controller line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-117	684	Remote Async Node test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-118	837	Remote async node test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-119	836	Sync line termination test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-151	837	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
836-152	837	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-153	837	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-154	684 836	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
836-155	684 836 152	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-161	C22	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
836-162	C22	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
836-163	C22	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-164	D06	The data wrap communication test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-171	259	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
836-172	259	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-173	259	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-174	263	Cannot run the test because the device driver detected a hardware error while running the Printer/Terminal cable wrap test. Action: Use "MAP0210 General problem resolution" on page 442.
836-175	263	The data wrap communications test failed while running the Printer/Terminal cable wrap test. Action: Use "MAP0210 General problem resolution" on page 442.
836-181	261	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
836-182	261	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-183	261	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-251	836 837	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
836-252	836 837	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-253	836 837	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-254	836 837	Cannot run the test because the device driver detected a hardware error while running the Remote Async Node wrap test. Action: Use "MAP0210 General problem resolution" on page 442.
836-255	836 684	The data wrap communications test failed while running the Remote Async Node wrap test. Action: Use "MAP0210 General problem resolution" on page 442.
836-271	836 837	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
836-272	836 837	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-273	836 837	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
836-274	836 684	Cannot run the test because the device driver detected a hardware error while running the Printer/Terminal cable wrap test. Action: Use "MAP0210 General problem resolution" on page 442.
836-275	836 684	The data wrap communications test failed while running the Printer/Terminal cable wrap test. Action: Use "MAP0210 General problem resolution" on page 442.
836-281	836 837	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
836-282	836 837	The data wrap communication test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-283	836 837	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-481	D56	Could not do the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
836-482	D56	The data wrap communication test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-483	D56	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
836-901 to 836-920	software 836	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use "MAP0210 General problem resolution" on page 442 with a FFC of 836; otherwise, suspect a software problem.
836-921	836 software	The adapter failed to configure. Action: Use "MAP0210 General problem resolution" on page 442.
836-922 to 836-924	software 836	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use "MAP0210 General problem resolution" on page 442 with a FFC of 836; otherwise, suspect a software problem.
836-925	836 software	The adapter failed to configure. Action: Use "MAP0210 General problem resolution" on page 442.
836-926 to 836-943	software 836	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use "MAP0210 General problem resolution" on page 442 with a FFC of 836; otherwise, suspect a software problem.
840-101	221	Enhanced error handling failure on the bus. Action: Use "MAP0210 General problem resolution" on page 442.
840-102	293	Enhanced error handling failure on a PCI-PCI Bridge. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
840-103	840 221	Enhanced error handling failure on the adapter. Action: Use "MAP0210 General problem resolution" on page 442.
840-212	840	FIFO empty bit set. Action: Use "MAP0210 General problem resolution" on page 442.
840-213	840	FIFO empty bit clear. Action: Use "MAP0210 General problem resolution" on page 442.
840-214	840	FIFO full bit set. Action: Use "MAP0210 General problem resolution" on page 442.
840-215	840	FIFO full bit clear. Action: Use "MAP0210 General problem resolution" on page 442.
840-216	840	FIFO data miscompare. Action: Use "MAP0210 General problem resolution" on page 442.
840-217	840	SCSI FIFO data miscompare. Action: Use "MAP0210 General problem resolution" on page 442.
840-218	840	SCSI FIFO underflow. Action: Use "MAP0210 General problem resolution" on page 442.
840-219		SCSI parity error. Action: Use "MAP0050 SCSI bus problems" on page 441.
840-220	840	SCSI FIFO flags error. Action: Use "MAP0210 General problem resolution" on page 442.
840-221	840 221	Miscompare during the write/read of the configuration register. Action: Use "MAP0210 General problem resolution" on page 442.
840-222	840	Error during the write/read of the memory register. Action: Use "MAP0210 General problem resolution" on page 442.
840-223	840	Miscompare during the write/read of the memory I/O register. Action: Use "MAP0050 SCSI bus problems" on page 441.
840-224	840 221	SCSI configuration register read or write error. Action: Use "MAP0210 General problem resolution" on page 442.
840-225	840	Adapter POST failed. Action: Use "MAP0210 General problem resolution" on page 442.
840-226		SCSI wrap or PTC failure. Action: Go to "MAP0050 SCSI bus problems" on page 441.
840-227	840 221	SCSI adapter test failure. Action: Use "MAP0210 General problem resolution" on page 442.
840-230		Arbitration test failed. Action: Go to "MAP0050 SCSI bus problems" on page 441.
840-231		Function could not complete. Action: Go to "MAP0050 SCSI bus problems" on page 441.
840-232		SCSI bus data miscompare. Action: Go to "MAP0050 SCSI bus problems" on page 441.
840-240		No terminal power. Action: Go to "MAP0050 SCSI bus problems" on page 441.
840-242		SCSI bus error. Action: Go to "MAP0050 SCSI bus problems" on page 441.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
840-301	840 221	The parent device open failed. Action: Use "MAP0210 General problem resolution" on page 442.
840-701	840	Error log analysis indicates a PCI SCSI adapter failure. Action: Use "MAP0210 General problem resolution" on page 442.
840-801		Error log analysis indicates a terminator problem. Action: Run the diagnostics on the adapter in System Verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in General SCSI configuration checks to resolve the problem.
840-802		Error log analysis indicates that multiple attempts to reset the SCSI bus have timed out. Action: Run the diagnostics on the adapter in System Verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in General SCSI configuration checks to resolve the problem.
840-803		Error log analysis indicates that multiple SCSI bus errors have occurred. Action: Run the diagnostics on the adapter in System Verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in General SCSI configuration checks to resolve the problem.
844-xxx series	844	A 7135 controller problem is indicated. Action: Use 7135 documentation.
845-xxx series	845	A 7135 DASD drawer problem is indicated. Action: Use 7135 documentation.
846-xxx series	846	A 7135 DASD drawer problem is indicated. Action: Use 7135 documentation.
868-101	221	Enhanced error handling failure on the bus. Action: Use "MAP0210 General problem resolution" on page 442.
868-102	293	Enhanced error handling failure on a PCI-PCI Bridge. Action: Use "MAP0210 General problem resolution" on page 442.
868-103	868 221	Enhanced error handling failure on the adapter. Action: Use "MAP0210 General problem resolution" on page 442.
868-110	221	The adapter diagnostic subcommand test failed. Action: Use "MAP0210 General problem resolution" on page 442.
868-130	279	The adapter fuse test failed. Action: Use "MAP0210 General problem resolution" on page 442.
868-140	868	The wrap test failed. Action: Use "MAP0210 General problem resolution" on page 442.
868-150	868	The BCR registers write/read test failed. Action: Use "MAP0210 General problem resolution" on page 442.
868-160	868	The POS registers write/read test failed. Action: Use "MAP0210 General problem resolution" on page 442.
868-170	868	The internal/external reset test failed. Action: Use "MAP0210 General problem resolution" on page 442.
868-180	279 868	The adapter command timed out. **Note:** Check the fuse before replacing. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
868-190	221	A software error was caused by a hardware failure. Action: Use "MAP0210 General problem resolution" on page 442.
868-191	868	Analysis of the error log indicates a problem with the hardware. Action: Use "MAP0210 General problem resolution" on page 442.
868-192	221	Analysis of the error log indicates a problem with the hardware. Action: Use "MAP0210 General problem resolution" on page 442.
868-193	279	Analysis of the error log indicates a problem with the hardware. Action: Use "MAP0210 General problem resolution" on page 442.
868-194	868	Analysis of the error log indicates a problem with the hardware. Action: Use "MAP0210 General problem resolution" on page 442.
868-200	868	ROM CRC error. Action: Use "MAP0210 General problem resolution" on page 442.
868-201	868	Adapter RAM error. Action: Use "MAP0210 General problem resolution" on page 442.
868-202	868	The control logic failed. Action: Use "MAP0210 General problem resolution" on page 442.
868-203	868	The control logic failed. Action: Use "MAP0210 General problem resolution" on page 442.
868-204	868	The control logic failed. Action: Use "MAP0210 General problem resolution" on page 442.
868-205	868	The control logic failed. Action: Use "MAP0210 General problem resolution" on page 442.
868-206	868	Diagnostics completed with a previous error. Action: Use "MAP0210 General problem resolution" on page 442.
868-211	279 868 software	The device failed to configure. Action: Use "MAP0210 General problem resolution" on page 442.
868-212	868	FIFO empty bit set. Action: Use "MAP0210 General problem resolution" on page 442.
868-213	868	FIFO empty bit clear. Action: Use "MAP0210 General problem resolution" on page 442.
868-214	868	FIFO full bit set. Action: Use "MAP0210 General problem resolution" on page 442.
868-215	868	FIFO full bit clear. Action: Use "MAP0210 General problem resolution" on page 442.
868-216	868	FIFO data miscompare. Action: Use "MAP0210 General problem resolution" on page 442.
868-217	868	SCSI FIFO data miscompare. Action: Use "MAP0210 General problem resolution" on page 442.
868-218	868	SCSI FIFO underflow. Action: Use "MAP0210 General problem resolution" on page 442.
868-219		SCSI parity error. Action: Go to "MAP0050 SCSI bus problems" on page 441. Action: Use "MAP0210 General problem resolution" on page 442.
868-220	868	SCSI FIFO flags error. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
868-221	868 221	Miscompare during the write/read of the configuration register. Action: Use "MAP0210 General problem resolution" on page 442.
868-222	868	Error during the write/read of the memory register. Action: Use "MAP0210 General problem resolution" on page 442.
868-223	868	Miscompare during the write/read of the memory I/O register. Action: Go to "MAP0050 SCSI bus problems" on page 441.
868-224	868 221	SCSI configuration register read or write error. Action: Use "MAP0210 General problem resolution" on page 442.
868-225	868	Adapter POST failed. Action: Use "MAP0210 General problem resolution" on page 442.
868-226		SCSI wrap or PTC failure. Action: Go to "MAP0050 SCSI bus problems" on page 441.
868-227	868 221	SCSI adapter test failure. Action: Use "MAP0210 General problem resolution" on page 442.
868-230		Arbitration test failed. Action: Go to "MAP0050 SCSI bus problems" on page 441.
868-231		Function could not complete. Action: Go to "MAP0050 SCSI bus problems" on page 441.
868-232		SCSI bus data miscompare. Action: Go to "MAP0050 SCSI bus problems" on page 441.
868-240		No terminal power. Action: Go to "MAP0050 SCSI bus problems" on page 441.
868-242		SCSI bus error. Action: Go to "MAP0050 SCSI bus problems" on page 441.
868-301	868 221	Configuration open failed for parent bus. Action: Use "MAP0210 General problem resolution" on page 442.
868-701	868	Error log analysis indicates a PCI SCSI adapter failure. Action: Use "MAP0210 General problem resolution" on page 442.
868-801		Error log analysis indicates a terminator problem. Action: Run the diagnostics on the adapter in System Verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in General SCSI configuration checks to resolve the problem.
868-802		Error log analysis indicates that multiple attempts to reset the SCSI bus have timed out. Action: Run the diagnostics on the adapter in System Verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in General SCSI configuration checks to resolve the problem.
868-803		Error log analysis indicates that multiple SCSI bus errors have occurred. Action: Run the diagnostics on the adapter in System Verification mode. If an SRN is reported, use the SRN to resolve the problem. If an SRN is not reported, use the SCSI service hints in General SCSI configuration checks to resolve the problem.
887-101	887	POS register test failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
887-102	887	I/O register test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-103	887	Local RAM test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-104	887	Vital Product Data (VPD) failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-105	887	LAN coprocessor internal tests failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-106	887	Internal loopback test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-107	887	External loopback test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-108	887	External loopback test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-109	887	External loopback parity tests failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-110	887	External loopback fairness test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-111	887	External loopback fairness and parity tests failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-112	887	External loopback (twisted pair) test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-113	887	External loopback (twisted pair) parity test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-114	887	Ethernet loopback (twisted pair) fairness test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-115	887	External loopback (twisted pair) fairness and parity tests failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-116	887	Twisted pair wrap data failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-117	887 software	Device configuration fails. Action: Use "MAP0210 General problem resolution" on page 442.
887-118	887	Device driver indicates a hardware problem. Action: Use "MAP0210 General problem resolution" on page 442.
887-120	887	Device driver indicates a hardware problem. Action: Use "MAP0210 General problem resolution" on page 442.
887-121	B08	Ethernet transceiver test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-122	B09	Ethernet 10 Base-2 transceiver test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-123	887	Internal loopback test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-124	887 software	Error log indicates a hardware problem. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
887-125	887	Fuse test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-202	887	Vital product data test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-203	887	Vital product data test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-209	887	RJ-45 converter test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-304	887	Coprocessor internal test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-305	887	Internal loopback test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-306	887	Internal loopback test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-307	887	External loopback test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-319	887 software	Device driver indicates a hardware failure. Action: Use "MAP0210 General problem resolution" on page 442.
887-400	887	Fuse test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-401	887	Circuit breaker for Ethernet test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-402	B09 887	Ethernet 10 Base-2 transceiver test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-403	B08 887	Ethernet 10 Base-T transceiver test failed. Action: Use "MAP0210 General problem resolution" on page 442.
887-405	Ethernet-network 887	Rerun diagnostics in advanced mode for accurate problem determination. Action: Use "MAP0210 General problem resolution" on page 442.
891-102	891	A critical failure has occurred on an undefined element. Action: Use "MAP0210 General problem resolution" on page 442.
891-103	891	Non-critical failure has occurred on an undefined element. Action: Use "MAP0210 General problem resolution" on page 442.
891-104	891	An unrecoverable failure has occurred on an undefined element. Action: Use "MAP0210 General problem resolution" on page 442.
891-122	152	A critical power supply failure has occurred. Action: Use "MAP0210 General problem resolution" on page 442.
891-123	152	A non-critical power supply failure has occurred. Action: Use "MAP0210 General problem resolution" on page 442.
891-124	152	An unrecoverable power supply failure has occurred. Action: Use "MAP0210 General problem resolution" on page 442.
891-132	166	A critical fan failure has occurred. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
891-133	166	A non-critical fan failure has occurred. Action: Use "MAP0210 General problem resolution" on page 442.
891-134	166 891	An unrecoverable fan failure has occurred. Action: Use "MAP0210 General problem resolution" on page 442.
891-148	166 891	The enclosure indicates a temperature threshold warning. Action: Use "MAP0210 General problem resolution" on page 442.
891-149	166 891	The enclosure indicates a temperature threshold failure. Action: Use "MAP0210 General problem resolution" on page 442.
891-152	891	A critical repeater card failure has occurred. Action: Use "MAP0210 General problem resolution" on page 442.
891-153	891	A non-critical repeater card failure has occurred. Action: Use "MAP0210 General problem resolution" on page 442.
891-154	891	An unrecoverable repeater card failure has occurred. Action: Use "MAP0210 General problem resolution" on page 442.
891-162	891	A critical VPD module failure has occurred. Action: Use "MAP0210 General problem resolution" on page 442.
891-163	891	A non-critical VPD module failure has occurred. Action: Use "MAP0210 General problem resolution" on page 442.
891-164	891	An unrecoverable VPD module failure has occurred. Action: Use "MAP0210 General problem resolution" on page 442.
891-172	891	A critical enclosure services failure has occurred. Action: Use "MAP0210 General problem resolution" on page 442.
891-173	891	A non-critical enclosure services failure has occurred. Action: Use "MAP0210 General problem resolution" on page 442.
891-174	891	An unrecoverable enclosure services failure has occurred. Action: Use "MAP0210 General problem resolution" on page 442.
891-182	891	A critical failure has occurred on a user defined element. Action: Use "MAP0210 General problem resolution" on page 442.
891-183	891	A non-critical failure has occurred on a user defined element. Action: Use "MAP0210 General problem resolution" on page 442.
891-184	891	An unrecoverable failure has occurred on a user defined element. Action: Use "MAP0210 General problem resolution" on page 442.
891-192	891	A critical failure has occurred on a user defined element. Action: Use "MAP0210 General problem resolution" on page 442.
891-193	891	A non-critical failure has occurred on a user defined element. Action: Use "MAP0210 General problem resolution" on page 442.
891-194	891	An unrecoverable failure has occurred on a user defined element. Action: Use "MAP0210 General problem resolution" on page 442.
891-201	891	Device configuration error. Action: Use "MAP0210 General problem resolution" on page 442.
891-202	891	The enclosure failed to open. Action: Use "MAP0210 General problem resolution" on page 442.
891-203	891	The enclosure failed to return inquiry data. Action: Use "MAP0210 General problem resolution" on page 442.
891-204	152 166	There is a critical power supply or fan failure. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442)
891-205	152 166	There is a redundant power supply or fan failure. Action: Use "MAP0210 General problem resolution" on page 442.

SRNs 900-001 through 9CC-*xxx*

Replace FRU parts in the order by which the ″Failing Function Codes″ are listed. Go to "Failing function code list" on page 1843 to access the failing function codes.

Note: Some SRNs in this chapter may have 4 rather than 3 digits after the dash (-).

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
901-*xxx*		Vendor SCSI device problem. Refer to the service documentation for this device. Action: Use "MAP0210 General problem resolution" on page 442.
902-*xxx*		Vendor display problem. Refer to the service documentation for this display. Action: Use "MAP0210 General problem resolution" on page 442.
903-*xxx*		Vendor Async device problem. Refer to the service documentation for this device. Action: Use "MAP0210 General problem resolution" on page 442.
904-*xxx*		Vendor Parallel device problem. Refer to the service documentation for this device. Action: Use "MAP0210 General problem resolution" on page 442.
905-*xxx*		Vendor device problem. Refer to the service documentation for this device. Action: Use "MAP0210 General problem resolution" on page 442.
912-XXX to 913-XXX		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
914-110	914	The **Reserve** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-120	914	The **Inquiry** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-130	914 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-135	914 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-140	914	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-150	914 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
914-160	914 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-170	914 B88 media	The Read, Write and Compare test failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-180	914 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-185	914 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-190	914	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-200	914 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-210	914 B88	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-220	914	The **Release** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-230	914	The **Request Sense** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-240	914	The **Openx** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-300	914 software	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-310	B88 914 software	SCSI adapter configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
914-320	914 media	Error log analysis indicates a failure. Action: Use "MAP0210 General problem resolution" on page 442.
914-411 to 914-423	914 B88 software	A reservation conflict occurred. Action: Use "MAP0210 General problem resolution" on page 442.
914-511 to 914-523	914 B88	The drive returned bad or non-extended sense data. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
914-611 to 914-623	914 B88 software	An adapter or bus I/O error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
914-711 to 914-723	914 B88 software	A device timeout error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
915-110	915	The **Reserve** command is corrupted. Action: Use "MAP0210 General problem resolution" on page 442.
915-120	915	The **Inquiry** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-130	915 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-135	915 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-140	915	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-150	915 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-160	915 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-169	915 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-170	915 B88 media	The Read, Write and Compare test failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-180	915 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-185	915 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-190	915	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-200	915 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-210	915 B88	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
915-220	915	The **Replace** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-230	915	The **Request Sense** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-240	915	The **Openx** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-300	915 software	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-310	B88 915 software	SCSI adapter configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
915-320	915 media	Error log analysis indicates a failure. Action: Use "MAP0210 General problem resolution" on page 442.
915-411 to 915-423	915 B88 software	A reservation conflict occurred. Action: Use "MAP0210 General problem resolution" on page 442.
915-511 to 915-523	915 B88	The drive returned bad or non-extended sense data. Action: Use "MAP0210 General problem resolution" on page 442.
915-611 to 915-623	915 B88 software	An adapter or bus I/O error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
915-711 to 915-723	915 B88 software	A device timeout error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
917-102	917 B88	An unrecoverable media error. Action: Use "MAP0210 General problem resolution" on page 442.
917-104	917	The motor failed to restart. Action: Use "MAP0210 General problem resolution" on page 442.
917-105	917	The drive did not become ready. Action: Use "MAP0210 General problem resolution" on page 442.
917-106	917	The electronics card test failed. Action: Use "MAP0210 General problem resolution" on page 442.
917-108	917	The bus test failed. Action: Use "MAP0210 General problem resolution" on page 442.
917-110	917	The media format is corrupted. Action: Use "MAP0210 General problem resolution" on page 442.
917-112	917	The diagnostic test failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
917-114	917	An unrecoverable hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
917-116		A protocol error. Action: Check the levels of the device, adapter, diagnostic software, and application software to ensure they are all compatible. If you do not find a problem, call your support person. Use "MAP0210 General problem resolution" on page 442.
917-117	917	A write-protect error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
917-118	917 B88	A SCSI command timeout. Action: Use "MAP0210 General problem resolution" on page 442.
917-120	917	A SCSI busy or command error. Action: Use "MAP0210 General problem resolution" on page 442.
917-122	917	A SCSI reservation conflict error. Action: Use "MAP0210 General problem resolution" on page 442.
917-124	917	A SCSI check condition error. Action: Use "MAP0210 General problem resolution" on page 442.
917-126	917 B88	A software error was caused by a hardware failure. Action: Use "MAP0210 General problem resolution" on page 442.
917-128	917	The error log analysis indicates a hardware failure. Action: Use "MAP0210 General problem resolution" on page 442.
917-129	917	Error log analysis indicates a SCSI bus problem. Action: Use "MAP0210 General problem resolution" on page 442.
917-130	917 B88	Error log analysis indicates a problem reported by the disk drive's self-monitoring function. Action: Use "MAP0210 General problem resolution" on page 442.
917-132	917	A disk drive hardware error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
917-133	917	Use the subsystem guide to complete diagnostics. Action: Use "MAP0210 General problem resolution" on page 442.
917-134	B88 software	The adapter failed to configure. Action: Use "MAP0210 General problem resolution" on page 442.
917-135	917 B88 software	The device failed to configure. Action: Use "MAP0210 General problem resolution" on page 442.
917-136	917	The certify operation failed. Action: Use "MAP0210 General problem resolution" on page 442.
917-137	917 B88 190	Unit attention condition has occurred on the **Send Diagnostic** command. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
917-138	190	Error log indicates that the disk is operating at higher than recommended temperatures. Action: Use "MAP0210 General problem resolution" on page 442.
917-139	917	Error configuring or opening device. Action: Use "MAP0210 General problem resolution" on page 442.
917-640	640	Error Log Analysis indicates a path error. Action: Use "MAP0210 General problem resolution" on page 442.
918-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
921-101	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
921-102	921 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
921-103	921 821	The keyboard reset failed. Action: Use "MAP0210 General problem resolution" on page 442.
921-104	921	Unknown keyboard. Action: Use "MAP0210 General problem resolution" on page 442.
921-105	921 821	The keyboard light-on test failed. Action: Use "MAP0210 General problem resolution" on page 442.
921-106	921 821	The keyboard light-off test failed. Action: Use "MAP0210 General problem resolution" on page 442.
921-201	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
921-202	921 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
921-203	921 821	The read keyboard ID test failed. Action: Use "MAP0210 General problem resolution" on page 442.
921-204	921	The keyboard layout ID test failed. Action: Use "MAP0210 General problem resolution" on page 442.
921-205	921 821	The keyboard echo test failed. Action: Use "MAP0210 General problem resolution" on page 442.
921-206	921 821	The select scan code set test failed. Action: Use "MAP0210 General problem resolution" on page 442.
921-301	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
921-302	921 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
921-303	921	An error occurred in turning on the lamps. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
921-304	921	An error occurred in turning off the lamps. Action: Use "MAP0210 General problem resolution" on page 442.
921-401	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
921-402	921 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
921-403	921	Unable to recognize the keyboard. Action: Use "MAP0210 General problem resolution" on page 442.
921-404	921 821	The keyboard is failing. Action: Use "MAP0210 General problem resolution" on page 442.
921-501	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
921-502	921 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
921-503	921	The auto-click cannot be disabled. Action: Use "MAP0210 General problem resolution" on page 442.
921-504	921	The auto-click cannot be enabled. Action: Use "MAP0210 General problem resolution" on page 442.
921-505	921	Unable to recognize the keyboard. Action: Use "MAP0210 General problem resolution" on page 442.
921-601	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
921-602	921 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
921-603	921	The speaker test failed. Action: Use "MAP0210 General problem resolution" on page 442.
921-701	921 821	Error configuring the device. Action: Use "MAP0210 General problem resolution" on page 442.
921-901	821	The error log analysis indicates an adapter failure. Action: Use "MAP0210 General problem resolution" on page 442.
921-902	921 821	The error log analysis indicates a device failure. Action: Use "MAP0210 General problem resolution" on page 442.
921-903	921 821	The error log analysis indicates an unknown failure. Action: Use "MAP0210 General problem resolution" on page 442.
922-101	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
922-102	922 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
922-103	922 821	The keyboard reset failed. Action: Use "MAP0210 General problem resolution" on page 442.
922-104	922	Unknown keyboard. Action: Use "MAP0210 General problem resolution" on page 442. Action: Use "MAP0210 General problem resolution" on page 442.
922-105	922 821	The keyboard light-on test failed. Action: Use "MAP0210 General problem resolution" on page 442.
922-106	922 821	The keyboard light-off test failed. Action: Use "MAP0210 General problem resolution" on page 442.
922-201	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
922-202	922 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
922-203	922 821	The read keyboard id test failed. Action: Use "MAP0210 General problem resolution" on page 442.
922-204	922	The keyboard layout id test failed. Action: Use "MAP0210 General problem resolution" on page 442.
922-205	922 821	The keyboard echo test failed. Action: Use "MAP0210 General problem resolution" on page 442.
922-206	922 821	The select scan code set test failed. Action: Use "MAP0210 General problem resolution" on page 442.
922-301	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
922-302	922 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
922-303	922	An error occurred in turning on the lamps. Action: Use "MAP0210 General problem resolution" on page 442.
922-304	922	An error occurred in turning off the lamps. Action: Use "MAP0210 General problem resolution" on page 442.
922-401	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
922-402	922 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
922-403	922	The keyboard is failing. Action: Use "MAP0210 General problem resolution" on page 442.
922-404	922 821	Unable to recognize the keyboard. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
922-501	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
922-502	922 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
922-503	921	The auto-click cannot be disabled. Action: Use "MAP0210 General problem resolution" on page 442.
922-504	922	The auto-click cannot be enabled. Action: Use "MAP0210 General problem resolution" on page 442.
922-505	922	Unable to recognize the keyboard. Action: Use "MAP0210 General problem resolution" on page 442.
922-601	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
922-602	922 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
922-603	922	The speaker test failed. Action: Use "MAP0210 General problem resolution" on page 442.
922-701	922 821	Error configuring the device. Action: Use "MAP0210 General problem resolution" on page 442.
922-901	821	The error log indicates an adapter failed. Action: Use "MAP0210 General problem resolution" on page 442.
922-902	922 821	The error log indicates a device failed. Action: Use "MAP0210 General problem resolution" on page 442.
922-903	922 821	The error log analysis indicates an unknown failure. Action: Use "MAP0210 General problem resolution" on page 442.
923-101	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
923-102	923 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
923-103	923 821	The keyboard reset failed. Action: Use "MAP0210 General problem resolution" on page 442.
923-104	923	Unknown keyboard. Action: Use "MAP0210 General problem resolution" on page 442.
923-105	923 821	The keyboard light-on test failed. Action: Use "MAP0210 General problem resolution" on page 442.
923-106	923 821	The keyboard light-off test failed. Action: Use "MAP0210 General problem resolution" on page 442.
923-201	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
923-202	923 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
923-203	923 821	The read keyboard id test failed. Action: Use "MAP0210 General problem resolution" on page 442.
923-204	923	The keyboard layout id test failed. Action: Use "MAP0210 General problem resolution" on page 442.
923-205	923 821	The keyboard echo test failed. Action: Use "MAP0210 General problem resolution" on page 442.
923-206	923 821	The select scan code set test failed. Action: Use "MAP0210 General problem resolution" on page 442.
923-301	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
923-302	923 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
923-303	923	An error occurred in turning on the lamps. Action: Use "MAP0210 General problem resolution" on page 442.
923-304	923	An error occurred in turning off the lamps. Action: Use "MAP0210 General problem resolution" on page 442.
923-401	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
923-402	923 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
923-403	923	The keyboard is failing. Action: Use "MAP0210 General problem resolution" on page 442.
923-404	923 821	Unable to recognize the keyboard. Action: Use "MAP0210 General problem resolution" on page 442.
923-501	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
923-502	923 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
923-503	923	The auto-click cannot be disabled. Action: Use "MAP0210 General problem resolution" on page 442.
923-504	923	The auto-click cannot be enabled. Action: Use "MAP0210 General problem resolution" on page 442.
923-505	923	Unable to recognize the keyboard. Action: Use "MAP0210 General problem resolution" on page 442.
923-601	821	An unexpected adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
923-602	923 821	An unexpected device or adapter error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
923-603	923	The speaker test failed. Action: Use "MAP0210 General problem resolution" on page 442.
923-701	923 821	Error configuring the device. Action: Use "MAP0210 General problem resolution" on page 442.
923-901	821	The error log indicates an adapter failed. Action: Use "MAP0210 General problem resolution" on page 442.
923-902	923 821	The error log analysis indicates a device failure. Action: Use "MAP0210 General problem resolution" on page 442.
923-903	923 821	The error log analysis indicates an unknown failure. Action: Use "MAP0210 General problem resolution" on page 442.
925-111	925 823	An unexpected device error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
925-112	925 823	The device disable test failed. Action: Use "MAP0210 General problem resolution" on page 442.
925-113	925	Could not reset the device. Action: Use "MAP0210 General problem resolution" on page 442.
925-114	925 823	The **Read Status** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
925-115	925	The device test failed. Action: Use "MAP0210 General problem resolution" on page 442.
925-116	925	Unknown Mouse type. Action: Use "MAP0210 General problem resolution" on page 442.
925-117	925 823	Mouse wrap mode failed. Action: Use "MAP0210 General problem resolution" on page 442.
925-118	925 823	Error setting mouse parameters. Action: Use "MAP0210 General problem resolution" on page 442.
925-121 to 925-171	925	The device test failed. Action: Use "MAP0210 General problem resolution" on page 442.
925-200	925 823	A software error was caused by a hardware failure. Action: Use "MAP0210 General problem resolution" on page 442.
925-300	925	The error log analysis indicates a hardware failure. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use “MAP0210 General problem resolution” on page 442.)
925-301	925 823	The error log analysis indicates a hardware failure. Action: Use “MAP0210 General problem resolution” on page 442.
926-104	926 159	Input device cable is not attached. Action: Use “MAP0210 General problem resolution” on page 442.
926-111	824	Adapter error. Action: Use “MAP0210 General problem resolution” on page 442.
926-112 to 926-115	926 824	Device, adapter or tablet reset failed. Action: Use “MAP0210 General problem resolution” on page 442.
926-116	159	The input device cable is not attached. Action: Use “MAP0210 General problem resolution” on page 442.
926-119	188	The input device cable is not attached. Action: Use “MAP0210 General problem resolution” on page 442.
926-121	824	Adapter error. Action: Use “MAP0210 General problem resolution” on page 442.
926-131	824 926	Adapter error. Action: Use “MAP0210 General problem resolution” on page 442.
926-132 to 926-135	926	Device or adapter error. Action: Use “MAP0210 General problem resolution” on page 442.
926-141	824 926	Adapter error. Action: Use “MAP0210 General problem resolution” on page 442.
926-142 to 926-161	926	Device or adapter error. Action: Use “MAP0210 General problem resolution” on page 442.
926-162	159 926	Device or adapter error. Action: Use “MAP0210 General problem resolution” on page 442.
926-163	159 926	Error in turning off input device LED. Action: Use “MAP0210 General problem resolution” on page 442.
926-164	159 926	Error in turning off input device LED. Action: Use “MAP0210 General problem resolution” on page 442.
926-165	159	The input device cable is not attached. Action: Use “MAP0210 General problem resolution” on page 442.
926-166	188 926	Device or adapter error. Action: Use “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
926-167	188 926	Error in turning off input device LED. Action: Use "MAP0210 General problem resolution" on page 442.
926-168	188 926	Error in turning on input device LED. Action: Use "MAP0210 General problem resolution" on page 442.
926-169	188	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
926-172	159 926	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
926-173	159 926	Error in turning off input device switch. Action: Use "MAP0210 General problem resolution" on page 442.
926-174	159 926	Error in turning on input device switch. Action: Use "MAP0210 General problem resolution" on page 442.
926-175	159	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
926-176	188 926	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
926-177	188 926	Error in turning off input device switch. Action: Use "MAP0210 General problem resolution" on page 442.
926-178	188 926	Error in turning on input device switch. Action: Use "MAP0210 General problem resolution" on page 442.
926-179	188	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
926-181	824 926	Adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
926-182	159 926	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
926-183	159 926	Error in incremental data mode test. Action: Use "MAP0210 General problem resolution" on page 442.
926-184	159	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
926-186	188 926	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
926-187	188 926	The incremental data mode test failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
926-188	188	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
926-203	926 824	Error in disabling tablet. Action: Use "MAP0210 General problem resolution" on page 442.
926-204	926 824	Error in enabling tablet. Action: Use "MAP0210 General problem resolution" on page 442.
926-207	926 824	Enabled/disabled test failed. Action: Use "MAP0210 General problem resolution" on page 442.
926-208	926 824	Enabled/disabled test failed. Action: Use "MAP0210 General problem resolution" on page 442.
926-221	824	Adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
926-222	926 824	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
926-225	159	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
926-229	188	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
926-271	926	Adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
926-272	159 926	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
926-273	159	Error in input device switch test. Action: Use "MAP0210 General problem resolution" on page 442.
926-274	159	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
926-276	188 926	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
926-277	188 926	Error in input device switch test. Action: Use "MAP0210 General problem resolution" on page 442.
926-278	188	Input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
926-281	824 926	Adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
926-282	159 926	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
926-283	159 926	Error in incremental data mode test. Action: Use "MAP0210 General problem resolution" on page 442.
926-284	159	The input device cable is not attached.
926-286	188 926	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
926-287	188 926	Error in incremental data mode test. Action: Use "MAP0210 General problem resolution" on page 442.
926-288	188	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
927-104	927 159	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
927-111	824	Adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-112	927 824	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-113	927 824	Tablet reset failed. Action: Use "MAP0210 General problem resolution" on page 442.
927-114	927 824	The read configuration test failed. Action: Use "MAP0210 General problem resolution" on page 442.
927-115	927 824	The read status test failed. Action: Use "MAP0210 General problem resolution" on page 442.
927-116	159	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
927-119	188	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
927-121	824	Adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-122	927 824	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-125	927 824	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
927-131	824 927	Adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-132	927	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
927-133	927	The set conversion mode test failed. Action: Use "MAP0210 General problem resolution" on page 442.
927-134	927	The set resolution test failed. Action: Use "MAP0210 General problem resolution" on page 442.
927-135	927	The read status test failed. Action: Use "MAP0210 General problem resolution" on page 442.
927-141	824 927	Adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-142	927	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-143	927	Error in tablet indicator. Action: Use "MAP0210 General problem resolution" on page 442.
927-161	927	Adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-162	159 927	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-163	159 927	Error in turning off input device LED. Action: Use "MAP0210 General problem resolution" on page 442.
927-164	159 927	Error in turning on input device LED. Action: Use "MAP0210 General problem resolution" on page 442.
927-165	159	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
927-166	188 927	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-167	188 927	Error in turning off input device LED. Action: Use "MAP0210 General problem resolution" on page 442.
927-168	188 927	Error in turning on input device LED. Action: Use "MAP0210 General problem resolution" on page 442.
927-169	188	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
927-171	927	Adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-172	159 927	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-173	159 927	Error in turning off input device switch. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
927-174	159 927	Error in turning on input device switch. Action: Use "MAP0210 General problem resolution" on page 442.
927-175	159	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
927-176	188 927	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-177	188 927	Error in turning off input device switch. Action: Use "MAP0210 General problem resolution" on page 442.
927-178	188 927	Error in turning on input device switch. Action: Use "MAP0210 General problem resolution" on page 442.
927-179	188	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
927-181	824 927	Adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-182	159 927	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-183	159 927	Error in incremental data mode test. Action: Use "MAP0210 General problem resolution" on page 442.
927-184	159	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
927-186	188 927	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-187	188 927	Error in incremental data mode test. Action: Use "MAP0210 General problem resolution" on page 442.
927-188	188	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
927-203	927 824	Error in disabling tablet. Action: Use "MAP0210 General problem resolution" on page 442.
927-204	927 824	Error in enabling tablet. Action: Use "MAP0210 General problem resolution" on page 442.
927-221	824	Adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-222	927 824	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
927-225	159	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
927-229	188	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
927-271	927	Adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-272	159 927	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-273	159 927	Error in input device switch test. Action: Use "MAP0210 General problem resolution" on page 442.
927-274	159	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
927-276	188 927	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-277	188 927	Error in input device switch test. Action: Use "MAP0210 General problem resolution" on page 442.
927-278	188	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
927-281	824 927	Adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-282	159 927	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-283	159 927	Error in incremental data mode test. Action: Use "MAP0210 General problem resolution" on page 442.
927-284	159	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
927-286	188 927	Device or adapter error. Action: Use "MAP0210 General problem resolution" on page 442.
927-287	188 927	Error in incremental data mode test. Action: Use "MAP0210 General problem resolution" on page 442.
927-288	188	The input device cable is not attached. Action: Use "MAP0210 General problem resolution" on page 442.
929-201	929	Failed to register input ring. Action: Use "MAP0210 General problem resolution" on page 442.
929-202	929	Unable to read event from the device. Action: Use "MAP0210 General problem resolution" on page 442.
929-203	929	Unable to communicate with the device. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
929-204	929	Cannot set the device granularity. Action: Use "MAP0210 General problem resolution" on page 442.
929-210	929	Device or adapter failure. Action: Use "MAP0210 General problem resolution" on page 442.
929-212	929	Cannot set the device to HIGH granularity. Action: Use "MAP0210 General problem resolution" on page 442.
929-213	929	Cannot set the device to LOW granularity. Action: Use "MAP0210 General problem resolution" on page 442.
929-299	software 929	Error unconfiguring the device. Action: Use "MAP0210 General problem resolution" on page 442.
929-301	software 929	Error configuring the device. Action: Use "MAP0210 General problem resolution" on page 442.
930-201	930	Device or adapter failure. Action: Use "MAP0210 General problem resolution" on page 442.
930-210	930	Unable to turn the lights on. Action: Use "MAP0210 General problem resolution" on page 442.
930-220	930	Unable to turn the lights off hardware failure. Action: Use "MAP0210 General problem resolution" on page 442.
930-230	930	Unable to turn the lights off. Action: Use "MAP0210 General problem resolution" on page 442.
930-241	930	Unable to turn a single light-on. Action: Use "MAP0210 General problem resolution" on page 442.
930-242	930	Device or adapter failure. Action: Use "MAP0210 General problem resolution" on page 442.
930-243	930	Device or adapter failure. Action: Use "MAP0210 General problem resolution" on page 442.
930-261	930	Cable test failed. Action: Use "MAP0210 General problem resolution" on page 442.
930-262	930	Cable test failed. Action: Use "MAP0210 General problem resolution" on page 442.
930-299	software 930	Error unconfiguring the device. Action: Use "MAP0210 General problem resolution" on page 442.
930-301	software 930	Error configuring the device. Action: Use "MAP0210 General problem resolution" on page 442.
935-101 to 935-102	935 828	The diskette-drive select or deselect test failed. Action: Use "MAP0210 General problem resolution" on page 442.
935-103 to 935-107	935 828	The diskette failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
935-108	935	The diskette read test failed. Action: Use "MAP0210 General problem resolution" on page 442.
935-109 to 935-110	935 828	The read/write on the diskette drive failed. Action: Use "MAP0210 General problem resolution" on page 442.
935-111 to 935-114	935	A diskette drive test failed. Action: Use "MAP0210 General problem resolution" on page 442.
935-115 to 935-121	935 828	The diskette drive test failed. Action: Use "MAP0210 General problem resolution" on page 442.
935-122	935 828	The error log analysis indicates a hardware failure. Action: Use "MAP0210 General problem resolution" on page 442.
935-123	935	The error log analysis indicates a hardware failure. Action: Use "MAP0210 General problem resolution" on page 442.
935-124	935 software	Unable to configure the device. Action: Use "MAP0210 General problem resolution" on page 442.
938-101	938 227	HIPPI Adapter test failed. Action: Use "MAP0210 General problem resolution" on page 442.
938-104	938 227	HIPPI Adapter test failed. Action: Use "MAP0210 General problem resolution" on page 442.
938-105	938 227	HIPPI Adapter test failed. Action: Use "MAP0210 General problem resolution" on page 442.
938-108	938 227	HIPPI Adapter test failed. Action: Use "MAP0210 General problem resolution" on page 442.
938-109	938 227	HIPPI Adapter test failed. Action: Use "MAP0210 General problem resolution" on page 442.
938-10A	938 227	HIPPI Adapter test failed. Action: Use "MAP0210 General problem resolution" on page 442.
938-10B	938 227	HIPPI Adapter test failed. Action: Use "MAP0210 General problem resolution" on page 442.
938-10C	Wrap- Plug 938	HIPPI Adapter test failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
938-124	938 227	HIPPI Adapter test failed. Action: Use "MAP0210 General problem resolution" on page 442.
938-600	938 227 software	HIPPI Adapter test failed. Action: Use "MAP0210 General problem resolution" on page 442.
938-800	938 227	HIPPI Adapter test failed. Action: Use "MAP0210 General problem resolution" on page 442.
945-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
946-111	946 227	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
946-114	946	The register verification test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-121	946 227	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
946-122	946 227	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-123	946 227	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-131	946	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
946-132	946 227	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-133	946	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-161	252	Could not do the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
946-162	252	The data wrap communication test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-163	252	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-171	259	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
946-172	259	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-173	259	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
946-181	261	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
946-182	261	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-183	261	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-271	946 259	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
946-272	946 259	The data wrap communication test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-273	946 259	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-281	946 261	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
946-282	946 261	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-283	946 261	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-321	946	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
946-322	946	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-323	946	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-331	946	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
946-332	946	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-333	946	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-371	946	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
946-372	946	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-373	946	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
946-381	946	Cannot run the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
946-382	946	The data wrap communications test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-383	946	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-481	D56	Could not do the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
946-482	D56	The data wrap communication test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-483	D56	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-581	946 D56	Could not do the test because the device driver detected a hardware error. Action: Use "MAP0210 General problem resolution" on page 442.
946-582	946 D56	The data wrap communication test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-583	946 D56	The modem control line test failed. Action: Use "MAP0210 General problem resolution" on page 442.
946-901 to 946-920	software 946	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use "MAP0210 General problem resolution" on page 442 with a FFC of 946; otherwise, suspect a software problem.
946-921	946 software	The adapter failed to configure. Action: Use "MAP0210 General problem resolution" on page 442.
946-922 to 946-924	software 946	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use "MAP0210 General problem resolution" on page 442 with a FFC of 946; otherwise, suspect a software problem.
946-925	946 software	The adapter failed to configure. Action: Use "MAP0210 General problem resolution" on page 442.
946-926 to 946-943	software 946	An unexpected error occurred that can be attributed to software or hardware. Action: Run diagnostics from a source other than from the disk or a network. If the same error occurs or if the original SRN was not obtained from disk or a network based diagnostics, use "MAP0210 General problem resolution" on page 442 with a FFC of 946; otherwise, suspect a software problem.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use “MAP0210 General problem resolution” on page 442.)
947-*xxx*		See “SCSI Devices SRNs (*ssss*-102 to *ssss*-640)” on page 1840.
950-100	192	Power supply problem. Action: Use the service documentation for the portable disk.
950-101	2C9 153	PCI bus was not found. Action: Rerun diagnostics in Advanced Mode for additional problem isolation.
950-102	2C9	PCI bus was not found. Action: Use“MAP0291 Missing device or bus problem resolution” on page 445.
950-103	2C9	Multiple adapters on bus were not found. Action: Use “MAP0210 General problem resolution” on page 442.
950-105	2C9 221	PCI bus was not found. Action: Use“MAP0291 Missing device or bus problem resolution” on page 445.
950-106	2C9	PCI bus was not found. Action: Use“MAP0291 Missing device or bus problem resolution” on page 445.
950-107	153 165	The device is not responding. Action: Use“MAP0291 Missing device or bus problem resolution” on page 445.
950-108	190 199 153 165	The device is not responding. Action: Use“MAP0291 Missing device or bus problem resolution” on page 445.
950-200	152	Power supply problem. Action: Use the service documentation for the external device.
950-201	SCSI Bus	SCSI bus problem. Action: Refer to “MAP2010 RPC card causing false fence” on page 547.
950-400	153	Power supply problem. Action: Use the service documentation for the drawer/tower containing the failing power supply. If the drawer/deskside unit service documentation does not isolate the problem, go to MAP 1520: Power.
950-440	440 B88 190 199 152	Device does not respond. Action: Use“MAP0291 Missing device or bus problem resolution” on page 445.
950-441	440 B88 190 199 152	Device does not respond. Action: Use“MAP0291 Missing device or bus problem resolution” on page 445.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
950-442	440 B88 190 199 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445.
950-443	440 B88 190 199 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445.
950-451	451 B88 190 199 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445.
950-500	152	Power supply problem. Action: Use the service documentation for the system unit, rack, or drawer that contains the missing device.
950-56D	58D B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-58D	58D B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-61D	61D B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-638	638 B88 277 190 152	The SCSI device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-639	639 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-63A	63A B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
950-63B	63B B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-63C	63C B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-63D	63D B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-63E	63E B88 277 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-63F	63F B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-640	640 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-664	664 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-678	678 B88 190 152	The SCSI Tape Drive is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-679	679 B88 190 152	The SCSI Disk Drive is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-681	681 2E7 190 152	The SCSI Disk Drive is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
950-700	700 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-701	701 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-702	702 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-703	703 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-704	704 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-705	705 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-706	706 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-707	707 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-721	721 B88 190 152	An unknown drive type is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-722	722 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
950-723	723 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-724	724 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-734	734 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-741	741 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-772	772 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-773	773 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-789	789 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-792	792 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-793	793 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-804	807 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
950-807	804 B88 190 152	The device is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-912	912 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-914	914 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-915	915 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-917	917 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-918	918 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-935	935 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-951	951 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-952	952 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-953	953 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
950-954	954 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-955	955 B88 190 141 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-956	956 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-959	959 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-960	960 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-964	964 B88 190 152	The SCSI Tape Drive is not responding. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-968	968 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-970	970 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-971	971 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-972	972 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445

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950-974	974 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-981	981 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-984	984 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-986	986 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-987	987 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-989	989 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-990	990 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-991	991 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-994	994 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-995	995 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
950-998	998 B88 190 152	Device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-2522	2522 221	Missing options resolution for PCI-x Dual Channel Ultra320 SCSI Adapter. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445.
950-2523	2523 221	Missing options resolution for PCI-X Dual Channel Ultra320 SCSI Adapter. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-2524	2524	Missing options resolution for PCI-X Dual Channel Ultra320 SCSI Adapter. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-2525	2525 2524	Missing options resolution for PCI-X Dual Channel Ultra320 SCSI Adapter. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-2527	2527 221	Missing options resolution for PCI-X Dual Channel Ultra320 SCSI Adapter. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445
950-*xxxx*	*xxxx* B88 190 152	The device does not respond. Action: Use"MAP0291 Missing device or bus problem resolution" on page 445 **Note:** *xxxx* corresponds to the last three or four digits of the SRN after the dash (-). If your 950-*xxxx* SRN is not listed, substitute the last three or four digits of the SRN for *xxxx*.
951-*xxx* to 957-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
959-102	959	Non-recoverable medium error. Action: Use "MAP0210 General problem resolution" on page 442.
959-104	959	Motor failed to restart. Action: Use "MAP0210 General problem resolution" on page 442.
959-105	959	The drive did not become ready. Action: Use "MAP0210 General problem resolution" on page 442.
959-106	959	Electronics card failure. Action: Use "MAP0210 General problem resolution" on page 442.
959-108	959	Bus failure. Action: Use "MAP0210 General problem resolution" on page 442.
959-110	959	The media format is corrupted. Action: Use "MAP0210 General problem resolution" on page 442.
959-112	959	Diagnostic failure. Action: Use "MAP0210 General problem resolution" on page 442.
959-114	959	Non-recoverable hardware error. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
959-116		A protocol error was detected. Action: Check the levels of the device, adapter, diagnostic and application software, and ensure they are all compatible. If you do not find a problem, call your support person.
959-117	959	Write-protect error. Action: Use "MAP0210 General problem resolution" on page 442.
959-118	959 B88	SCSI command timeout. Action: Use "MAP0210 General problem resolution" on page 442.
959-120	959	SCSI busy/command error. Action: Use "MAP0210 General problem resolution" on page 442.
959-122	959	SCSI reservation conflict error. Action: Use "MAP0210 General problem resolution" on page 442.
959-124	959	SCSI check condition error. Action: Use "MAP0210 General problem resolution" on page 442.
959-126	959 B88	Software error caused by hardware failure. Action: Use "MAP0210 General problem resolution" on page 442.
959-128	959	Error log analysis indicates hardware failure. Action: Use "MAP0210 General problem resolution" on page 442.
959-129	190 959 B88 software	Error log analysis indicates a SCSI bus problem. Action: Use "MAP0210 General problem resolution" on page 442.
959-130	959	Error log analysis indicates a problem reported by the disk drive's self-monitoring function. Action: Use "MAP0210 General problem resolution" on page 442.
959-134	B88 software	The adapter failed to configure. Action: Use "MAP0210 General problem resolution" on page 442.
959-135	959 B88 software	The device failed to configure. Action: Use "MAP0210 General problem resolution" on page 442.
959-136	959	The certify operation failed. Action: Use "MAP0210 General problem resolution" on page 442.
959-137	959 B88 190	Unit attention condition has occurred on the **Send Diagnostic** command. Action: Use "MAP0210 General problem resolution" on page 442.
960-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
964-101	964	Timeout while attempting to communicate with SCSI device. Action: Use "MAP0210 General problem resolution" on page 442.
964-102	964	The SCSI device indicates busy. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
964-103	964	The SCSI device indicates a reservation conflict. Action: Use "MAP0210 General problem resolution" on page 442.
964-104	964	The SCSI device indicates a check condition. Action: Use "MAP0210 General problem resolution" on page 442.
964-105	964	An error is detected in request sense data. Action: Use "MAP0210 General problem resolution" on page 442.
964-107	964	Sense data from the SCSI drive has unexpected data. Action: Use "MAP0210 General problem resolution" on page 442.
964-110	964	The **Reserve** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-111	964	Invalid condition from the drive after a reserve. Action: Use "MAP0210 General problem resolution" on page 442.
964-112	964	The write-protect sensor test failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-113	964	Invalid condition from drive after a request sense. Action: Use "MAP0210 General problem resolution" on page 442.
964-114	964	Timeout while attempting to communicate with the SCSI device. Action: Use "MAP0210 General problem resolution" on page 442.
964-120	964	The **Inquiry** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-130	964 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-134	B88 software	The adapter failed to configure. Action: Use "MAP0210 General problem resolution" on page 442.
964-135	964 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-140	964	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-150	964 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-160	964 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-161	964 B88	Invalid condition from the drive after a reserve. Action: Use "MAP0210 General problem resolution" on page 442.
964-163	964 B88	Invalid condition from the drive after a request sense. Action: Use "MAP0210 General problem resolution" on page 442.
964-164	964 B88	Timeout while attempting to communicate with the SCSI device. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
964-165	964 B88 276	Write, Read and Compare Test failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-166	964 B88 software	Unable to configure the device. Action: Use "MAP0210 General problem resolution" on page 442.
964-167	964 B88	An unexpected SCSI error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
964-168	B88 software	The adapter failed to configure. Action: Use "MAP0210 General problem resolution" on page 442.
964-169	964 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-170	964 B88 media	The Read, Write and Compare test failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-180	964 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-185	964 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-190	964	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-200	964 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-201	964 B88	Error diagnosed from error log analysis. Action: Use "MAP0210 General problem resolution" on page 442.
964-210	964 B88	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-211	964 B88	The device open failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-220	964	The **Release** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-230	964	The **Request Sense** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-240	964	The **Openx** command failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
964-260	964	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-261	964	The device open failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-300	964 software	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-310	B88 964 software	SCSI adapter configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
964-320	964 media	Error log analysis indicates a failure. Action: Use "MAP0210 General problem resolution" on page 442.
964-411 to 964-423	964 B88 software	A reservation conflict occurred. Action: Use "MAP0210 General problem resolution" on page 442.
964-511 to 964-523	964 B88	The drive returned bad or non-extended sense data. Action: Use "MAP0210 General problem resolution" on page 442.
964-611 to 964-623	964 B88 software	An adapter or bus I/O error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
964-711 to 964-723	964 B88 software	A device timeout error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
966-101	966	Error in non-interactive tests. Action: Use "MAP0210 General problem resolution" on page 442.
966-103	966	The test pattern failed. Action: Use "MAP0210 General problem resolution" on page 442.
966-201	966 190	Error in non-interactive tests on card. Action: Use "MAP0210 General problem resolution" on page 442.
966-203	966 190	The test pattern failed. Action: Use "MAP0210 General problem resolution" on page 442.
966-205	966 190	Test pattern failed. Action: Use "MAP0210 General problem resolution" on page 442.
966-207	966 190	Test pattern failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
966-208	190	Error in non-interactive test on card. Action: Use "MAP0210 General problem resolution" on page 442.
966-209	190	Test pattern failed. Action: Use "MAP0210 General problem resolution" on page 442.
966-211	190	Test pattern failed. Action: Use "MAP0210 General problem resolution" on page 442.
966-213	190	Test pattern failed. Action: Use "MAP0210 General problem resolution" on page 442.
966-304	E22 725 966	Video error in interactive test. Action: Use "MAP0210 General problem resolution" on page 442.
966-306	E23 725 966	Audio error in interactive test. Action: Use "MAP0210 General problem resolution" on page 442.
966-310	E22 725	Video error in interactive test. Action: Use "MAP0210 General problem resolution" on page 442.
966-312	E22 725	Audio error in interactive test. Action: Use "MAP0210 General problem resolution" on page 442.
966-400	152 190 E24 166	Error in non-interactive tests. Action: Use "MAP0210 General problem resolution" on page 442.
966-402	190 E23 E22	Test pattern failed. Action: Use "MAP0210 General problem resolution" on page 442.
968-*xxx*		See SCSI devices SRNs *ssss*-102 through *ssss*-640.
970-098	970	Tape drive indicates an error.
970-099	970 B88	Tape drive not found.
970-101	970	Timeout while attempting to communicate with SCSI device. Action: Use "MAP0210 General problem resolution" on page 442.
970-102	970	The SCSI device indicates busy. Action: Use "MAP0210 General problem resolution" on page 442.
970-103	970	The SCSI device indicates a reservation conflict. Action: Use "MAP0210 General problem resolution" on page 442.
970-104	970	The SCSI device indicates a check condition. Action: Use "MAP0210 General problem resolution" on page 442.
970-105	970	An error is detected in request sense data. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
970-107	970	Sense data from the SCSI drive has unexpected data. Action: Use "MAP0210 General problem resolution" on page 442.
970-110	970	The **Reserve** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-111	970	Invalid condition from the drive after a reserve. Action: Use "MAP0210 General problem resolution" on page 442.
970-112	970	The write-protect sensor test failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-113	970	Invalid condition from drive after a request sense. Action: Use "MAP0210 General problem resolution" on page 442.
970-114	970	Timeout while attempting to communicate with the SCSI device. Action: Use "MAP0210 General problem resolution" on page 442.
970-120	970	The **Inquiry** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-130	970 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-134	B88 software	The adapter failed to configure. Action: Use "MAP0210 General problem resolution" on page 442.
970-135	970 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-140	970	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-150	970 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-160	970 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-161	970 B88	Invalid condition from the drive after a reserve. Action: Use "MAP0210 General problem resolution" on page 442.
970-163	970 B88	Invalid condition from the drive after a request sense. Action: Use "MAP0210 General problem resolution" on page 442.
970-164	970 B88	Timeout while attempting to communicate with the SCSI device. Action: Use "MAP0210 General problem resolution" on page 442.
970-165	970 B88 276	Write, Read and Compare Test failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
970-166	970 B88 software	Unable to configure the device. Action: Use "MAP0210 General problem resolution" on page 442.
970-167	970 B88	An unexpected SCSI error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
970-168	B88 software	The adapter failed to configure. Action: Use "MAP0210 General problem resolution" on page 442.
970-169	970 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-170	970 B88 media	The Read, Write and Compare test failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-180	970 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-185	970 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-190	970	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-200	970 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-201	970 B88	Error diagnosed from error log analysis. Action: Use "MAP0210 General problem resolution" on page 442.
970-210	970 B88	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-211	970 B88	The device open failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-220	970	The **Release** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-230	970	The **Request Sense** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-240	970	The **Openx** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-260	970	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-261	970	The device open failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
970-300	970 software	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-310	B88 970 software	SCSI adapter configuration failed. Action: Use "MAP0210 General problem resolution" on page 442.
970-320	970 media	Error log analysis indicates a failure. Action: Use "MAP0210 General problem resolution" on page 442.
970-411 to 970-423	970 B88 software	A reservation conflict occurred. Action: Use "MAP0210 General problem resolution" on page 442.
970-511 to 970-523	970 B88	The drive returned bad or non-extended sense data. Action: Use "MAP0210 General problem resolution" on page 442.
970-57D	57D	The resource does not respond. Action: Use "MAP0210 General problem resolution" on page 442.
970-611 to 970-623	970 B88 software	An adapter or bus I/O error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
970-711 to 970-723	970 B88 software	A device timeout error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
971-101	971	Timeout while attempting to communicate with SCSI device. Action: Use "MAP0210 General problem resolution" on page 442.
971-102	971	The SCSI device indicates busy. Action: Use "MAP0210 General problem resolution" on page 442.
971-103	971	The SCSI device is indicating a reservation conflict. Action: Use "MAP0210 General problem resolution" on page 442.
971-104	971	The SCSI device indicates a check condition. Action: Use "MAP0210 General problem resolution" on page 442.
971-105	971	Sense data from the SCSI device shows an error. Action: Use "MAP0210 General problem resolution" on page 442.
971-107	971	The SCSI drive returned unexpected sense data. Action: Use "MAP0210 General problem resolution" on page 442.
971-110	971	The **Reserve** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
971-111	971	Invalid condition from the drive after a reserve. Action: Use "MAP0210 General problem resolution" on page 442.
971-112	971	The write-protect sensor test failed. Action: Use "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
971-113	971	Invalid condition from the drive after a request sense. Action: Use "MAP0210 General problem resolution" on page 442.
971-114	971	Timeout while attempting to communicate with the SCSI device. Action: Use "MAP0210 General problem resolution" on page 442.
971-120	971	The **Inquiry** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
971-130	971 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
971-135	971 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
971-140	971	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442.
971-150	971 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442
971-160	971 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442
971-161	971 B88	Invalid condition from the drive after a reserve. Action: Use "MAP0210 General problem resolution" on page 442
971-163	971 B88	Invalid condition from the drive after a request sense. Action: Use "MAP0210 General problem resolution" on page 442
971-164	971 B88	Timeout while attempting to communicate with the SCSI device. Action: Use "MAP0210 General problem resolution" on page 442
971-165	971 B88 276	Write, Read and Compare Test failed. Action: Use "MAP0210 General problem resolution" on page 442
971-166	971 B88 software	Unable to configure the device. Action: Use "MAP0210 General problem resolution" on page 442
971-167	971 B88	An unexpected SCSI error occurred. Action: Use "MAP0210 General problem resolution" on page 442
971-168	B88 software	The adapter failed to configure. Action: Use "MAP0210 General problem resolution" on page 442
971-169	971 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
971-170	971 B88 media	The Read, Write and Compare test failed. Action: Use "MAP0210 General problem resolution" on page 442
971-180	971 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442
971-185	971 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442
971-190	971	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442
971-200	971 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442
971-201	971 B88	An error is diagnosed from the error log analysis. Action: Use "MAP0210 General problem resolution" on page 442
971-210	971 B88	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
971-211	971 B88	The device open test failed. Action: Use "MAP0210 General problem resolution" on page 442
971-220	971	The **Release** command failed. Action: Use "MAP0210 General problem resolution" on page 442
971-230	971	The **Request Sense** command failed. Action: Use "MAP0210 General problem resolution" on page 442
971-240	971	The **Openx** command failed. Action: Use "MAP0210 General problem resolution" on page 442
971-260	971	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
971-261	971	The device open test failed. Action: Use "MAP0210 General problem resolution" on page 442
971-300	971 software	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
971-310	B88 971 software	SCSI adapter configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
971-320	971 media	Error log analysis indicates a failure. Action: Use "MAP0210 General problem resolution" on page 442
971-411 to 971-423	971 B88 software	A reservation conflict occurred. Action: Use "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
971-511 to 971-523	971 B88	The drive returned bad or non-extended sense data. Action: Use "MAP0210 General problem resolution" on page 442
971-611 to 971-623	971 software	An adapter or bus I/O error occurred. Action: Use "MAP0210 General problem resolution" on page 442
971-711 to 971-723	971 B88 software	A device timeout error occurred. Action: Use "MAP0210 General problem resolution" on page 442
972-101	972	Timeout while attempting to communicate with SCSI device. Action: Use "MAP0210 General problem resolution" on page 442
972-102	972	The SCSI device indicates busy. Action: Use "MAP0210 General problem resolution" on page 442
972-103	972	The SCSI device indicates a reservation conflict. Action: Use "MAP0210 General problem resolution" on page 442
972-104	972	The SCSI device indicates a check condition. Action: Use "MAP0210 General problem resolution" on page 442
972-105	972	An error is detected in request sense data. Action: Use "MAP0210 General problem resolution" on page 442
972-107	972	The drive has returned unexpected sense data. Action: Use "MAP0210 General problem resolution" on page 442
972-110	972	The **Reserve** command failed. Action: Use "MAP0210 General problem resolution" on page 442
972-111	972	Invalid condition from the drive after a reserve. Action: Use "MAP0210 General problem resolution" on page 442
972-112	972	The write-protect sensor test failed. Action: Use "MAP0210 General problem resolution" on page 442
972-113	972	Invalid condition from the drive after a request sense. Action: Use "MAP0210 General problem resolution" on page 442
972-114	972	Timeout while attempting to communicate with the SCSI device. Action: Use "MAP0210 General problem resolution" on page 442
972-120	972	The **Inquiry** command failed. Action: Use "MAP0210 General problem resolution" on page 442
972-130	972 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442
972-135	972 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442
972-140	972	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
972-150	972 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442
972-160	972 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442
972-161	972 B88	Invalid condition from the drive after a reserve. Action: Use "MAP0210 General problem resolution" on page 442
972-163	972 B88	Invalid condition from the drive after a request sense. Action: Use "MAP0210 General problem resolution" on page 442
972-164	972 B88 276	Timeout while attempting communication with SCSI device. Action: Use "MAP0210 General problem resolution" on page 442
972-165	972 B88 276	Write, Read and Compare Test failed. Action: Use "MAP0210 General problem resolution" on page 442
972-166	972 B88 software	Unable to configure the device. Action: Use "MAP0210 General problem resolution" on page 442
972-167	972 B88	An unexpected SCSI error occurred. Action: Use "MAP0210 General problem resolution" on page 442
972-168	B88 software	The adapter failed to configure. Action: Use "MAP0210 General problem resolution" on page 442
972-169	972 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442
972-170	972 B88 media	The Read, Write and Compare test failed. Action: Use "MAP0210 General problem resolution" on page 442
972-180	972 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442
972-185	972 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442
972-190	972	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442
972-200	972 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
972-201	972 B88	An error is diagnosed from the error log analysis. Action: Use "MAP0210 General problem resolution" on page 442
972-210	972 B88	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
972-211	972 B88	The device open test failed. Action: Use "MAP0210 General problem resolution" on page 442
972-220	972	The **Release** command failed. Action: Use "MAP0210 General problem resolution" on page 442
972-230	972	The **Request Sense** command failed. Action: Use "MAP0210 General problem resolution" on page 442
972-240	972	The **Openx** command failed. Action: Use "MAP0210 General problem resolution" on page 442
972-260	972	The device configuration test failed. Action: Use "MAP0210 General problem resolution" on page 442
972-261	972	The device open test failed. Action: Use "MAP0210 General problem resolution" on page 442
972-300	972 software	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
972-310	B88 972 software	SCSI adapter configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
972-320	972 media	Error log analysis indicates a failure. Action: Use "MAP0210 General problem resolution" on page 442
972-411 to 972-423	972 B88 software	A reservation conflict occurred. Action: Use "MAP0210 General problem resolution" on page 442
972-511 to 972-523	972 B88	The drive returned bad or non-extended sense data. Action: Use "MAP0210 General problem resolution" on page 442
972-611 to 972-623	972 B88 software	An adapter or bus I/O error occurred. Action: Use "MAP0210 General problem resolution" on page 442
972-711 to 972-723	972 B88 software	A device timeout error occurred. Action: Use "MAP0210 General problem resolution" on page 442
973-110	973	The **Reserve** command failed. Action: Use "MAP0210 General problem resolution" on page 442
973-120	973	The **Inquiry** command failed. Action: Use "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
973-130	973 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442
973-135	973 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442
973-140	973	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442
973-150	973 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442
973-160	973 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442
973-169	973 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442
973-170	973 B88 media	The Read, Write and Compare test failed. Action: Use "MAP0210 General problem resolution" on page 442
973-180	973 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442
973-185	973 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442
973-190	973	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442
973-200	973 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442
973-210	973 B88	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
973-220	973	The **Release** command failed. Action: Use "MAP0210 General problem resolution" on page 442
973-230	973	The **Request Sense** command failed. Action: Use "MAP0210 General problem resolution" on page 442
973-240	973	The **Openx** command failed. Action: Use "MAP0210 General problem resolution" on page 442
973-300	973 software	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
973-310	B88 973 software	SCSI adapter configuration failed. Action: Use "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
973-320	973 media	Error log analysis indicates a failure. Action: Use "MAP0210 General problem resolution" on page 442
973-411 to 973-423	973 B88 software	A reservation conflict occurred. Action: Use "MAP0210 General problem resolution" on page 442
973-511 to 973-523	973 B88	The drive returned bad or non-extended sense data. Action: Use "MAP0210 General problem resolution" on page 442
973-611 to 973-623	973 B88 software	An adapter or bus I/O error occurred. Action: Use "MAP0210 General problem resolution" on page 442
973-711 to 973-723	973 B88 software	A device timeout error occurred. Action: Use "MAP0210 General problem resolution" on page 442
974-111	974 B88	Unable to reserve device. Action: Use "MAP0210 General problem resolution" on page 442
974-112	974 B88	Unable to do configuration. Action: Use "MAP0210 General problem resolution" on page 442
974-113	974 B88	Unable to open the device driver. Action: Use "MAP0210 General problem resolution" on page 442
974-121	974	The CD-ROM drive indicates an error. Action: Use "MAP0210 General problem resolution" on page 442
974-122	974	The CD-ROM drive indicates an error. Action: Use "MAP0210 General problem resolution" on page 442
974-123	974	The CD-ROM drive indicates an error. Action: Use "MAP0210 General problem resolution" on page 442
974-125	974 B88	The CD-ROM drive indicates an error. Action: Use "MAP0210 General problem resolution" on page 442
974-126	974	The CD-ROM drive indicates an error. Action: Use "MAP0210 General problem resolution" on page 442
974-127	974	The CD-ROM drive indicates an error. Action: Use "MAP0210 General problem resolution" on page 442
974-128	974	The CD-ROM drive indicates an error. Action: Use "MAP0210 General problem resolution" on page 442
974-129	974	The CD-ROM drive indicates an error. Action: Use "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
974-150	Test- Disc 974	A media error was detected. Action: Use "MAP0210 General problem resolution" on page 442
974-151	974 D88	A command timeout was detected. Action: Use "MAP0210 General problem resolution" on page 442
974-152	974	A command reservation conflict was detected. Action: Use "MAP0210 General problem resolution" on page 442
974-162	974	The CD-ROM drive indicates an error. Action: Use "MAP0210 General problem resolution" on page 442
974-171	974	Unable to reserve device. Action: Use "MAP0210 General problem resolution" on page 442
974-172	974	Unable to do configuration. Action: Use "MAP0210 General problem resolution" on page 442
974-173	974	Unable to open device driver. Action: Use "MAP0210 General problem resolution" on page 442
974-175	974	The CD-ROM drive indicates an error. Action: Use "MAP0210 General problem resolution" on page 442
974-198	974 B88	Undefined error detected. Action: Use "MAP0210 General problem resolution" on page 442
974-199	974	Undefined error detected. Action: Use "MAP0210 General problem resolution" on page 442
974-211	974	The LED test failed. Action: Use "MAP0210 General problem resolution" on page 442
974-281	974	No tone during audio test. Action: Use "MAP0210 General problem resolution" on page 442
974-301	974	Errors found during ELA. Action: Use "MAP0210 General problem resolution" on page 442
974-302	974 B88	Errors log analysis indicates hardware failure. Action: Use "MAP0210 General problem resolution" on page 442
981-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
984-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
986-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
989-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
980-*xxx*		See "SCSI Devices SRNs (*ssss*-102 to *ssss*-640)" on page 1840.
991-101	991	Timeout while attempting to communicate with SCSI device. Action: Use "MAP0210 General problem resolution" on page 442
991-102	991	The SCSI device indicates busy. Action: Use "MAP0210 General problem resolution" on page 442
991-103	991	The SCSI device is indicating a reservation conflict. Action: Use "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
991-104	991	The SCSI device indicates a check condition. Action: Use "MAP0210 General problem resolution" on page 442
991-105	991	Sense data from the SCSI device shows an error. Action: Use "MAP0210 General problem resolution" on page 442
991-107	991	The SCSI drive returned unexpected sense data. Action: Use "MAP0210 General problem resolution" on page 442
991-110	991	The **Reserve** command failed. Action: Use "MAP0210 General problem resolution" on page 442
991-111	991	Invalid condition from the drive after a reserve. Action: Use "MAP0210 General problem resolution" on page 442
991-112	991	The write-protect sensor test failed. Action: Use "MAP0210 General problem resolution" on page 442
991-113	991	Invalid condition from the drive after a request sense. Action: Use "MAP0210 General problem resolution" on page 442
991-114	991	Timeout while attempting to communicate with the SCSI device. Action: Use "MAP0210 General problem resolution" on page 442
991-120	991	The **Inquiry** command failed. Action: Use "MAP0210 General problem resolution" on page 442
991-130	991 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442
991-135	991 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442
991-140	991	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442
991-150	991 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442
991-160	991 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442
991-161	991 B88	Invalid condition from the drive after a reserve. Action: Use "MAP0210 General problem resolution" on page 442
991-163	991 B88	Invalid condition from the drive after a request sense. Action: Use "MAP0210 General problem resolution" on page 442
991-164	991 B88	Timeout while attempting to communicate with the SCSI device. Action: Use "MAP0210 General problem resolution" on page 442
991-165	991 B88 276	Write, Read and Compare Test failed. Action: Use "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
991-166	991 B88 software	The device failed to configure. Action: Use "MAP0210 General problem resolution" on page 442
991-167	991 B88	An unexpected SCSI error occurred. Action: Use "MAP0210 General problem resolution" on page 442
991-168	B88 software	The adapter failed to configure. Action: Use "MAP0210 General problem resolution" on page 442
991-169	991 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442
991-170	991 B88 media	The Read, Write and Compare test failed. Action: Use "MAP0210 General problem resolution" on page 442
991-180	991 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442
991-185	991 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442
991-190	991	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442
991-200	991 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442
991-201	991 B88	An error is diagnosed from the error log analysis. Action: Use "MAP0210 General problem resolution" on page 442
991-210	991 B88	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
991-211	991 B88	The device open test failed. Action: Use "MAP0210 General problem resolution" on page 442
991-220	991	The **Release** command failed. Action: Use "MAP0210 General problem resolution" on page 442
991-230	991	The **Request Sense** command failed. Action: Use "MAP0210 General problem resolution" on page 442
991-240	991	The **Openx** command failed. Action: Use "MAP0210 General problem resolution" on page 442
991-260	991	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
991-261	991	The device open test failed. Action: Use "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
991-300	991 software	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
991-310	B88 991 software	SCSI adapter configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
991-320	991 media	Error log analysis indicates a failure. Action: Use "MAP0210 General problem resolution" on page 442
991-411 to 991-423	991 B88 software	A reservation conflict occurred. Action: Use "MAP0210 General problem resolution" on page 442
991-511 to 991-523	991 B88	The drive returned bad or non-extended sense data. Action: Use "MAP0210 General problem resolution" on page 442
991-611 to 991-623	991 B88 software	An adapter or bus I/O error occurred. Action: Use "MAP0210 General problem resolution" on page 442
991-711 to 991-723	991 B88 software	A device timeout error occurred. Action: Use "MAP0210 General problem resolution" on page 442
994-110	994	The **Reserve** command failed. Action: Use "MAP0210 General problem resolution" on page 442
994-120	994	The **Inquiry** command failed. Action: Use "MAP0210 General problem resolution" on page 442
994-130	994 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442
994-135	994 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442
994-140	994	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442
994-150	994 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442
994-160	994 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442
994-169	994 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
994-170	994 B88 media	The Read, Write and Compare test failed. Action: Use "MAP0210 General problem resolution" on page 442
994-180	994 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442
994-185	994 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442
994-190	994	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442
994-200	994 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442
994-210	994 B88	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
994-220	994	The **Release** command failed. Action: Use "MAP0210 General problem resolution" on page 442
994-230	994	The **Request Sense** command failed. Action: Use "MAP0210 General problem resolution" on page 442
994-240	994	The **Openx** command failed. Action: Use "MAP0210 General problem resolution" on page 442
994-300	994 software	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
994-310	B88 994 software	SCSI adapter configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
994-320	994 media	Error log analysis indicates a failure. Action: Use "MAP0210 General problem resolution" on page 442
994-411 to 994-423	994 B88 software	A reservation conflict occurred. Action: Use "MAP0210 General problem resolution" on page 442
994-511 to 994-523	994 B88	The drive returned bad or non-extended sense data. Action: Use "MAP0210 General problem resolution" on page 442
994-611 to 994-623	994 B88 software	An adapter or bus I/O error occurred. Action: Use "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
994-711 to 994-723	994 B88 software	A device timeout error occurred. Action: Use "MAP0210 General problem resolution" on page 442
995-110	995	The **Reserve** command failed. Action: Use "MAP0210 General problem resolution" on page 442
995-120	995	The **Inquiry** command failed. Action: Use "MAP0210 General problem resolution" on page 442
995-130	995 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442
995-135	995 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442
995-140	995	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442
995-150	995 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442
995-160	995 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442
995-169	995 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442
995-170	995 B88 media	The Read, Write and Compare test failed. Action: Use "MAP0210 General problem resolution" on page 442
995-180	995 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442
995-185	995 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442
995-190	995	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442
995-200	995 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442
995-210	995 B88	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
995-220	995	The **Release** command failed. Action: Use "MAP0210 General problem resolution" on page 442
995-230	995	The **Request Sense** command failed. Action: Use "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
995-240	995	The **Openx** command failed. Action: Use "MAP0210 General problem resolution" on page 442
995-300	995 software	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
995-310	B88 995 software	SCSI adapter configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
995-320	995 media	Error log analysis indicates a failure. Action: Use "MAP0210 General problem resolution" on page 442
995-411 to 995-423	995 B88 software	A reservation conflict occurred. Action: Use "MAP0210 General problem resolution" on page 442
995-511 to 995-523	995 B88	The drive returned bad or non-extended sense data. Action: Use "MAP0210 General problem resolution" on page 442
995-611 to 995-623	995 B88 software	An adapter or bus I/O error occurred. Action: Use "MAP0210 General problem resolution" on page 442
995-711 to 995-723	995 B88 software	A device timeout error occurred. Action: Use "MAP0210 General problem resolution" on page 442
998-110	998	The **Reserve** command failed. Action: Use "MAP0210 General problem resolution" on page 442
998-120	998	The **Inquiry** command failed. Action: Use "MAP0210 General problem resolution" on page 442
998-130	998 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442
998-135	998 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442
998-140	998	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442
998-150	998 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442
998-160	998 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
998-169	998 media	The **Send Diagnostic** command failed. Action: Use "MAP0210 General problem resolution" on page 442
998-170	998 B88 media	The Read, Write and Compare test failed. Action: Use "MAP0210 General problem resolution" on page 442
998-180	998 media	The **Load** command failed. Action: Use "MAP0210 General problem resolution" on page 442
998-185	998 media	The **Unload** command failed. Action: Use "MAP0210 General problem resolution" on page 442
998-190	998	The **Mode Select** command failed. Action: Use "MAP0210 General problem resolution" on page 442
998-200	998 media	The **Test Unit Ready** command failed. Action: Use "MAP0210 General problem resolution" on page 442
998-210	998 B88	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
998-220	998	The **Release** command failed. Action: Use "MAP0210 General problem resolution" on page 442
998-230	998	The **Request Sense** command failed. Action: Use "MAP0210 General problem resolution" on page 442
998-240	995	The **Openx** command failed. Action: Use "MAP0210 General problem resolution" on page 442
998-300	995 software	The device configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
998-310	B88 995 software	SCSI adapter configuration failed. Action: Use "MAP0210 General problem resolution" on page 442
998-320	995 media	Error log analysis indicates a failure. Action: Use "MAP0210 General problem resolution" on page 442
998-411 to 998-423	998 B88 software	A reservation conflict occurred. Action: Use "MAP0210 General problem resolution" on page 442
998-511 to 998-523	998 B88	The drive returned bad or non-extended sense data. Action: Use "MAP0210 General problem resolution" on page 442

Service Request Number	Failing Function Codes	Description/Action (Unless indicated otherwise use "MAP0210 General problem resolution" on page 442.)
998-611 to 998-623	998 B88 software	An adapter or bus I/O error occurred. Action: Use "MAP0210 General problem resolution" on page 442
998-711 to 998-723	998 B88 software	A device timeout error occurred. Action: Use "MAP0210 General problem resolution" on page 442
999-*xxx* series	999	A 7137 or 3514 disk array subsystem problem is indicated. Action: Use 7137 or 3514 documentation.
9CC-1*xx*		I/O Error on PCI bus. Action: Refer to the Bus SRN to FRU Reference Table in the system unit's service guide. **Note:** *xx* represents the last 2 digits of the SRN.
9CC-*xxx*	*xxx* 2C9	I/O Bus Data, Address Parity Error, or Time-out error. **Note:** *xxx* represents the last 3 digits of the SRN. Action: Use "MAP0210 General problem resolution" on page 442

SRNs A00-FF0 through A25-001

This section lists the SRNs A00-FF0 through A25-001

The *x* in the following group of SRNs is encoded as follows:

```
8  4  2  1
|  |  |  |
|  |  |  Replace all FRUs listed
|  |  Hot swap supported
|  Software might be the cause
Reserved
```

Note: Some SRNs in this chapter may have 4 rather than 3 digits after the dash (-).

Use the physical location codes and FRU numbers listed on the diagnostics Problem Report Screen. Failing Function Codes (FFCs) are not used in this group of SRNs. For more detailed information refer to MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A00-FF0		Description: Error log analysis is unable to determine the error. The error log indicates the following physical FRU locations as the probable causes. Action: Use MAP 0230: Platform error problem resolution.
A01-00*x*		Description: Error log analysis indicates an error detected by the CPU, but the failure could not be isolated. Action: Use MAP 0230: Platform error problem resolution.
A01-01*x*		Description: CPU internal error. Action: Use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A01-02*x*		Description: CPU internal cache or cache controller error. Action: Use MAP 0230: Platform error problem resolution.
A01-03*x*		Description: External cache parity or multi-bit ECC error. Action: Use MAP 0230: Platform error problem resolution.
A01-04*x*		Description: External cache ECC single-bit error. Action: Use MAP 0230: Platform error problem resolution.
A01-05*x*		Description: System bus time-out error. Action: Use MAP 0230: Platform error problem resolution.
A01-06*x*		Description: Time-out error waiting for I/O. Action: Use MAP 0230: Platform error problem resolution.
A01-07*x*		Description: System bus parity error. Action: Use MAP 0230: Platform error problem resolution.
A01-08*x*		Description: System bus protocol/transfer error. Action: Use MAP 0230: Platform error problem resolution.
A02-00*x*		Description: Error log analysis indicates an error detected by the memory controller, but the failure could not be isolated. Action: Use MAP 0230: Platform error problem resolution.
A02-01*x*		Description: Uncorrectable Memory Error. Action: Use MAP 0230: Platform error problem resolution.
A02-02*x*		Description: ECC correctable error. Action: Use MAP 0230: Platform error problem resolution.
A02-03*x*		Description: Correctable error threshold exceeded. Action: Use MAP 0230: Platform error problem resolution.
A02-04*x*		Description: Memory Control subsystem internal error. Action: Use MAP 0230: Platform error problem resolution.
A02-05*x*		Description: Memory Address Error (invalid address or access attempt). Action: Use MAP 0230: Platform error problem resolution.
A02-06*x*		Description: Memory Data error (Bad data going to memory). Action: Use MAP 0230: Platform error problem resolution.
A02-07*x*		Description: Memory bus/switch internal error. Action: Use MAP 0230: Platform error problem resolution.
A02-08*x*		Description: Memory time-out error. Action: Use MAP 0230: Platform error problem resolution.
A02-09*x*		Description: System bus parity error. Action: Use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A02-10*x*		Description: System bus time-out error. Action: Use MAP 0230: Platform error problem resolution.
A02-11*x*		Description: System bus protocol/transfer error. Action: Use MAP 0230: Platform error problem resolution.
A02-12*x*		Description: I/O Host Bridge time-out error. Action: Use MAP 0230: Platform error problem resolution.
A02-13*x*		Description: I/O Host Bridge address/data parity error. Action: Use MAP 0230: Platform error problem resolution.
A02-15*x*		Description: System support function error. Action: Use MAP 0230: Platform error problem resolution.
A02-16*x*		Description: System bus internal hardware/switch error. Action: Use MAP 0230: Platform error problem resolution.
A03-00*x*		Description: Error log analysis indicates an error detected by the I/O device, but the failure could not be isolated. Action: Use MAP 0230: Platform error problem resolution.
A03-01*x*		Description: I/O Bus Address parity error. Action: Use MAP 0230: Platform error problem resolution.
A03-02*x*		Description: I/O Bus Data parity error. Action: Use MAP 0230: Platform error problem resolution.
A03-03*x*		Description: I/O bridge/device time-out, access or other error. Action: Use MAP 0230: Platform error problem resolution.
A03-04*x*		Description: I/O bridge/device internal error. Action: Use MAP 0230: Platform error problem resolution.
A03-05*x*		Description: I/O Error on non-PCI bus. Action: Use MAP 0230: Platform error problem resolution.
A03-06*x*		Description: Mezzanine bus address parity error. Action: Use MAP 0230: Platform error problem resolution.
A03-07*x*		Description: System bus address parity error. Action: Use MAP 0230: Platform error problem resolution.
A03-08*x*		Description: Mezzanine bus data parity error. Action: Use MAP 0230: Platform error problem resolution.
A03-09*x*		Description: System bus data parity error. Action: Use MAP 0230: Platform error problem resolution.
A03-10*x*		Description: Mezzanine bus time-out, transfer or protocol error. Action: Use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A03-11*x*		Description: System bus time-out error. Action: Use MAP 0230: Platform error problem resolution.
A03-12*x*		Description: Error on System bus. Action: Use MAP 0230: Platform error problem resolution.
A03-13*x*		Description: I/O Expansion bus parity error. Action: Use MAP 0230: Platform error problem resolution.
A03-14*x*		Description: I/O Expansion bus time-out error. Action: Use MAP 0230: Platform error problem resolution.
A03-15*x*		Description: I/O Expansion bus connection failure. Action: Use MAP 0230: Platform error problem resolution.
A03-16*x*		Description: I/O Expansion unit not in an operating state. Action: Use MAP 0230: Platform error problem resolution.
A05-00*x*		Description: Error log analysis indicates an environmental and power warning, but the failure could not be isolated. Action: Use MAP 0230: Platform error problem resolution.
A05-01*x*		Description: Sensor indicates a fan has failed. Action: Use MAP 0230: Platform error problem resolution.
A05-02*x*		Description: System shutdown due to a fan failure. Action: Use MAP 0230: Platform error problem resolution.
A05-03*x*		Description: Sensor indicates a voltage outside normal range. Action: Use Power problem isolation for your system.
A05-04*x*		Description: System shutdown due to voltage outside normal range. Action: Use Power problem isolation for your system.
A05-05*x*		Description: Sensor indicates an abnormally high internal temperature. Action: Verify that: 1. The room ambient temperature is within the system operating environment. 2. There is unrestricted air flow around the system. 3. All system covers are closed. 4. There are no fan failures. If none of these problems exist, then proceed with MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A05-06*x*		Description: System shutdown due to abnormally high internal temperature. Action: Verify that: 1. The room ambient temperature is within the system operating environment. 2. There is unrestricted air flow around the system. 3. All system covers are closed. 4. There are no fan failures. If none of these problems exist, then proceed with MAP 0230: Platform error problem resolution.
A05-07*x*		Description: Sensor indicates a power supply has failed. Action: Use MAP 0230: Platform error problem resolution.
A05-08*x*		Description: System shutdown due to power supply failure. Action: Use MAP 0230: Platform error problem resolution.
A05-09*x*		Description: Sensor detected a FRU that has failed. Action: Use MAP 0230: Platform error problem resolution.
A05-10*x*		Description: System shutdown due to FRU that has failed. Action: Use MAP 0230: Platform error problem resolution.
A05-14*x*		Description: System shutdown due to power fault with an unspecified cause. Action: Use MAP 0230: Platform error problem resolution.
A05-16*x*		Description: System shutdown due to internal power supply failure. Action: Use MAP 0230: Platform error problem resolution.
A05-19*x*		Description: System shutdown due to Fan failure. Action: Use MAP 0230: Platform error problem resolution.
A05-21*x*		Description: System shutdown due to over temperature condition. Action: Verify the following: 1. The room ambient temperature is within the system operating environment. 2. There is unrestricted air flow around the system. 3. All system covers are closed. If all conditions are met, then use MAP 0230: Platform error problem resolution.
A05-22*x*		Description: System shutdown due to over temperature and fan failure. Action: Use MAP 0230: Platform error problem resolution.
A05-24*x*		Description: Power fault specifically due to internal battery failure. Action: Use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A0D-00*x*		Description: Error log analysis indicates an error detected by the service processor, but the failure could not be isolated. Action: Use MAP 0230: Platform error problem resolution.
A0D-01*x*		**Note:** Ensure that the system IPLROS and service processor are at the latest firmware level before removing any parts from the system.Description: Time-out communication response from service processor. Action: Use MAP 0230: Platform error problem resolution.
A0D-02*x*		Description: I/O (I2C) general bus error. **Note:** If you are servicing a 9076/Nxx system, go to the service processor Error Log (SVP). Action: Use MAP 0230: Platform error problem resolution.
A0D-03*x*		Description: Secondary I/O (I2C) general bus error. Action: Use MAP 0230: Platform error problem resolution.
A0D-04*x*		Description: Internal service processor memory error. Action: Use MAP 0230: Platform error problem resolution.
A0D-05*x*		Description: Service processor error accessing special registers. Action: Use MAP 0230: Platform error problem resolution.
A0D-06*x*		Description: Service processor reports unknown communication error. Action: Use MAP 0230: Platform error problem resolution.
A0D-07*x*		Description: Internal service processor firmware error or incorrect version. Action: Use MAP 0230: Platform error problem resolution.
A0D-08*x*		Description: Other internal service processor hardware error. Action: Use MAP 0230: Platform error problem resolution.
A0D-09*x*		Description: Service processor error accessing vital product data EEPROM. Action: Use MAP 0230: Platform error problem resolution.
A0D-10*x*		Description: Service processor error accessing operator panel. Action: Use MAP 0230: Platform error problem resolution.
A0D-11*x*		Description: Service processor error accessing power controller. Action: Use MAP 0230: Platform error problem resolution.
A0D-12*x*		Description: Service processor error accessing fan sensor. Action: Use MAP 0230: Platform error problem resolution.
A0D-13*x*		Description: Service processor error accessing thermal sensor. **Note:** If you are servicing a 9076/Nxx system, go to the service processor Error Log (SVP). Action: Use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A0D-14*x*		Description: Service processor error accessing voltage sensor. **Note:** If you are servicing a 9076/Nxx system, go to the service processor Error Log (SVP). Action: Use MAP 0230: Platform error problem resolution.
A0D-17*x*		Description: Service processor error accessing serial port. Action: Use MAP 0230: Platform error problem resolution.
A0D-18*x*		Description: Service processor detected NVRAM error. Action: Use MAP 0230: Platform error problem resolution.
A0D-19*x*		Description: Service processor error accessing real time clock/time-of-day clock. Action: Use MAP 0230: Platform error problem resolution.
A0D-20*x*		Description: Service processor error accessing scan controller/hardware. Action: Use MAP 0230: Platform error problem resolution.
A0D-21*x*		Description: Service processor detected error with time-of-day clock backup battery. Action: Use MAP 0230: Platform error problem resolution.
A0D-23*x*		Description: Loss of heart beat from service processor. Action: Use MAP 0230: Platform error problem resolution.
A0D-24*x*		Description: Service processor detected a surveillance time-out. Action: Use MAP 0230: Platform error problem resolution.
A0D-25*x*		Description: Power control network general connection failure. Action: Use MAP 0230: Platform error problem resolution.
A0D-26*x*		Description: Power control network node failure. Action: Use MAP 0230: Platform error problem resolution.
A0D-29*x*		Description: Service processor error accessing power control network. Action: Use MAP 0230: Platform error problem resolution.
A0D-30*x*		Description: Non-supported hardware. Action: Use MAP 0230: Platform error problem resolution.
A0D-31*x*		Description: Error detected while handling an attention/interrupt from the system hardware. Action: Use MAP 0230: Platform error problem resolution.
A0D-33*x*		Description: Array of Logic Built in Self Test Error. Action: Use MAP 0230: Platform error problem resolution.
A0D-34*x*		Description: Wire Test Error. Action: Use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A0D-35*x*		Description: Mainstore or Cache IPL Diagnostic Error. Action: Use MAP 0230: Platform error problem resolution.
A0D-36*x*		Description: Other IPL Diagnostic Error. Action: Use MAP 0230: Platform error problem resolution.
A0D-37*x*		Description: Clock or PLL Error. Action: Use MAP 0230: Platform error problem resolution.
A0D-38*x*		Description: Hardware Scan or Initialization Error. Action: Use MAP 0230: Platform error problem resolution.
A0D-39*x*		Description: Chip ID Verification Error. Action: Use MAP 0230: Platform error problem resolution.
A0D-40*x*		Description: FRU Presence/Detect Error (Mis-Plugged). Action: Use MAP 0230: Platform error problem resolution.
A10-100		Description: The resource is unavailable due to an error. System is operating in degraded mode. Action: Use MAP 0230: Platform error problem resolution.
A10-200		Description: The resource was marked failed by the platform. The system is operating in degraded mode. Action: Use MAP 0230: Platform error problem resolution.
A10-210		Description: The processor has been deconfigured. The system is operating in degraded mode. Action: Use MAP 0230: Platform error problem resolution.
A11-00*x*		Description: A non-critical error has been detected. Error log analysis indicates an error detected by the CPU, but the failure could not be isolated. Action: Use MAP 0230: Platform error problem resolution.
A11-01*x*		Description: A non-critical error has been detected, a CPU internal error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A11-02*x*		Description: A non-critical error has been detected, a CPU internal cache or cache controller error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A11-03*x*		Description: A non-critical error has been detected, an external cache parity or multi-bit ECC error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A11-04*x*		Description: A non-critical error has been detected, an external cache ECC single-bit error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A11-05*x*		Description: A non-critical error has been detected, a system bus time-out error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A11-06*x*		Description: A non-critical error has been detected, a time-out error waiting for an I/O device. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A11-07*x*		Description: A non-critical error has been detected, a system bus parity error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A11-08*x*		Description: A non-critical error has been detected, a system bus protocol/transfer error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A11-50*x*		Description: Recoverable errors on resource indicate a trend toward an unrecoverable error. However, the resource could not be deconfigured and is still in use. The system is operating with the potential for an unrecoverable error. Action: If repair is not immediately available, reboot and the resource will be deconfigured. Then operations can continue in a degraded mode. To repair use MAP 0230: Platform error problem resolution.
A11-510		Description: Resource has been deconfigured and is no longer in use due to a trend toward an unrecoverable error. Action: The system is operating in a degraded mode. Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A11-520		Description: Recoverable errors on resource indicate a trend toward an unrecoverable error. However, the resource could not be deconfigured and is still in use. The system is operating with the potential for an unrecoverable error. Action: Try removing the processes from the failing processor and retry the deconfiguration; use the `ha_star -C` command. An alternative is reboot, and the processor will be deconfigured. Then the system can continue in a degraded mode. To repair use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A11-530		Description: Recoverable errors on resource indicate a trend toward an unrecoverable error. However, the resource could not be deconfigured and is still in use. The system is operating with the potential for an unrecoverable error. Run-time processor deconfiguration can be enabled to deconfigure the processor. Action: To enable run-time processor deconfiguration, use the `chdev -a cpuguard=enable -l sys0` command. Then to retry the deconfiguration, use the `ha_star -C` command. An alternative is reboot, and the processor will be deconfigured. Then the system can continue in a degraded mode. To repair use MAP 0230: Platform error problem resolution.
A11-540		Description: Recoverable errors on resource indicate a trend toward an unrecoverable error. However, the resource could not be deconfigured and is still in use. The system is operating with the potential for an unrecoverable error. Action: If repair is not immediately available, reboot and the resource will be deconfigured. Then operations can continue in a degraded mode. To repair use MAP 0230: Platform error problem resolution.
A11-550		Description: Recoverable errors on resource indicate a trend toward an unrecoverable error. However, the resource could not be deconfigured and is still in use. The system is operating with the potential for an unrecoverable error. Action: If repair is not immediately available, reboot and the resource will be deconfigured. Then operations can continue in a degraded mode. To repair use MAP 0230: Platform error problem resolution.
A11-560		Description: Recoverable errors on a resource indicate a potential for unrecoverable errors. The resource cannot be deconfigured and is still in use. The problem may be corrected by array bit steering. Action: Use MAP 0235: System array self-repair problem resolution.
A11-570		Description: A processor has been deconfigured due to a trend toward an unrecoverable error. The system is operating in a degraded mode. The problem may be corrected by array bit steering. Action: Use MAP 0235: System array self-repair problem resolution.
A11-580		Description: Recoverable errors on a processor indicate a potential for an unrecoverable error. The resource cannot be deconfigured and is still in use. The problem may be corrected by array bit steering. Action: Use MAP 0235: System array self-repair problem resolution.
A12-00*x*		Description: A non-critical error has been detected. Error log analysis indicates an error detected by the memory controller, but the failure could not be isolated. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A12-01*x*		Description: A non-critical error has been detected, an uncorrectable memory error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A12-02*x*		Description: A non-critical error has been detected, an ECC correctable error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A12-03*x*		Description: A non-critical error has been detected, a correctable error threshold exceeded. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A12-04*x*		Description: A non-critical error has been detected, a memory control subsystem internal error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A12-05*x*		Description: A non-critical error has been detected, a memory address error (invalid address or access attempt). Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A12-06*x*		Description: A non-critical error has been detected, a memory data error (bad data going to memory). Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A12-07*x*		Description: A non-critical error has been detected, a memory bus/switch internal error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A12-08*x*		Description: A non-critical error has been detected, a memory time-out error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A12-09*x*		Description: A non-critical error has been detected, a system bus parity error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A12-10*x*		Description: A non-critical error has been detected, a system bus time-out error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A12-11*x*		Description: A non-critical error has been detected, a system bus protocol/transfer error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A12-12*x*		Description: A non-critical error has been detected, an I/O host bridge time-out error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A12-13*x*		Description: A non-critical error has been detected, a I/O host bridge address/data parity error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A12-15*x*		Description: A non-critical error has been detected, a system support function error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A12-16*x*		Description: A non-critical error has been detected, a system bus internal hardware/switch error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A12-50*x*		Description: Recoverable errors on resource indicate a trend toward an unrecoverable error. However, the resource could not be deconfigured and is still in use. The system is operating with the potential for an unrecoverable error. Action: If repair is not immediately available, reboot and the resource will be deconfigured. Then operations can continue in a degraded mode. Use MAP 0230: Platform error problem resolution.
A13-00*x*		Description: A non-critical error has been detected, a error log analysis indicates an error detected by the I/O device, but the failure could not be isolated. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A13-01*x*		Description: A non-critical error has been detected, an I/O bus address parity error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A13-02*x*		Description: A non-critical error has been detected, an I/O bus data parity error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A13-03*x*		Description: A non-critical error has been detected, an I/O bus time-out, access or other error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A13-04*x*		Description: A non-critical error has been detected, an I/O bridge/device internal error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A13-05*x*		Description: A non-critical error has been detected, an I/O error on non-PCI bus. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A13-06*x*		Description: A non-critical error has been detected, a mezzanine bus address parity error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A13-07*x*		Description: A non-critical error has been detected, a system bus address parity error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A13-08*x*		Description: A non-critical error has been detected, a mezzanine bus data parity error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A13-09*x*		Description: A non-critical error has been detected, a system bus data parity error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A13-10*x*		Description: A non-critical error has been detected, a mezzanine bus time-out error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A13-11*x*		Description: A non-critical error has been detected, a system bus time-out error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A13-12*x*		Description: A non-critical error has been detected, an error on system bus. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A13-13*x*		Description: A non-critical error has been detected, an I/O expansion bus parity error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A13-14*x*		Description: A non-critical error has been detected, an I/O expansion bus time-out error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A13-15*x*		Description: A non-critical error has been detected, an I/O expansion bus connection failure. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A13-16*x*		Description: A non-critical error has been detected, an I/O expansion unit not in an operating state. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A13-50*x*		Description: Recoverable errors on resource indicate a trend toward an unrecoverable error. However, the resource could not be deconfigured and is still in use. The system is operating with the potential for an unrecoverable error. Action: If repair is not immediately available, reboot and the resource will be deconfigured. Then operations can continue in a degraded mode. To repair use MAP 0230: Platform error problem resolution.
A15-01*x*		Description: Sensor indicates a fan is turning too slowly. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A15-03*x*		Description: Sensor indicates a voltage outside normal range. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A15-05*x*		Description: Sensor indicates an abnormally high internal temperature. Action: Verify that: 1. The room ambient temperature is within the system operating environment. 2. There is unrestricted air flow around the system. 3. All system covers are closed. 4. There are no fan failures. If none of these problems exist, then proceed with MAP 0230: Platform error problem resolution.
A15-07*x*		Description: Sensor indicates a power supply has failed. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A15-09*x*		Description: Sensor indicates a FRU has failed. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A15-11*x*		Description: Sensor detected a redundant fan failure. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A15-12*x*		Description: Sensor detected redundant power supply failure. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A15-13*x*		Description: Sensor detected a redundant FRU that has failed. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A15-14*x*		Description: Power fault due to unspecified cause. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A15-16*x*		Description: Internal power supply failure. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A15-17*x*		Description: Internal redundant power supply failure. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A15-19*x*		Description: Fan failure. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A15-20*x*		Description: Non-critical cooling problem, loss of redundant fan. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A15-21*x*		Description: Over temperature condition. Action: Verify the following: • The room ambient temperature is within the system operating environment. • There is unrestricted air flow around the system. • All system covers are closed. If all conditions are met, then use MAP 0230: Platform error problem resolution.
A15-22*x*		Description: Fan failure and Over temperature condition. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A15-23*x*		Description: Non-critical power problem, loss of redundant power supply. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A15-24*x*		Description: Power Fault specifically due to internal battery failure. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A15-50*x*		Description: Recoverable errors on resource indicate a trend toward an unrecoverable error. However, the resource could not be deconfigured and is still in use. The system is operating with the potential for an unrecoverable error. Action: If repair is not immediately available, reboot and the resource will be deconfigured. Then operations can continue in a degraded mode. To repair use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A1D-00*x*		Description: A non-critical error has been detected. Error log analysis indicates an error detected by the service processor, but the failure could not be isolated. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-01*x*		**Note:** Ensure that the system IPLROS and service processor are at the latest firmware level before removing any parts from the system.Description: A non-critical error has been detected. Time Out communication response from service processor. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-02*x*		Description: A non-critical error has been detected, an I/O (I2C) general bus error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-03*x*		Description: A non-critical error has been detected, a secondary I/O (I2C) general bus error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-04*x*		Description: A non-critical error has been detected, an internal service processor memory error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-05*x*		Description: A non-critical error has been detected, a service processor error accessing special registers. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-06*x*		Description: A non-critical error has been detected, a service processor reports unknown communication error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-07*x*		Description: A non-critical error has been detected. Internal service processor firmware error or incorrect version. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-08*x*		Description: A non-critical error has been detected, an other internal service processor hardware error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-09*x*		Description: A non-critical error has been detected, a service processor error accessing vital product data EEPROM. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A1D-10*x*		Description: A non-critical error has been detected, a service processor error accessing operator panel. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-11*x*		Description: A non-critical error has been detected, a service processor error accessing power controller. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-12*x*		Description: A non-critical error has been detected, a service processor error accessing fan sensor. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-13*x*		Description: A non-critical error has been detected, a service processor error accessing a thermal sensor. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-14*x*		Description: A non-critical error has been detected, a service processor error accessing voltage sensor. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-17*x*		Description: A non-critical error has been detected, a service processor error accessing serial port. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-18*x*		Description: A non-critical error has been detected, a service processor detected NVRAM error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-19*x*		Description: A non-critical error has been detected, a service processor error accessing real time clock/time-of-day clock. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-20*x*		Description: A non-critical error has been detected: Service processor error accessing scan controller/hardware. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-21*x*		Description: A non-critical error has been detected, a service processor detected error with time-of-day clock backup battery. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-23*x*		Description: A non-critical error has been detected: Loss of heart beat from service processor. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A1D-24*x*		Description: A non-critical error has been detected, a service processor detected a surveillance time-out. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-25*x*		Description: A non-critical error has been detected, a power control network general connection failure. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-26*x*		Description: A non-critical error has been detected, a power control network node failure. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-29*x*		Description: A non-critical error has been detected, a service process error accessing power control network. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-30*x*		Description: A non-critical error has been detected: Non-supported hardware. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-31*x*		Description: A non-critical error has been detected: Error detected while handling an attention/interrupt from the system hardware. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-33*x*		Description: A non-critical error has been detected: Array of Logic Built in Self Test Error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-34*x*		Description: A non-critical error has been detected: Wire Test Error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-35*x*		Description: A non-critical error has been detected: Mainstore or Cache IPL Diagnostic Error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-36*x*		Description: A non-critical error has been detected: Other IPL Diagnostic Error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-37*x*		Description: A non-critical error has been detected: Clock or PLL Error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.

Service Request Number	Failing Function Codes	Description/Action
A1D-38*x*		Description: A non-critical error has been detected: Hardware Scan or Initialization Error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-39*x*		Description: A non-critical error has been detected: Chip ID Verification Error. Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-40*x*		Description: A non-critical error has been detected: Presence/Detect Error (Mis-Plugged). Action: Schedule deferred maintenance. Use MAP 0230: Platform error problem resolution.
A1D-50*x*		Description: Recoverable errors on resource indicate a trend toward an unrecoverable error. However, the resource could not be deconfigured and is still in use. The system is operating with the potential for an unrecoverable error. Action: If repair is not immediately available, reboot and the resource will be deconfigured. Then operations can continue in a degraded mode. To repair use MAP 0230: Platform error problem resolution.
A22-*xxxx*	*xxxx*	Defective Multipath I/O Device. **Note:** To obtain the FFC, substitute the last 3 or 4 digits after the dash (-) for *xxxx* (The substituted *xxxx* is the FFC).Action: Use "MAP0210 General problem resolution" on page 442.
A23-001		Multipath I/O Problem Resolution. Action: Use MAP 0285: Multipath I/O (MPIO) problem resolution.
A24-000	Use part number from diagnostics 227	Spurious interrupts on shared interrupt level have exceeded threshold. Action: Use the part numbers reported by diagnostics and use "MAP0210 General problem resolution" on page 442.
A24-*xxx*	Use *xxx* 227	Spurious interrupts have exceeded threshold. Action: Use "MAP0210 General problem resolution" on page 442.
A25-001		Platform error, switch network interface extended error data is available. Action: Refer to the hardware management console. Use the system reference codes in the serviceable event view for this partition.

SRNs 2512-101 through 25D0-108

Replace FRU parts in the order in which the failing function codes are listed. Go to the "Failing function code list" on page 1843 to access the failing function codes.

The SRNs listed below are the only SRNs that should occur on the storage facility. If you have an SRN that is not listed below, the SRN is probably not valid for the

storage facility. Contact your next level of support. You can also look up the SRN on the eServer Information Center Web site, at http://publib.boulder.ibm.com/infocenter/eserver/v1r2/index.jsp.

Service Request Number	Failing Function Codes	Description/Action
2593-101	2593	Unable to open device driver. Action: Use “MAP0210 General problem resolution” on page 442.
2593-201	25A0	Unable to configure adapter. Action: Use “MAP0210 General problem resolution” on page 442.
2593-202	2593 25A0 Media	Unable to configure the device. Action: Use “MAP0210 General problem resolution” on page 442.
2593-203	25A0	Unable to open device driver. Action: Use “MAP0210 General problem resolution” on page 442.
2593-204	Media 2593	The **Inquire** command failed. Action: Use “MAP0210 General problem resolution” on page 442.
2593-205	2593 Media	The **Read Sense Data** command failed. Action: Use “MAP0210 General problem resolution” on page 442.
2593-206	2593	The **Test Unit Ready** command failed. Action: Use “MAP0210 General problem resolution” on page 442.
2593-207	Media 2593	A media error was detected. Action: Use “MAP0210 General problem resolution” on page 442.
2593-208	2593 Media	The **DVD-ROM Play Audio** command failed. Action: Use “MAP0210 General problem resolution” on page 442.
2593-209	2593	No tone during audio test. Action: Use “MAP0210 General problem resolution” on page 442.
2593-210	2593	The **Prevent Media Removal** or **Allow Media Removal** or command failed. Action: Use “MAP0210 General problem resolution” on page 442.
2593-211	2593	DVD-ROM drive indicates an error. Action: Use “MAP0210 General problem resolution” on page 442.
2593-212	2593	The Write/Read/Compare Test Failed. Action: Use “MAP0210 General problem resolution” on page 442.
2593-701	2593	ELA indicates drive hardware failure. Action: Use “MAP0210 General problem resolution” on page 442.
2593-702	2593	ELA indicates drive hardware failure. Action: Use “MAP0210 General problem resolution” on page 442.

SRNs 2600-101 through 2600-704

Replace FRU parts in the order by which the ″Failing Function Codes″ are listed. Go to “Failing function code list” on page 1843 to access the failing function codes.

Service Request Number	Failing Function Codes	Description/Action
2600-101	2600	The Fibre Channel Adapter configuration failed. Action: Go to “MAP0210 General problem resolution” on page 442.
2600-102	2600	The Reset test failed. Action: Go to “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
2600-103	2600	The Register test failed. Action: Go to "MAP0210 General problem resolution" on page 442.
2600-104	2600	The SRAM test failed. Action: Go to "MAP0210 General problem resolution" on page 442.
2600-105	2600	The Internal Wrap test failed. Action: Go to "MAP0210 General problem resolution" on page 442.
2600-106	2600	The Gigabaud Link Module (GLM) Wrap Test Failure. Action: Go to "MAP0210 General problem resolution" on page 442.
2600-107	2600	The External Wrap test failed. Action: Go to "MAP0210 General problem resolution" on page 442.
2600-109	221	Enhanced Error Handling Failure on EADs chip. Action: Go to "MAP0210 General problem resolution" on page 442.
2600-110	2600	Enhanced Error Handling Failure on adapter. Action: Go to "MAP0210 General problem resolution" on page 442.
2600-201	2600 221	The Configuration Register test failed. Action: Go to "MAP0210 General problem resolution" on page 442.
2600-202	2600 221	The Interrupt test failed. Action: Go to "MAP0210 General problem resolution" on page 442.
2600-203	2600 221	The PCI Wrap test failed. Action: Go to "MAP0210 General problem resolution" on page 442.
2600-204	2600 221	The DMA test failed. Action: Go to "MAP0210 General problem resolution" on page 442.
2600-205	2600 221	I/O error on a read/write operation. Action: Go to "MAP0210 General problem resolution" on page 442.
2600-701	2600 221	Error log analysis indicates that an error has occurred with the adapter. Action: Go to "MAP0210 General problem resolution" on page 442.
2600-703	2600	Error log analysis indicates that an unknown adapter error has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
2600-704	2600	Error log analysis indicates that an adapter error has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
2600-705	2600	A parity error has been detected. The adapter must be replaced immediately. Failure to do so could result in data being read or written incorrectly. Action: Go to "MAP0210 General problem resolution" on page 442.

Service Request Number	Failing Function Codes	Description/Action
2600-706	2600	A fatal hardware error has occurred. This adapter was successfully taken offline. It will remain offline until reconfigured or the system is rebooted. This adapter must be replaced and not brought back online. Failure to adhere to this action could result in data being read or written incorrectly or in the loss of data.
2601-102	2601	The Reset test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
2601-103	2601	The Register test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
2601-104	2601	The SRAM test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
2601-105	2601	The Internal Wrap test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
2601-106	2601	The Gigabaud Link Module (GLM) Wrap Test Failure. Action: Go to “MAP0210 General problem resolution” on page 442.
2601-107	2601	The External Wrap test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
2601-108	221	Enhanced Error Handling Failure on bus. Action: Go to “MAP0210 General problem resolution” on page 442.
2601-110	2601	Enhanced Error Handling Failure on adapter. Action: Go to “MAP0210 General problem resolution” on page 442.
2601-201	2601 221	The Configuration Register test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
2601-202	2601 221	The Interrupt test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
2601-203	2601	The PCI Wrap test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
2601-204	2601 221	The DMA test failed. Action: Go to “MAP0210 General problem resolution” on page 442.
2601-205	2601 221	I/O error on a read/write operation. Action: Go to “MAP0210 General problem resolution” on page 442.
2601-701	2601	Error log analysis indicates that an error has occurred with the adapter. Action: Go to “MAP0210 General problem resolution” on page 442.
2601-703	2601	Error log analysis indicates that an unknown adapter error has occurred. Action: Go to “MAP0210 General problem resolution” on page 442.

Service Request Number	Failing Function Codes	Description/Action
2601-704	2601	Error log analysis indicates that an adapter error has occurred. Action: Go to "MAP0210 General problem resolution" on page 442.
2640-114	2640	IDE Disk diagnostic failure. Action: Go to "MAP0210 General problem resolution" on page 442.
2640-115	2640 2631	IDE disk error on open or configuring device. Action: Go to "MAP0210 General problem resolution" on page 442.
2640-121	2640	Physical volume hardware error. Action: Go to "MAP0210 General problem resolution" on page 442.
2640-131	2640	Smart status threshold exceeded. Action: Go to "MAP0210 General problem resolution" on page 442.
2640-132	2640	Command timeouts threshold exceeded. Action: Go to "MAP0210 General problem resolution" on page 442.
2640-133	2640	Command timeout with error condition. Action: Go to "MAP0210 General problem resolution" on page 442.
2640-134	2640	Hardware command or DMA failure. Action: Go to "MAP0210 General problem resolution" on page 442.
2640-135	2640	IDE DMA error with no error status. Action: Go to "MAP0210 General problem resolution" on page 442.
2640-136	2640 2631	TimeOut waiting for controller or drive with no busy status. Action: Go to "MAP0210 General problem resolution" on page 442.

SCSI Devices SRNs (*ssss*-102 to *ssss*-640)

Use the following table to replace FRU parts in the order in which the failing function codes (FFCs) are listed.

Notes:

1. Some SRNs in this chapter might have 4 rather than 3 digits after the dash (-).
2. The *ssss* represents the 3- or 4-digit SCSI SRNs before the dash (-).

Service request number	SRN Src.	Failing function codes	Description/Action
ssss-102	D	*ssss*	An unrecoverable media error occurred. Action: Use "MAP0210 General problem resolution" on page 442.
ssss-104	D	*ssss*	The motor failed to restart. Action: Use "MAP0210 General problem resolution" on page 442.
ssss-105	D	*ssss*	The drive did not become ready. Action: Use "MAP0210 General problem resolution" on page 442.

Service request number	SRN Src.	Failing function codes	Description/Action
ssss-106	D	*ssss*	The electronics card test failed. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-108	D	*ssss*	The bus test failed. Action: Use “MAP0210 General problem resolution” on page 442
ssss-110	D	*ssss*	The media format is corrupted. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-112	D	*ssss*	The diagnostic test failed. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-114	D	*ssss*	An unrecoverable hardware error. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-116	D	*ssss*	A protocol error. Action: Check the levels of the device, adapter, diagnostic software, and application software to be sure they are all compatible. If you do not find a problem, call your support person.
ssss-117	D	*ssss*	A write-protect error occurred. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-118	D	*ssss* B88	A SCSI command time-out occurred. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-120	D	*ssss*	A SCSI busy or command error. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-122	D	*ssss*	A SCSI reservation conflict error. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-124	D	*ssss*	A SCSI check condition error occurred. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-126	D	*ssss* B88	A software error was caused by a hardware failure. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-128	G	190 B88 *ssss* software	The error log analysis indicates a hardware failure. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-129	G	190 B88 *ssss* software	Error log analysis indicates a SCSI bus problem. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-130	G	*ssss*	Error log analysis indicates a problem reported by the disk drive’s self-monitoring function. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-132	D	*ssss*	A disk drive hardware error occurred. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-133	D	*ssss*	Use the Subsystem Service Guide to complete diagnosis. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-134	D	B88 software	The adapter failed to configure. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-135	D	*ssss* B88 software	The device failed to configure. Action: Use “MAP0210 General problem resolution” on page 442.
ssss-136	D	*ssss*	The certify operation failed. Action: Use “MAP0210 General problem resolution” on page 442.

Service request number	SRN Src.	Failing function codes	Description/Action
ssss-137	D	*ssss* B88 190	Unit attention condition has occurred on the **Send Diagnostic** command. Action: Use "MAP0210 General problem resolution" on page 442.
ssss-138	D	*ssss*	Error log analysis indicates that the disk drive is operating at a higher than recommended temperature. Action: Check to be sure that none of the air passages in the system covers are blocked and that no other system environmental warnings are occurring. Otherwise, go to "MAP0210 General problem resolution" on page 442.
ssss-140	G	199 B88 *ssss*	Error log analysis indicates poor signal quality. Action: Use "MAP0210 General problem resolution" on page 442.
ssss-640	G		Error log analysis indicates a path error. Action: Use "MAP 0285: Multipath I/O (MPIO) problem resolution."

Using service request numbers

The service request numbers (SRN) identify the component that detected the error code and describe the error condition.

For use by service providers.

Diagnostic applications report problems by using service request numbers (SRNs). Use the SRN information to identify a list of possible failing items and to find information about any additional isolation procedures.

Service request number formats:

- If your code is in the following formats (*xxxxx*, *xxx-xxx*, *xxx-xxxx*, *xxxx-xxx*, *xxxx-xxxx*), it is an SRN.

Using the list of service request numbers

This section describes how to use the list of service request numbers (SRN).

The list of SRNs is in numeric order. The SRNs in each range might include codes that consist of anywhere from 6 to 8 digits. When the SRN you are looking for contains 3 digits before the dash, select the link that contains the first 3 digits followed by the dash of that SRN. Use the same process when the SRN you are looking for contains 4 digits before the dash. For example, if the SRN is 2570–603, click "SRNs 2520-101 through 25D0-108", because this SRN falls between the number range of 2520-(*x*)*xxx* and 2590-(*x*)*xxx*.

The SRN tables use the following format:

- The first column, Service Request Number (SRN), contains numbers that represent specific failures of specific functions.
- The second column, SRN Src. (SRN source code), contains the code that identifies the program or procedure that produced the SRN. For more information about using SRN source codes, see "SRN source code" on page 1843.
- The third column, Failing Function Codes, represents functional areas of the system unit. When available, the failing function code links to the FRU that contains this function.

- The last column, Description and Action, offers a brief description of the failure that this SRN represents. It also contains instructions for continuing the problem analysis. The SRN list is common with other products using the same underlying operating system and so in some cases the recommended actions might not be possible on the 2107. If this is the case then just follow the link to the referenced MAP and continue with the problem analysis from there.

To use the list of SRNs, complete the following steps:

1. Click the item in the list of SRNs that includes the SRN that you want to find.
2. When the SRN table appears, select the appropriate SRN from the first column of the table.
3. Record the code letter for the Source of SRN (the SRN source column).
4. Record the failing function codes in the order listed.
5. Perform the action shown in the Description and Action column.

Note: If your SRN is not listed, check to see if *xxx* or *xxxx* has been used. The *-xxx* or *-xxxx* should always be the last SRN identified within a specific prefix. For example, for SRN 950-*xxxx*, the *xxxx* represents the last entry within the 950 prefix.

SRN source code

The SRN source code identifies the program or procedure that produced the SRN.

When using SRNs to identify a problem and its resolution, you might need to refer to the source code of the SRN. SRN source codes include the following:

- A: The SRN is from a steady number in the operator panel display.
- B: The SRN is from a MAP (problem isolation procedure) callout.
- C: The SRN was due to a missing resource at configuration time.
- D: The SRN is from a diagnostic test after complete isolation testing.
- E: The SRN is from a POST failure.
- F: The SRN is from a diagnostic test after partial isolation testing.
- G: The SRN is from the Error Log Analysis program.
- H: The SRN is from a diagnostic message after an 888 sequence.
- J: The SRN is from built-in ROM diagnostics.
- K: The SRN is from offline diagnostics.

For more information, refer to the “List of system reference codes and firmware codes” on page 1849.

Failing function code list

The failing function code list displays all the failing function codes referenced by the service request numbers.

Failing function code	Assembly	Description and notes
132		The program that just loaded might be damaged.
151	CEC enclosure	Time of Day battery. See “CEC enclosure part numbers” on page 1323.
152	CEC enclosure	Power supply. See “CEC enclosure part numbers” on page 1323.

Failing function code	Assembly	Description and notes
152	I/O enclosure	Power supply. See “MAP2340 codes on the PPS status display” on page 620.
165	CEC enclosure	System processor backplane assembly. See “CEC enclosure part numbers” on page 1323.
166	CEC enclosure	Fan. See “CEC enclosure part numbers” on page 1323.
166	I/O enclosure	Fan assembly. See “I/O enclosure part numbers” on page 1343.
167	CEC enclosure	Power supply (fan). See “CEC enclosure part numbers” on page 1323.
169	CEC enclosure	Control panel logic problem. See “CEC enclosure part numbers” on page 1323.
199	CEC enclosure	SCSI enclosure service (SES). Disk drive enclosure. See “CEC enclosure part numbers” on page 1323.
203		**Note:** Content moved to FFC 152.
210	CEC enclosure	Fixed-point processor problem. System processor backplane assembly. See “CEC enclosure part numbers” on page 1323.
212	CEC enclosure	Cache problem. System processor backplane assembly. See “CEC enclosure part numbers” on page 1323.
214	CEC enclosure	Memory control unit problem. System processor backplane assembly. See “CEC enclosure part numbers” on page 1323.
217	CEC enclosure	System ROS/EEPROM problem. Replace the part identified by the location code. See “CEC enclosure part numbers” on page 1323.
219	CEC enclosure	Common memory logic problem. Memory DIMM. **Note:** If more than a pair of memory modules from the same system processor backplane assembly are reported missing, replace the system processor backplane assembly that the memory modules plug into first. Otherwise, replace the memory module at the physical location code that is reported.See “CEC enclosure part numbers” on page 1323.
221	CEC enclosure	System I/O control logic problem. I/O backplane. See “CEC enclosure part numbers” on page 1323.
221	I/O enclosure	I/O drawer backplane. I/O enclosure backplane. See “I/O enclosure part numbers” on page 1343.
226		System status logic problem.
227	CEC enclosure	ISA/PCI bus logic problem. I/O backplane. See “CEC enclosure part numbers” on page 1323.
241		Ethernet network problem.
282	CEC enclosure	System processor backplane assembly. See “CEC enclosure part numbers” on page 1323.
287	CEC enclosure	I/O enclosure drawer power supply. Replace the part identified by the location code. See “CEC enclosure part numbers” on page 1323.

Failing function code	Assembly	Description and notes
287	I/O enclosure	Power supply. Replace the part identified by the location code. See “I/O enclosure part numbers” on page 1343.
289	CEC Enclosure	I/O drawer power supply. Replace the part identified by the location code. See “CEC enclosure part numbers” on page 1323.
289	I/O enclosure	Power supply. Replace the part identified by the location code. See “I/O enclosure part numbers” on page 1343.
292	CEC enclosure	Host - PCI bridge problem. I/O backplane. See “CEC enclosure part numbers” on page 1323.
292	I/O enclosure	I/O drawer backplane. I/O enclosure backplane. See “I/O enclosure part numbers” on page 1343.
293		PCI - PCI bridge problem. I/O backplane: see “CEC enclosure part numbers” on page 1323; or I/O enclosure backplane: see “I/O enclosure part numbers” on page 1343.
294		MPIC interrupt controller problem. I/O backplane: see “CEC enclosure part numbers” on page 1323; or I/O enclosure backplane: see “I/O enclosure part numbers” on page 1343.
295		PCI - ISA bridge problem. I/O enclosure backplane: see “CEC enclosure part numbers” on page 1323; or I/O enclosure backplane: see “I/O enclosure part numbers” on page 1343.
296		PCI device or adapter problem. The FRU can only be identified by its location code, reported by diagnostics.
2C4	CEC enclosure	System bus connector problem. System processor backplane assembly. See “CEC enclosure part numbers” on page 1323.
2C6	CEC enclosure	Memory DIMM problem. See “CEC enclosure part numbers” on page 1323.
2C8	CEC enclosure	Mezzanine bus problem. Replace the part identified by the location code. See “CEC enclosure part numbers” on page 1323.
2C9	CEC enclosure	PCI bus problem. I/O backplane. See “CEC enclosure part numbers” on page 1323.
2D1	CEC enclosure	SA bus problem. I/O backplane. See “CEC enclosure part numbers” on page 1323.
2D2	CEC enclosure	Mezzanine bus arbiter problem. I/O backplane. See “CEC enclosure part numbers” on page 1323.
2D3	CEC enclosure	Service processor card. See “CEC enclosure part numbers” on page 1323.
2D4	CEC enclosure	System/SP interface logic problem. I/O backplane. See “CEC enclosure part numbers” on page 1323.
2D5	CEC enclosure	SP primary I/O bus problem. Service processor card, I/O backplane. See “CEC enclosure part numbers” on page 1323.

Failing function code	Assembly	Description and notes
2D6	CEC enclosure	Service processor card. See “CEC enclosure part numbers” on page 1323.
2D7	CEC enclosure	System board. System processor backplane assembly. See “CEC enclosure part numbers” on page 1323.
2D9	CEC enclosure	Power controller problem. I/O backplane. See “CEC enclosure part numbers” on page 1323.
2E0	CEC enclosure	Fan sensor problem. I/O backplane. See “CEC enclosure part numbers” on page 1323.
2E1	CEC enclosure	Thermal sensor problem. I/O backplane. See “CEC enclosure part numbers” on page 1323.
2E2	CEC enclosure	Voltage sensor problem. I/O backplane. See “CEC enclosure part numbers” on page 1323.
2E3	CEC enclosure	Serial port controller problem. Service processor card. See “CEC enclosure part numbers” on page 1323.
2E4	CEC enclosure	JTAG/COP controller problem. Service processor card. See “CEC enclosure part numbers” on page 1323.
2E8	CEC enclosure	Processor card. System processor backplane assembly. See “CEC enclosure part numbers” on page 1323.
305	CEC enclosure	2 GB memory card. Memory DIMM. See “CEC enclosure part numbers” on page 1323.
306	CEC enclosure	RIO cable. See “CEC enclosure part numbers” on page 1323.
307	CEC enclosure	Expansion unit logic problem. I/O backplane. See “CEC enclosure part numbers” on page 1323.
308	CEC enclosure	I/O bridge problem. System processor backplane assembly. See “CEC enclosure part numbers” on page 1323
30B		8 GB memory card. Memory DIMM. See “CEC enclosure part numbers” on page 1323.
650		Unknown disk drive. **Note:** This FFC indicates that the disk drive could not configure properly. Refer to the disk drive FRU part number.
662	CEC enclosure	System board. System processor backplane assembly. See “CEC enclosure part numbers” on page 1323.
711		Unknown adapter.
721		Unknown SCSI device.
722		Unknown disk drive.
723		Unknown CD-ROM drive.
724		Unknown tape drive.
725		Unknown display adapter type.
726		Unknown input device.

Failing function code	Assembly	Description and notes
727		Unknown async device.
728		Unknown parallel device.
730		Unknown diskette drive.
790		Multi-bus integrated Ethernet adapter problem. I/O enclosure backplane. See “I/O enclosure part numbers” on page 1343.
7C0	CEC enclosure	System board. System processor backplane assembly. See “CEC enclosure part numbers” on page 1323.
812	CEC enclosure	Common standard adapter logic problem. I/O backplane. See “CEC enclosure part numbers” on page 1323.
814	CEC enclosure	System board. System processor backplane assembly. See “CEC enclosure part numbers” on page 1323.
815	CEC enclosure	Floating-point processor problem. System processor backplane assembly. See “CEC enclosure part numbers” on page 1323.
816	CEC enclosure	Operator panel logic problem. Control panel. See “CEC enclosure part numbers” on page 1323.
817	CEC enclosure	System board. System processor backplane assembly. See “CEC enclosure part numbers” on page 1323.
820		Interprocessor-related testing problem. **Note:** If the type/model and FRU information is not listed here, refer to FFC 221.
821		Standard keyboard adapter problem. **Note:** If the type/model and FRU information is not listed here, refer to FFC 221.
823		Standard mouse adapter problem. **Note:** If the type/model and FRU information is not listed here, refer to FFC 221.
824		Standard tablet adapter problem. **Note:** If the type/model and FRU information is not listed here, refer to FFC 221.
826		Serial Port 1 adapter problem. **Note:** If the type/model and FRU information is not listed here, refer to FFC 221.
827		Built-in parallel port adapter problem. **Note:** If the type/model and FRU information is not listed here, refer to FFC 221.
828		Standard diskette adapter problem. **Note:** If the type/model and FRU information is not listed here, refer to FFC 221.
831		Serial Port 2 adapter problem. **Note:** If the type/model and FRU information is not listed here, refer to FFC 221.
84A	CEC enclosure	I/O board. I/O backplane. See “CEC enclosure part numbers” on page 1323.

Failing function code	Assembly	Description and notes
868	CEC enclosure	Integrated SCSI I/O controller problem. **Note:** If the type/model and FRU information is not listed here, refer to FFC 221.
887	CEC enclosure	Integrated Ethernet adapter problem. I/O backplane. See “CEC enclosure part numbers” on page 1323.
950		Unknown SCSI device is missing.
B88	CEC enclosure	Generic SCSI I/O controller on CEC enclosure I/O backplane assembly or CEC enclosure disk drive backplane assembly. See “CEC enclosure part numbers” on page 1323.
D01	CEC enclosure	Generic L2 cache problem.
E19	CEC enclosure	Power supply sensor failed. I/O enclosure backplane.
2593		IDE DVD-RAM drive.
25A0	CEC enclosure	System processor backplane assembly.
Media		CD or DVD problem. Try other discs.

Unused failing function codes

This section describes unused failing function codes.

Some Failing Function Codes are unused by the DS8000.

- If the SRN that you are working with has other Failing Function Codes listed, use those FFCs to help resolve the problem.
- If no other FFCs are listed for the SRN, use other SRNs that are listed to resolve the problem.
- If no other SRNs or related serviceable events are listed, call the next level of support.

Chapter 52. System reference codes (SRCs) and firmware codes

This section contains information about system reference codes (SRCs) and firmware codes.

List of system reference codes and firmware codes

This section lists the system reference codes (SRCs) and firmware codes and then links to more detailed information.

The system reference codes in this list represent reference code types and are organized by their first character, with numbers coming before letters.

For information about using this list of SRCs and about reference codes in general, see "Using system reference codes and firmware codes" on page 2129.

If you do not find the SRC that you are looking for in this list, ask your next level of support for assistance.

SRC	Description
1*xxxxxxx*	SPCN detected errors
5*xxxxxxx*	Reference codes
A1*xxxxxx*	Service processor reference (attention) codes
A2*xxxxxx*	Logical partition reference codes
A7*xxxxxx*	Licensed Internal Code reference codes
AA*xxxxxx*	Partition firmware reference (attention) codes
B1*xxxxxx*	Service processor firmware reference codes
B2*xxxxxx*	Logical partition reference codes
B3*xxxxxx*	Connection monitoring reference codes
B7*xxxxxx*	Licensed Internal Code reference codes
BA*xxxxxx*	Partition firmware reference (attention) codes
BE*xxxxxx*	2107 Reference Codes
C*xxxxxxx*	Progress codes. See Chapter 50, "Progress codes," on page 1611.
DA*xxxxxx*	Partition firmware reference (error) codes
D*xxxxxxx*	Progress codes. See Chapter 50, "Progress codes," on page 1611.
E2*xxxxxx*	Licensed Internal Code error codes
E3*xxxxxx*	Licensed Internal Code error codes
E4*xxxxxx*	Licensed Internal Code error codes
H*xxxxxxx*	Management console error codes

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(1*xxxxxxx*) System power control network (SPCN) reference codes

This section describes system power control network (SPCN) reference codes.

The system power control network (SPCN) detected a failure.

Note: The second and third characters of the system reference code (SRC) indicate the frame number of the failing unit.

1. Look at the four rightmost characters of the SRC for Function 11 or Function 5. These characters are the unit reference code.
2. Find the unit reference code in the following tables, depending on the system model.

For details on the Failing Item column entries, see the Table 482 on page 1872.

Table 481. SPCN reference codes

SRC	Description/Action	Failing Item
1*xxx*00A0	SPCN BATs in process No action required. This reference code is logged for information only. If this reference code is present for more than one minute, exchange the failing items.	"TWRCARD" on page 967
1*xxx*00AA	Download in process No action required. This reference code is logged for information only.	
1*xxx*00AC	Detected AC loss If system powers on normally or stays powered on after AC power failure, no replacement of parts may be needed.	"ACMODUL" on page 351
1*xxx*00AD	Server Processor Reset caused a system power off.	"TWRCARD" on page 967
1*xxx*00BA	The system is running on the Battery Power Unit No action required. This reference code is displayed for information only.	
1*xxx*00BC	Battery Power Unit test is in process No action required. This reference code is displayed for information only.	
1*xxx*00CA	Thermal calibration in progress	
1*xxx*00EF	Remote EPO switch is OFF	
1*xxx*1500	Detected AC loss Before replacing any parts, verify that the AC input voltage is correct.	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*1501	Power supply failure	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*1502	Power supply failure	"PWRSPLY" on page 927 "TWRCARD" on page 967

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*1503	Power supply failure	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*1510	Detected AC loss Before replacing any parts, verify that the AC input voltage is correct.	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*1511	Power supply failure	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*1512	Power supply failure	"PWRSPLY" on page 927 "TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*1513 to 1*xxx*1514	Power supply failure	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*1516	No Power Supplies Present The required power supplies are not installed.	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*1517	Power supply failure	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*1520	Detected AC loss Before replacing any parts, verify that the AC input voltage is correct.	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*1521	Power supply failure	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*1522	Power supply failure	"PWRSPLY" on page 927 "TWRCARD" on page 967 "CBLALL" on page 364

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*1523 to 1*xxx*1524	Power supply failure	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*1526	No Power Supplies Present The required power supplies are not installed.	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*1527	Power supply failure	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*1530	Detected AC loss Before replacing any parts, verify that the AC input voltage is correct.	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*1531	Power supply failure	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*1532	Power supply failure	"PWRSPLY" on page 927 "TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*1533	Power supply failure	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*1611	Regulator 1 Fault	"PWR1918" on page 926 "TWRCARD" on page 967
1*xxx*1612	Regulator 1 Communication Fault	"PWR1918" on page 926 "TWRCARD" on page 967
1*xxx*1613	Regulator 1 Domain Fault	"PWR1918" on page 926 "TWRCARD" on page 967

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*1621	Regulator 2 Fault	"PWR1918" on page 926 "TWRCARD" on page 967
1*xxx*1622	Regulator 2 Communication Fault	"PWR1918" on page 926 "TWRCARD" on page 967
1*xxx*1623	Regulator 2 Domain Fault	"PWR1918" on page 926 "TWRCARD" on page 967
1*xxx*1631	Regulator 3 Fault	"PWR1918" on page 926 "TWRCARD" on page 967
1*xxx*1632	Regulator 3 Communication Fault	"PWR1918" on page 926 "TWRCARD" on page 967
1*xxx*1633	Regulator 3 Domain Fault	"PWR1918" on page 926 "TWRCARD" on page 967
1*xxx*1B01	Load fault on the +12V bus	"PWR1900" on page 914 "TWRCARD" on page 967
1*xxx*1B02	Load fault on the +5V bus	"PWR1900" on page 914 "TWRCARD" on page 967
1*xxx*1B03	Load fault on the +3.3V bus	"PWR1900" on page 914 "TWRCARD" on page 967
1*xxx*1B04	Load fault on the -12V bus	"PWR1900" on page 914 "TWRCARD" on page 967
1*xxx*1B05	Load fault on the +1.8V bus	"PWR1904" on page 915 "TWRCARD" on page 967

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*1B06	Load fault on the +2.5V bus	"PWR1904" on page 915 "TWRCARD" on page 967
1*xxx*1B0A	Load Fault on the +12V/-12v bus	"PWR1904" on page 915 "TWRCARD" on page 967
1*xxx*1B0F	Load Fault on the +1.2V bus	"PWR1904" on page 915 "TWRCARD" on page 967
1*xxx*1C02	Load Fault on the +1.2V bus	"PWR1904" on page 915 "TWRCARD" on page 967
1*xxx*1C04	Load Fault on the +1.5V bus	"PWR1904" on page 915 "TWRCARD" on page 967
1*xxx*1C06	Load Fault on the 1.8/2.5V bus	"PWR1904" on page 915 "TWRCARD" on page 967
1*xxx*1D00 to 1*xxx*1D01	FSP Card SS Fault	"CARDFLT" on page 364
1*xxx*1D02 to 1*xxx*1D03	OSC Card SS Fault	"CARDFLT" on page 364
1*xxx*1D04 to 1*xxx*1D05	Lightstrip SS Fault	"CARDFLT" on page 364"LITSTRP" on page 432 on page 432 on page 432 on page 432"CABLEH" on page 363
1*xxx*1D10	MUX Card SS Fault	"CARDFLT" on page 364
1*xxx*1D11 to 1*xxx*1D18	IO Hub Card SS Fault	"CARDFLT" on page 364
1*xxx*1D60	RIO/HSL Adapter Card Switch fault	"SI_CARD" on page 957 "TWRCARD" on page 967
1*xxx*1D61 to 1*xxx*1D62	Removable Media Planar Switch fault	"DEVBPLN" on page 369 "TWRCARD" on page 967

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*1F01	SPCN trace information saved	
1*xxx*1F02	SPCN trace information saved	
1*xxx*2600	Power Good Fault	"PGDPART" on page 911 "TWRCARD" on page 967 "PWRSPLY" on page 927
1*xxx*2601	Power Good Fault	"PGDPART" on page 911 "TWRCARD" on page 967
1*xxx*2602	Power Good Fault	"PWR1918" on page 926 "TWRCARD" on page 967
1*xxx*2603	Power Good Fault	"PWR1916" on page 924 "TWRCARD" on page 967
1*xxx*2605 to 1*xxx*2606	Power Good Fault	"PWR1900" on page 914 "TWRCARD" on page 967
1*xxx*2612	Optical Converter 5V Fault The SPCN detected a fault on the SPCN card optical converter 5V.	"CBLALL" on page 364 "TWRCARD" on page 967
1*xxx*2613	Configuration Requires 200V Input Configuration now requires 200 V ac power.	"CBLALL" on page 364
1*xxx*2630 to 1*xxx*2632	Regulator Fault	"PWR1918" on page 926 "TWRCARD" on page 967
1*xxx*2633 to 1*xxx*2635	Regulator Fault	"SYSBKPL" on page 964"TWRCARD" on page 967 on page 967 on page 967 on page 967
1*xxx*2636 to 1*xxx*2637, 1*xxx*2640 to 1*xxx*2642	Regulator Fault	"PWR1918" on page 926 "TWRCARD" on page 967

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*3100	I2C Bus Controller Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3101	I2C Bus 1 Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3102	I2C Bus 2 Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3103	I2C Bus 3 Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3104	I2C Bus 4 Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3105	I2C Bus 5 Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3106	I2C Bus 6 Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3109	I2C Bus Adapter Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3110	I2C Bus DASD Backplane 1 Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3111	I2C Bus DASD Backplane 2 Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3112	I2C Bus DASD Backplane 3 Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*3113	I2C Bus Adapter Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3114	I2C Bus PCI Backplane Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3115	I2C Bus Panel Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3116	I2C Bus Fan Local Controller Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3118	I2C Bus SPCN VPD Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3119	I2C Bus 4 Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3120	I2C Bus LED Controller Communication fault	"TWRCARD" on page 967
1*xxx*3121	I2C Bus DASD Backplane 1 Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3130	Panel Thermal Sensor Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3131	Removable Media Thermal Sensor Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*3132	Processor 1 Thermal Sensor Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*3133	Processor 2 Thermal Sensor Communication fault	"I2CBUS" on page 417 "TWRCARD" on page 967
1*xxx*4201	UPS Reported, Utility Failure On	
1*xxx*4203	UPS Reported, Battery Low On	
1*xxx*4410	Internal Battery Power Unit Fault Internal Battery Power Unit in the system has failed.	"BATRY" on page 359 "BATCHGR" on page 359 "TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*4411	Internal Battery Power Unit Charger Fault Internal Battery Power Unit Charger in the system has failed.	"BATCHGR" on page 359 "TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*4412	Internal Battery Power Unit Charger Fault Internal Battery Power Unit Charger in the system has failed.	"BATCHGR" on page 359 "TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*4413	Internal Battery Power Unit Charger Fault Internal Battery Power Unit Charger in the system has failed.	"BATRY" on page 359 "BATCHGR" on page 359 "TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*4414	Battery Charger Load fault	"PWROC" on page 927 "BATRY" on page 359 "TWRCARD" on page 967 "CBLALL" on page 364

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*4415	Battery Power Unit missing	"BATRY" on page 359 "TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*4417	Battery Charger Unit missing	"BATCHGR" on page 359 "TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*4600 to 1*xxx*4601	UPS Interface Failure	"UPSUNIT" on page 983 "TWRCARD" on page 967
1*xxx*5000 to 1*xxx*5001	5000 to 5001	"TWRCARD" on page 967
1*xxx*7110, 1*xxx*7120	Power supply failure	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*7201	Ambient temperature is out of range	
1*xxx*7202	Ambient temperature is back in range	
1*xxx*7203	Ambient temperature exceeded limit (System will shut down in 15 minutes.)	
1*xxx*7205	Ambient temperature exceeded limit (System will shut down in 20 minutes.)	
1*xxx*7300	Power supply failure	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*7610	Fan Fault The Fan is operating at the wrong speed.	"AIRMOVR" on page 351 "TWRCARD" on page 967
1*xxx*7611	Fan missing error A problem was detected with a Fan which can be caused by a Fan not being installed. Install Fan if missing, replace if already installed.	"AIRMOVR" on page 351 "TWRCARD" on page 967

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*7620	Fan Fault The Fan is operating at the wrong speed.	"AIRMOVR" on page 351 "TWRCARD" on page 967
1*xxx*7621	Fan missing error A problem was detected with a Fan which can be caused by a Fan not being installed. Install Fan if missing, replace if already installed.	"AIRMOVR" on page 351 "TWRCARD" on page 967
1*xxx*7630	Fan Fault The Fan is operating at the wrong speed.	"AIRMOVR" on page 351 "TWRCARD" on page 967
1*xxx*7631	Fan missing error A problem was detected with a Fan which can be caused by a Fan not being installed. Install Fan if missing, replace if already installed.	"AIRMOVR" on page 351 "TWRCARD" on page 967
1*xxx*7640	Fan Fault The Fan is operating at the wrong speed.	"AIRMOVR" on page 351 "TWRCARD" on page 967
1*xxx*7641	Fan missing error A problem was detected with a Fan which can be caused by a Fan not being installed. Install Fan if missing, replace if already installed.	"AIRMOVR" on page 351 "TWRCARD" on page 967
1*xxx*7650	Fan Fault	"AIRMOVR" on page 351 "TWRCARD" on page 967
1*xxx*7651	Fan missing error	"AIRMOVR" on page 351 "TWRCARD" on page 967
1*xxx*7690	Fan Fault	"AIRMOVR" on page 351 "TWRCARD" on page 967
1*xxx*7691	Fan missing error	"AIRMOVR" on page 351 "TWRCARD" on page 967
1*xxx*8400	No VPD Found due to Invalid Bypass	"TWRCARD" on page 967

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*8401	Timeout on Panel for Request of VPD	"VPDPART" on page 987 "TWRCARD" on page 967
1*xxx*8402	Unable to Collect VPD	"VPDPART" on page 987 "TWRCARD" on page 967
1*xxx*8403	VPD Critical Mismatch	"VPDPART" on page 987 "TWRCARD" on page 967
1*xxx*8404 to 1*xxx*8406	Processor Unit VPD Mismatch	"VPDPART" on page 987 "TWRCARD" on page 967
1*xxx*8409	No Processor Installed	"VPDPART" on page 987 "TWRCARD" on page 967
1*xxx*8410 to 1*xxx*8417	Invalid Processor VPD	"VPDPART" on page 987 "TWRCARD" on page 967
1*xxx*8420 to 1*xxx*8427	No Processor VPD	"VPDPART" on page 987 "TWRCARD" on page 967
1*xxx*840A	VPD 5V Power Off Failure	"VPDPART" on page 987 "TWRCARD" on page 967
1*xxx*840B	VPD 5V Power On Failure	"VPDPART" on page 987 "TWRCARD" on page 967
1*xxx*840D	SPCN Configuration mismatch	"VPDPART" on page 987 "TWRCARD" on page 967
1*xxx*840E	SPCN Default Configuration loaded	"VPDPART" on page 987 "TWRCARD" on page 967

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*8413 to 1*xxx*8414	Invalid Processor VPD	"VPDPART" on page 987 "TWRCARD" on page 967
1*xxx*8423 to 1*xxx*8424	No Processor VPD	"VPDPART" on page 987 "TWRCARD" on page 967
1*xxx*8430	Cable not connected	"IDPART" on page 417 "TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*8431	Cable should not be present	"IDPART" on page 417 "TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*8432	Secondary unit not present	"IDPART" on page 417 "TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*8450 to 1*xxx*8451	SPCN Configuration mismatch	"PWR1918" on page 926 "TWRCARD" on page 967
1*xxx*8455 to 1*xxx*8456	Power Supply Missing	"PWRSPLY" on page 927 "TWRCARD" on page 967
1*xxx*8470 to 1*xxx*8477	Processor Unit VPD Mismatch	"VPDPART" on page 987 "TWRCARD" on page 967
1*xxx*8700 to 1*xxx*8701	BPC AC Loss	"PWR2402" on page 927

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*8710 to 1*xxx*8711	DCA UART Communication Fault	"DCA" on page 369 "TWRCARD" on page 967 "SYSBKPL" on page 964
1*xxx*8720 to 1*xxx*8721	BPC Ethernet Communication fault	"CABLEH" on page 363 "BPC" on page 359 "TWRCARD" on page 967
1*xxx*8731	BPC critical fault, no present node books powered on	"CABLEH" on page 363 "NEXTLVL" on page 899
1*xxx*8732	BPC critical fault, CEC cage id mismatch - cabling error	"CABLEH" on page 363 "NEXTLVL" on page 899
1*xxx*8733	BPC critical fault, no node books present to power on	"CABLEH" on page 363 "NEXTLVL" on page 899
1*xxx*8734	BPC fault, fips log collection failed	"CABLEH" on page 363 "NEXTLVL" on page 899
1*xxx*8735	BPC/HMC fault, No BPC IP addresses	"BPC" on page 359
1*xxx*8740 to 1*xxx*8741	BPC fault, failed to reach standby	"BPC" on page 359
1*xxx*8910	External Netfinity® Server 3.3V fault	"ALTMANL" on page 356 "TWRCARD" on page 967
1*xxx*8920	External Netfinity Server Power Good fault	"ALTMANL" on page 356 "TWRCARD" on page 967
1*xxx*8930	Integrated Netfinity Adapter fault	"TWRCARD" on page 967
1*xxx*8940 to 1*xxx*8943	External Netfinity Server R485 Communication fault	"TWRCARD" on page 967 "CBLALL" on page 364

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*8A00	IO Power control changed to another system unit	
1*xxx*9002	Received a bad return code Partition Firmware has detected a condition that may require attention. Check error log for other errors that may have been reported at the same time as this condition was reported. If this SRC persists contact next level of support.	
1*xxx*9012	Address not valid LIC command had a frame address that was not valid. Exchange the SPCN frame-to-frame cables to the failing frame.	"TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*9013	Invalid Node Address The address in the SPCN command does not match the secondary nodes assigned address. Exchange the failing items for the SPCN node reporting the error.	"TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*9014	A command has an invalid address mode. A command from the system unit specified a unit address of D or E or had a frame address of 00. Exchange the failing items in the system unit.	"AJDG301" on page 352 "TWRCARD" on page 967
1*xxx*9016, 1*xxx*9021	A command to an SPCN node was rejected. No action required. This reference code is logged for information only.	
1*xxx*9022	Addressed Unit not in frame. The addressed unit is in a frame that is powered off. No action required. This reference code is logged for information only.	
1*xxx*9023	Addressed Unit exists, but the frame is powered off. The addressed unit is in a frame that is powered off. No action required. This reference code is logged for information only.	
1*xxx*9024	SPCN Licensed Internal Code not valid. The Licensed Internal Code in one of the secondary nodes is not valid. The code will be reloaded. No action required. This reference code is logged for error analysis only.	
1*xxx*9025	SPCN Licensed Internal Code not valid. The Licensed Internal Code in one of the frames is not valid. The code will be reloaded. No action required. This reference code is logged for error analysis only.	
1*xxx*9026	Battery Power Unit is reporting a low charge. The battery power unit is not charged enough to run a test. No action required. This reference code is logged for information only.	

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*9027	Battery Power Unit is defective. No action required. This reference code is logged for information only.	
1*xxx*9028	SPCN Licensed Internal Code is not valid. The Licensed Internal Code in the primary node is not valid. The code will be reloaded. No action required. This reference code is logged for error analysis only.	
1*xxx*9029	SPCN VPD Damaged The VPD record in the EEPROM has bad data. Exchange the failing items for the node reporting the failure.	"TWRCARD" on page 967
1*xxx*902C	Battery Power Unit test was aborted. The battery power unit test was aborted. No action required. This reference code is logged for information only.	
1*xxx*902D	Addressed frame is not in SPCN configuration table. The addressed frame is not in the SPCN configuration table. No action required. This reference code is logged for information only.	
1*xxx*9031	Frame-to-Frame Communications Failure The SPCN detected a BCC error on a transmission from another frame. The transmission is attempted again. No action required. This reference code is logged for error analysis only.	
1*xxx*9032	SPCN Communications Failure, unit to rack. The frame detected a BCC error on a transmission from a secondary node to the frame. The transmission is attempted again. No action required. This reference code is logged for error analysis only.	
1*xxx*9033	SPCN Communications Failure, rack to unit. A secondary node detected a BCC error on a transmission from the frame. The transmission is attempted again. No action required. This reference code is logged for error analysis only.	
1*xxx*9034	Unsupported Packet Size The receiving node detected a packet exceeding 70 bytes. The frame can also return this code if a secondary node returns more than 10 bytes to a PAS command. No action required. This reference code is logged for error analysis only.	
1*xxx*9035	Secondary SPCN node timeout. A secondary SPCN node did not respond to a command. The command was attempted again and failed. No action required. This reference code is logged for error analysis only.	

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*9036	Frame Timeout One or more frames did not respond to a command. The command is attempted again. No action required. This reference code is logged for error analysis only.	
1*xxx*903B	Invalid Packet Length for data sent. The number of bytes sent or received does not match the number of bytes specified in the command. No action required. This reference code is logged for error analysis only.	
1*xxx*9041	Invalid Load Type The down load was successful, but the wrong type of Licensed Internal Code was loaded. The operation was attempted again but was not successful. Exchange the failing items for the node reporting the fault.	"AJDG301" on page 352 "TWRCARD" on page 967
1*xxx*9042	EEPROM Failure The EEPROM in an SPCN node cannot be written successfully. Exchange the SPCN node reported in the failure.	"TWRCARD" on page 967
1*xxx*9043	Download Failure The Licensed Internal Code download to an SPCN node was completed but was not successful. Exchange the failing SPCN node.	"TWRCARD" on page 967
1*xxx*9046	QDS Packet Sequence Error The Packet Sequence number is wrong. The download was stopped.	"TWRCARD" on page 967
1*xxx*9047	QDS Block Sequence Error The Block Sequence number is wrong. The download was stopped.	"TWRCARD" on page 967
1*xxx*9048	The SPCN ROS and EEPROM LIC is not compatible. The LIC levels in the nodes ROS and EEPROM are not compatible. Exchange the failing items for the failing node.	"TWRCARD" on page 967 "AJDG301" on page 352
1*xxx*9080	Undefined Status Code An SPCN node returned an unknown status code. Exchange the failing SPCN node.	"TWRCARD" on page 967 "BACKPLN" on page 359
1*xxx*90F0	A frame was dropped from the SPCN configuration. A frame was dropped from the SPCN configuration. This is usually caused by a loss of ac power or a problem with the frame-to-frame cable.	"TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*90F1	A frame was added to the SPCN configuration. No action required. This reference code is logged for information only.	

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*90F2	Slave disappeared A frame was dropped from the SPCN configuration. This is usually caused by a loss of ac power or a problem with the frame-to-frame cable.	"PWR1907" on page 919
1*xxx*90F3	Slave reappeared	
1*xxx*9101	VLIC-SPCN Timeout A Licensed Internal Code timeout occurred. The SPCN failed to respond to a Licensed Internal Code command.	"TWRCARD" on page 967 "CTLPNL" on page 368 "SVCPROC" on page 963
1*xxx*9102	Assign Permanent Address command failure A node failed to perform an Assign Permanent Address command.	"TWRCARD" on page 967
1*xxx*9103	Download Initialize Timeout An SPCN node failed to enter the download state after an Initialize for Download command. Exchange the failing SPCN node.	"TWRCARD" on page 967
1*xxx*9104	Download Initialize Timeout An SPCN node failed to leave the download state. Exchange the failing SPCN node.	"TWRCARD" on page 967
1*xxx*9105	Load Damaged Timeout An SPCN node failed to enter the operational state. Exchange the failing SPCN node.	"TWRCARD" on page 967
1*xxx*9106	An SPCN LID was not found. No action required. This reference code is logged for information only.	
1*xxx*9107	An SPCN microcode download is required. No action required. This reference code is logged for error analysis only.	
1*xxx*9108	A status change occurred in one of the SPCN nodes. No action required. This reference code is logged for information only.	
1*xxx*9109	Licensed Internal Code part number is not correct. The AROS part number field was not updated to the correct level after the system attempted to load new Licensed Internal Code.	"TWRCARD" on page 967
1*xxx*910A	RIO Download Required	
1*xxx*910B	Maximum number of retries exceeded	
1*xxx*9110	Battery Power Unit capacity test failed. The battery power unit was not able to pass the capacity test.	"BATRY" on page 359
1*xxx*9111	SPCN is too large for VLIC. There are more nodes in the network than VLIC can service.	"AJDG301" on page 352

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*9112	Primary SPCN node is reporting load damaged. The Licensed Internal Code for the primary SPCN node is damaged. The reload failed because the code could not be found.	"TWRCARD" on page 967
1*xxx*9113	Secondary SPCN node is reporting load damaged. The Licensed Internal Code for the secondary SPCN node is damaged. The reload failed because the code could not be found.	"TWRCARD" on page 967
1*xxx*9114	Frame SPCN node is reporting load damaged. The Licensed Internal Code for a SPCN node is damaged. The reload failed because the code could not be found.	"TWRCARD" on page 967
1*xxx*9115	SPCN Command rejected by the Service Processor. The service processor rejected an SPCN command from the Licensed Internal Code. No action required. This reference code is logged for information only.	
1*xxx*9116	SPCN - Control Panel interface failure. The SPCN to control panel interface is not working.	
1*xxx*9117	SPCN - Control Panel interface is now working. The SPCN to control panel interface is now working. No action required. This reference code is logged for information only.	
1*xxx*9118	PHYP out of memory	"AJDG301" on page 352
1*xxx*9119	NVRAM Write Failed	"TWRCARD" on page 967
1*xxx*911A	Too many racks attached Reduce the number of racks to maximum configuration on the system.	
1*xxx*911B	SPCN CEC node code failure	"AJDG301" on page 352
1*xxx*911C	Two nodes have same VPD	"VPDPART" on page 987
1*xxx*911D	RIO Download Failure	"TWRCARD" on page 967
1*xxx*911E	Temporary VPD written	"TWRCARD" on page 967
1*xxx*911F	CEC not found	"TWRCARD" on page 967
1*xxx*9120	Duplicate backplane VPD	"SYSBKPL" on page 964
1*xxx*9131	Invalid XM Return Code	
1*xxx*9132	Node contains temporary VPD	
1*xxx*9133	Bad PCI Correlation Problem PCI bus not matched	"CBLALL" on page 364

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*9134	PCI bus VPD error Check Error Log for B700*xxxx* Reference Codes.	
1*xxx*9135	Open RIO Loop	
1*xxx*9137	Bad PCI Correlation Problem SPCN node not matched	"CBLALL" on page 364
1*xxx*9138	Bad Location Code	"CBLALL" on page 364
1*xxx*91DD	All SPCN Downloads Complete	
1*xxx*91DE	RIO Download Complete	
1*xxx*91FB	Write VPD on next IPL	
1*xxx*9212	Frame Address field not valid. A Licensed Internal Code command had a frame address that is not valid. Exchange the failing items for the failing node.	"TWRCARD" on page 967
1*xxx*9213	Invalid Address status, secondary node. The address in the SPCN command does not match the assigned address of the secondary node. Exchange the failing items for the failing node.	"TWRCARD" on page 967
1*xxx*9214	Invalid Address Mode status Invalid Address Mode occurred during Frame Command processing.	"TWRCARD" on page 967 "AJDG301" on page 352
1*xxx*9215	Invalid Frame Command status Invalid Frame Command occurred during Frame Command processing.	"TWRCARD" on page 967 "AJDG301" on page 352
1*xxx*921B	System Unit SPCN Port Fault status. System Unit Port Fault occurred during Command processing.	"TWRCARD" on page 967 "AJDG301" on page 352
1*xxx*922B	Address Unassigned status A secondary node has no address assigned during Command processing.	"TWRCARD" on page 967 "AJDG301" on page 352
1*xxx*9231	Frame-to-Frame Communications Failure A frame-to-frame communications failure occurred during STF processing.	"TWRCARD" on page 967 "CBLALL" on page 364

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*9232	Intrarack Communications Failure An SPCN secondary node to frame communications failure occurred during Command processing.	"TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*9233	Intrarack Communications Failure An SPCN frame to secondary node communications failure occurred during Command processing.	"TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*9234	Unsupported Packet Size status Unsupported Packet Size occurred during STF and Secondary Node Command processing.	"TWRCARD" on page 967 "SVCPROC" on page 963
1*xxx*9235	SPCN Secondary Node Timeout status An SPCN Secondary Node Timeout occurred during Command processing.	"TWRCARD" on page 967 "AJDG301" on page 352 "CBLALL" on page 364
1*xxx*9236	Frame Timeout status An SPCN Frame Node Timeout occurred during Network post processing.	"TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*9238	Secondary Node Fault An SPCN Secondary Node Fault occurred during Command processing.	"TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*9239	Frame Node Fault An internal error in the SPCN frame node prevents the running of a Frame command.	"TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*923A	ASA Failure The frame address returned by a secondary node does not match the address of the frame.	"TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*923B	Invalid Packet Length for data sent. An Invalid Packet Length occurred for data exchanged.	"TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*9280	Response Stack Overflow Too many responses were received during System Frame command processing.	"CBLALL" on page 364 "AJDG301" on page 352 "TWRCARD" on page 967

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*9281	Response Overrun Response Overrun occurred during System Frame processing.	"CBLALL" on page 364 "AJDG301" on page 352 "TWRCARD" on page 967
1*xxx*9282	No Free Entries No free entries were found during System Frame processing.	"CBLALL" on page 364 "AJDG301" on page 352 "TWRCARD" on page 967
1*xxx*9283	ARA Failure An Assign Frame Address Failure occurred during ARA Preprocessing.	"TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*9284	Undefined status Undefined Status occurred during Frame or STF processing.	"TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*9285	BCC Fault A BCC Error was detected during Network post processing.	"TWRCARD" on page 967
1*xxx*9286	Length Check Error Length Check occurred during SPCN post processing.	"TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*9287	Undefined status Undefined Status occurred during Command processing.	"TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*9288	Configuration Error A configuration error was detected during System Frame processing.	"TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*9289	Invalid Packet Length for data sent. Invalid Packet Length occurred for data exchanged.	"TWRCARD" on page 967 "CBLALL" on page 364
1*xxx*C62E	SPCN Network Fault An SPCN frame-to-frame communication failure was detected. See "Cannot power on I/O expansion tower or unit SRNPU" or "System or I/O expansion tower unit cannot be powered off POSORMU".	"TWRCARD" on page 967 "CBLALL" on page 364

Table 481. SPCN reference codes (continued)

SRC	Description/Action	Failing Item
1*xxx*CB15	EEPROM Failure	"TWRCARD" on page 967

Table 482. SPCN failing items

Failing Item	Description	Document Description
ACMODUL	AC Module	See the service documentation for instructions.
AIRMOVR	Fan and Blower assemblies	See the service documentation for instructions.
AJDG301	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
ALTMANL	Alternate Manual Required	See the service documentation for instructions.
BACKPLN	Back Plane Unit	See the service documentation for instructions.
BATCHGR	Battery Power Unit Charger	See the service documentation for instructions.
BATRY	Battery Power Unit	See the service documentation for instructions.
BPC	BPC Fault for eServer H	See the service documentation for instructions.
CABLEH	Cable all for eServer H	See the service documentation for instructions.
CARDFLT	Card Fault for eServer H	See the service documentation for instructions.
CBLALL	Cable Failure	See the service documentation for instructions.
CTLPNL	Control Panel	See the service documentation for instructions.
DCA	DCA fault for eServer H	See the service documentation for instructions.
DEVBPLN	Device backplane	See the service documentation for instructions.
I2CBUS	I2C Bus Part	See the service documentation for instructions.
IDPART	Vital Product Data Parts	See the service documentation for instructions.
LITSTRP	Litestrip for eServer H	See the service documentation for instructions.
NEXTLVL	Call for next level of support	See the service documentation for instructions.
PGDPART	Power Good Part	See the service documentation for instructions.
PWR1900	Power-PIP 1900	See the service documentation for instructions.
PWR1902	Power-PIP 1902	See the service documentation for instructions.
PWR1903	Power-PIP 1903	See the service documentation for instructions.
PWR1904	Power-PIP 1904	See the service documentation for instructions.
PWR1906	Power-PIP 1906	See the service documentation for instructions.
PWR1907	Power-PIP 1907	INFORMATION
PWR1908	Power-PIP 1908	See the service documentation for instructions.
PWR1909	Power-PIP 1909	See the service documentation for instructions.
PWR1911	Power-PIP 1911	See the service documentation for instructions.
PWR1916	Power-PIP 1916	See the service documentation for instructions.
PWR1917	Power-PIP 1917	See the service documentation for instructions.
PWR1918	Power-PIP 1918	See the service documentation for instructions.
PWR2404	Power 2402 for eServer H	See the service documentation for instructions.
PWROC	Power Supply overcurrent	See the service documentation for instructions.

Table 482. SPCN failing items (continued)

PWRSPLY	Power Supply	See the service documentation for instructions.
SI_CARD	System Interconnect controller	See the service documentation for instructions.
SVCPROC	Service Processor Card	See the service documentation for instructions.
SYSBKPL	System unit backplane	See the service documentation for instructions.
TWRCARD	Card enclosure or backplane	See the service documentation for instructions.
UPSUNIT	UPS unit part	See the service documentation for instructions.
VPDPART	VPD Communication Part	See the service documentation for instructions.

(5*xxxxxxx*) Reference codes

This section lists the 5*xxxxxxx* system reference codes.

- "(5708*xxxx*) Reference codes"
- "(573A*xxxx*) Reference codes" on page 1875
- "(573B*xxxx*) Reference codes" on page 1875
- "(573C*xxxx*) Reference codes" on page 1876
- "(574F*xxxx*) Reference codes" on page 1876
- "(576A*xxxx*) Reference codes" on page 1876

(5708*xxxx*) Reference codes

If the error is reported on the control panel, the unit reference code is characters 5 through 8 of the top 16 character line of function 11. If the error is reported on the console, the unit reference code is the four rightmost characters of the first word.

Find the unit reference code in the following table. For more on the Failing Item column entries, see Chapter 13, "Isolation MAPs and symbolic FRU procedures," on page 349.

Table 483. (5708xxxx) Reference codes

SRC	Description/Action	Failing Item
57083006	System bus error	"ANYBRDG" on page 357 "IOP" on page 422
57083100	Interface error Error occurred on SCSI bus 0.	
57083101	Interface error Error occurred on SCSI bus 1.	
57083400	SCSI resource error	
57088008	A permanent cache battery pack failure occurred	"CACHBAT" on page 363
57088009	Impending cache battery pack failure	"CACHBAT" on page 363
57088130	IOA detected recoverable SCSI bus error An error occurred on SCSI bus 0. No action is required. This reference code is logged for information only.	

Table 483. (5708xxxx) Reference codes (continued)

SRC	Description/Action	Failing Item
57088131	IOA detected recoverable SCSI bus error An error occurred on SCSI bus 1. No action is required. This reference code is logged for information only.	
57088140	IOA detected recoverable SCSI bus error No action is required. This reference code is logged for information only.	
57088141	IOA detected recoverable SCSI bus error No action is required. This reference code is logged for information only.	
57088145	A recoverable error occurred	
57088150	A permanent failure occurred	"ANYBRDG" on page 357
57088151	Licensed Internal Code error	"PTFSRCH" on page 914
57088155 to 57088156	A permanent failure occurred	"PTFSRCH" on page 914
57088157	I/O adapter card error Display the Service Action Log entry for this SRC. If the Failing Item indicates I/O adapter, then replace the I/O adapter. If the Failing Item indicates SVCDOCS , then do NOT replace the I/O adapter. This is a recoverable error. Perform the following for the I/O processor that the I/O adapter is attached to: 1. If the I/O Processor is not operable and disk units are attached, use Hardware Service Manager to re-IPL the IOP. Other resources attached to the IOP may then need to be Varied On. 2. If disk units are not attached, perform the VRYCFG RESET(*YES) command to reset the IOP and Vary On attached resources.	"SVCDOCS" on page 963
57088300	IOA hardware or PCI bus error	"ANYBRDG" on page 357 "PTFSRCH" on page 914
57088301	Not valid condition in Licensed Internal Code	"PTFSRCH" on page 914
57088302	Missing Licensed Internal Code Ensure that the code necessary to support this I/O adapter is loaded.	"SVCDOCS" on page 963

Table 483. (5708xxxx) Reference codes (continued)

SRC	Description/Action	Failing Item
57089055	Write cache data is available for attached storage IOA No service action required.	
57089071	Link from IOA to auxiliary cache IOA went operational No service action required.	
57089072	Link from IOA to auxiliary cache IOA went non-operational No service action required.	
57089073	Disconnected, incompatible, or non-operational storage IOA	"SVCDOCS" on page 963
5708FF3D	I/O adapter detected recoverable error	"ANYBRDG" on page 357

(573A*xxxx*) Reference codes

Find the unit reference code in the following table. For more on the Failing Item column entries, see Chapter 13, "Isolation MAPs and symbolic FRU procedures," on page 349.

Table 484. (573Axxxx) Reference codes

SRC	Description/Action	Failing Item
573AB9B0	I/O adapter hardware error detected	"IOA" on page 421 "AJDG301" on page 352

(573B*xxxx*) Reference codes

Find the unit reference code in the following table. For more on the Failing Item column entries, see Chapter 13, "Isolation MAPs and symbolic FRU procedures," on page 349.

Table 485. (573Bxxxx) Reference codes

SRC	Description/Action	Failing Item
573BA6D9	I/O adapter hardware error detected	"IOA" on page 421 "AJDG301" on page 352
573BA6E3	Ethernet adapter or network device cabling error	"IOA" on page 421 "UJE40" on page 977
573BB100	I/O adapter hardware error detected	"IOA" on page 421 "AJDG301" on page 352
573BB200	I/O adapter hardware error detected	"IOA" on page 421 "AJDG301" on page 352
573BB300	I/O adapter hardware error detected	"IOA" on page 421 "AJDG301" on page 352

(573C*xxxx*) Reference codes

Find the unit reference code in the following table. For more on the Failing Item column entries, see Chapter 13, "Isolation MAPs and symbolic FRU procedures," on page 349.

Table 486. (573Bxxxx) Reference codes

SRC	Description/Action	Failing Item
573CA6D9	I/O adapter hardware error detected	"IOA" on page 421 "AJDG301" on page 352
573CA6E3	Ethernet adapter or network device cabling error	"IOA" on page 421 "UJE40" on page 977
573CB100	I/O adapter hardware error detected	"IOA" on page 421 "AJDG301" on page 352
573CB200	I/O adapter hardware error detected	"IOA" on page 421 "AJDG301" on page 352
573CB300	I/O adapter hardware error detected	"IOA" on page 421 "AJDG301" on page 352

(576A*xxxx*) Reference codes

Find the unit reference code in the following table. For more on the Failing Item column entries, see Chapter 13, "Isolation MAPs and symbolic FRU procedures," on page 349.

Table 487. (576Axxxx) Reference codes

SRC	Description/Action	Failing Item
576AB9B0	I/O adapter hardware error detected	"IOA" on page 421 "AJDG301" on page 352

(574F*xxxx*) Reference codes

If the error is reported on the control panel, the unit reference code is characters 5 through 8 of the top 16 character line of function 11. If the error is reported on the console, the unit reference code is the four rightmost characters of the first word.

Find the unit reference code in the following table. For more on the Failing Item column entries, see Chapter 13, "Isolation MAPs and symbolic FRU procedures," on page 349.

Table 488. (574Fxxxx) Reference codes

SRC	Description/Action	Failing Item
574F3006	System bus error	"ANYBRDG" on page 357 "IOP" on page 422
574F3100	Interface error Error occurred on SCSI bus 0.	
574F3101	Interface error Error occurred on SCSI bus 1.	
574F3400	SCSI resource error	

Table 488. (574Fxxxx) Reference codes (continued)

SRC	Description/Action	Failing Item
574F8008	A permanent cache battery pack failure occurred	"CACHBAT" on page 363
574F8009	Impending cache battery pack failure	"CACHBAT" on page 363
574F8130	IOA detected recoverable SCSI bus error An error occurred on SCSI bus 0. No action is required. This reference code is logged for information only.	
574F8131	IOA detected recoverable SCSI bus error An error occurred on SCSI bus 1. No action is required. This reference code is logged for information only.	
574F8140	IOA detected recoverable SCSI bus error No action is required. This reference code is logged for information only.	
574F8141	IOA detected recoverable SCSI bus error No action is required. This reference code is logged for information only.	
574F8145	A recoverable error occurred	
574F8150	A permanent failure occurred	"ANYBRDG" on page 357
574F8151	Licensed Internal Code error	"PTFSRCH" on page 914
574F8155 to 574F8156	A permanent failure occurred	"PTFSRCH" on page 914
574F8157	I/O adapter card error Display the Service Action Log entry for this SRC. If the Failing Item indicates I/O adapter, then replace the I/O adapter. If the Failing Item indicates SVCDOCS , then do NOT replace the I/O adapter. This is a recoverable error. Perform the following for the I/O processor that the I/O adapter is attached to: 1. If the I/O Processor is not operable and disk units are attached, use Hardware Service Manager to re-IPL the IOP. Other resources attached to the IOP may then need to be Varied On. 2. If disk units are not attached, perform the VRYCFG RESET(*YES) command to reset the IOP and Vary On attached resources.	"SVCDOCS" on page 963
574F8300	IOA hardware or PCI bus error	"ANYBRDG" on page 357 "PTFSRCH" on page 914

Table 488. (574Fxxxx) Reference codes (continued)

SRC	Description/Action	Failing Item
574F8301	Not valid condition in Licensed Internal Code	"PTFSRCH" on page 914
574F8302	Missing Licensed Internal Code Ensure that the code necessary to support this I/O adapter is loaded.	"SVCDOCS" on page 963
574F9055	Write cache data is available for attached storage IOA No service action required.	
574F9071	Link from IOA to auxiliary cache IOA went operational No service action required.	
574F9072	Link from IOA to auxiliary cache IOA went non-operational No service action required.	
574F9073	Disconnected, incompatible, or non-operational storage IOA	"SVCDOCS" on page 963
574FFF3D	I/O adapter detected recoverable error	"ANYBRDG" on page 357

(A1*xxxxxx*) Service processor reference (attention) codes

An A1*xxxxxx* system reference code (SRC) is an attention code posted by the service processor. An A1*xxxxxx* SRC offers information about a platform or service processor dump, confirms a control panel function request, or indicates an issue with a service processor wake-on-LAN setting.

The A1*xxxxxx* table uses the following format:

- The first column, SRC, contains numbers that identify a particular action your server performs during initialization of firmware.
- The second column, Description/Action, offers a brief description about this SRC. It might also contain instructions for continuing the problem analysis.
- The third column, Failing item, offers a link to service actions for recovering from a hang on an attention code. Click the failing item code only when you experience a hang condition on an attention code. For example, a hang condition occurs when your server performs a requested action but the SRC in the control panel display does not change for several minutes and the service processor appears to be hung.

Table 489. A1xxxxxx service processor reference codes

SRC	Description/Action	Failing item
A1003000	Platform dump was successful.	"FSPSPD1" on page 396
A1003001	Reserved (for platform dump).	"FSPSPD1" on page 396

Table 489. A1xxxxxx service processor reference codes (continued)

SRC	Description/Action	Failing item
A1003022	Confirm partition dump (control [operator] panel function 22). The control panel displays this attention code after you request a partition dump (panel function 22). When you see this code, on the panel, scroll to function 22 again and press **Enter** to perform the partition dump.	"FSPSPD1" on page 396
A1003042	Confirm platform dump (control panel function 42). The control panel displays this attention code after you request a platform dump (panel function 42). When you see this code, on the panel, scroll to function 42 again and press **Enter** to perform the platform dump.	"FSPSPD1" on page 396
A1003043	Confirm service processor dump (control panel function 43). The control panel displays this attention code after a service processor dump (panel function 43) is requested. When you see this code, scroll to function 43 again on the panel and press **Enter** to perform the service processor dump.	"FSPSPD1" on page 396
A1008008	Confirm fast power-off (control panel function 08). This attention code is displayed on the control panel after you request a fast power-off (panel function 08). When you see this code, on the panel, scroll to function 08 again and press **Enter** to perform the fast power-off.	"FSPSPD1" on page 396
A1008009	Beginning emergency power-off (EPO) countdown.	"FSPSPD1" on page 396
A100800A	Proceeding with EPO. This SRC displays after the countdown has completed successfully.	"FSPSPD1" on page 396
A1A3C100	Invalid operational mode for remote power-on (wake on LAN). Check the service processor settings for remote power-on.	

(A2*xxxxxx*) Logical partition reference codes

For use by service providers.

When the server posts these SRCs, you can find them in the Serviceable Event View or the view that you use to see informational logs (such as the Product Activity Log or ASM).

Characters 3 and 4 of word 1 are the partition ID of the logical partition with the problem.

Table 490. (A2xxxxxx) Logical partition reference codes

SRC	Description/Action	Failing Item
A2*xx*1150	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. This is a partitioning configuration problem. The LPARCFG Symbolic FRU will help correct the problem. If the problem persists, call your next level of support.	No service action required

Table 490. (A2xxxxxx) Logical partition reference codes (continued)

SRC	Description/Action	Failing Item
A2*xx*1225	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. The partition attempted to IPL prior to the platform fully initializing. Retry the partition IPL after the platform IPL has fully completed and the platform is not in standby mode. If that IPL fails, call your next level of support.	No service action required
A2*xx*1230	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. This is a partitioning configuration problem. The partition is lacking the necessary resources to IPL. This error might occur when you shut down a partition that is set to automatically IPL and then turn the managed system off and back on. When the partition automatically IPLs, it uses the resources specified in PHYP NVRAM, and this error occurs when the server does not find the exact resources specified in NVRAM. The solution is to activate the partition by using the partition profile on the HMC. The HMC applies the values in the profile to NVRAM. When the partition IPLs, it uses the resources specified in the profile.	No service action required
A2*xx*1260	A problem occurred during the IPL of a partition. The partition identified in the *xx* field of the A2*xx* SRC could not IPL at the Timed Power On setting because the IPL setting of the partition was not set to Normal.	No service action required
A2*xx*1265	A problem occurred during the IPL of a partition. The partition identified in the *xx* field of the A2*xx* SRC could not IPL. An operating system MSD IPL was attempted with the IPL side on D-mode. This is not a valid operating system IPL scenario, and the IPL will be halted. This SRC is usually seen when a D-mode SLIC install fails and attempts an MSD.	No service action required
A2*xx*1266	A problem occurred during the IPL of a partition. The partition identified in the *xx* field of the A2*xx* SRC could not IPL. You are attempting to IPL an operating system that is not supported.	No service action required
A2*xx*1310	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. No alternate (D-mode) IPL IOP was selected. The IPL will attempt to continue, but there might not be enough information to find the correct D-mode load source. Have the customer configure an alternate IPL IOP for the partition. Then retry the partition IPL.	No service action required

Table 490. (A2xxxxxx) Logical partition reference codes (continued)

SRC	Description/Action	Failing Item
A2*xx*1320	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. No default load source IOP was selected for an A/B-mode IPL. The IPL will attempt to continue, but there might not be enough information to find the correct load source. Have the customer configure a load source IOP for the partition. Then retry the partition IPL.	No service action required
A2*xx*1321	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. The IOA for the load source device needed an IOP, and none was detected. Check your LPAR config and make sure the correct slot is specified for the IPL load source. Then retry the partition IPL.	No service action required
A2*xx*1322	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. During the partition IPL, code tried to determine if the device in a slot was an I/O Processor or an I/O Adapter. That check failed. Check your LPAR configuration and make sure that the correct slot is specified for the IPL load source. Then retry the partition IPL. If this does not resolve the problem, perform "LICIP01" on page 429.	No service action required
A2*xx*2250	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. A slot that was needed for the partition was unavailable. See the Symbolic FRU "SLOTUSE" on page 961 for more information on the cause of this error.	No service action required
A2*xx*2300	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. A slot that was needed for the partition was unavailable. See the Symbolic FRU "SLOTUSE" on page 961 for more information on the cause of this error.	No service action required
A2*xx*2310, A2*xx*2320	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. The platform LIC for this partition attempted an operation. There was a failure. Contact your next level of support.	No service action required
A2*xx*2425	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. The platform LIC for this partition attempted an operation. There was a failure. Contact your next level of support.	No service action required
A2*xx*2426	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. The platform LIC for this partition attempted an operation. There was a failure. Contact your next level of support.	No service action required

Table 490. (A2xxxxxx) Logical partition reference codes (continued)

SRC	Description/Action	Failing Item
A2*xx*2475	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. A slot that was needed for the partition was either empty or the device in the slot has failed. See the Symbolic FRU "SLOTUSE" on page 961 for more information on the cause of this error. If you have a RAID enablement card (CCIN 5709) on your system, it will disable an embedded SCSI adapter. If that embedded slot is called out in the error, you can safely ignore this error.	No service action required
A2*xx*2485	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. The platform LIC for this partition attempted an operation. There was a failure. Contact your next level of support.	No service action required
A2*xx*3110	A problem occurred during the IPL of a partition. The search for a valid load source device was exhausted. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. Perform "LICIP01" on page 429.	No service action required
A2*xx*3113	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. A problem occurred on the path to the load source for the partition. If present, look in the Serviceable Event View for a B7*xx xxxx* during the partition's IPL. Correct that error and retry the partition IPL.	No service action required
A2*xx*3114	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. The A2*xxxxxx* SRC Format is Word 1: A2*xx*3114, Word 3: Bus, Word 4: Board, Word 5: Card.	No service action required
A2*xx*3120	System log entry only, no service action required The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. Retry count exceeded. This is logged for each unsuccessful attempt to IPL with a loadsource candidate. If the IPL fails, look for other serviceable errors.	No service action required
A2*xx*3123	System log entry only, no service action required	No service action required
A2*xx*3125	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. This is a platform LIC main store utilization problem. The platform LIC could not obtain a segment of main storage within the platform's main store to use for managing the creation of a partition.	No service action required

Table 490. (A2xxxxxx) Logical partition reference codes (continued)

SRC	Description/Action	Failing Item
A2*xx*3128	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. An unexpected failure return code was returned when attempting to query the IOA slots that are assigned to an IOP. Look for B700 69*xx* errors in the Serviceable Event View and work those errors.	No service action required
A2*xx*3130	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. If word 3 is zero, and then this SRC is informational and can be ignored. Otherwise there is a problem in the platform LIC. A nonzero bus number has no associated bus object. Look for B700 69*xx* errors in the Serviceable Event View and work those errors. If there are no serviceable B700 69*xx* errors, or if correcting the errors did not correct this problem, contact your next level of support.	No service action required
A2*xx*3135	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. An unknown bus type was detected.	No service action required
A2*xx*3140	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. The load source IOP is not owned by the partition. This is a configuration problem in the partition. Have the customer reconfigure the partition to have the intended load source IOP. If there is not a configuration problem then contact your next level of support.	No service action required
A2*xx*3200	System log entry only, no service action required The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. Look for a SRC in the Serviceable Event View logged at the time the partition was performing an IPL. This error indicates a failure during a search for the load source. There might be a number of these failures prior to finding a good load source. This is normal. If a A2*xx*3110 error is logged, a A2*xx*3200 might be posted to the control panel. Work the A2*xx*3110 error in the Serviceable Event View. If the system IPL hangs at A2*xx*3200 and you cannot check the SRC history, perform the actions indicated for the A2*xx*3110 SRC.	No service action required
A2*xx*5106	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. There is not enough space to contain the partition main storage dump. Contact your next level of support.	No service action required

Table 490. (A2xxxxxx) Logical partition reference codes (continued)

SRC	Description/Action	Failing Item
A2*xx*5109	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. There was a partition main storage dump problem. Contact your next level of support.	No service action required
A2*xx*5114	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. There is not enough space to contain the partition main storage dump. Contact your next level of support.	No service action required
A2*xx*5115	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. There was an error reading the partition's main storage dump from the partition's load source into main storage.	No service action required
A2*xx*5117	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. A partition main storage dump has occurred but cannot be written to the load source device because a valid dump already exists. Use the Main Storage Dump Manager to rename or copy the current main storage dump.	No service action required
A2*xx*5121	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. There was an error writing the partition's main storage dump to the partition's load source.	No service action required
A2*xx*5135, A2*xx*5137, A2*xx*5145	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. There was an error writing the partition's main storage dump to the partition's load source.	No service action required
A2*xx*5148	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. An error occurred while doing a main storage dump that would have caused another main storage dump. Contact your next level of support.	No service action required
A2*xx*6006	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. A platform LIC error occurred when the partition's memory initialized. The IPL will not continue. Contact your next level of support.	No service action required
A2*xx*6012	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. The partition's LID failed to completely load into the partition's mainstore area. Contact your next level of support.	No service action required

Table 490. (A2xxxxxx) Logical partition reference codes (continued)

SRC	Description/Action	Failing Item
A2*xx*6015	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. The load source media is corrupted or not valid.	No service action required
A2*xx*6025	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. This is a problem with the load source media being corrupt or not valid.	No service action required
A2*xx*6027	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. A failure occurred when allocating memory for an internal object used for LID load operations. Ensure the partition was allocated enough main storage, verify that no memory leaks are present, and then retry the operation.	No service action required
A2*xx*6110	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. Error on load source device.	No service action required
A2*xx*7200	System log entry only, no service action required The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. An error condition was encountered when communicating with the load source I/O Processor for the partition identified in the *xx* field of the A2*xx* SRC. This informational error indicates a failure resetting the I/O Processor in the preceding A2*xx*3200 error. This is normal. If there is a hardware failure there will be a different serviceable event. If the system IPL hangs at A2*xx*7200 and you cannot check the SRC history, perform the actions indicated for the A2*xx*3110 SRC.	No service action required
A2*xx*8080	System log entry only, no service action required	No service action required
A2*xx*8081	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. An internal LIC timeout has occurred. The partition might continue to IPL but it might experience problems while running.	No service action required
A2*xx*8105	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. There was a failure loading the VPD areas of the partition. The load source media has been corrupted or is unsupported on this system.	No service action required
A2*xx*8107	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. There was a problem getting a segment of main storage in the platform's main store.	No service action required

Table 490. (A2xxxxxx) Logical partition reference codes (continued)

SRC	Description/Action	Failing Item
A2*xx*8109	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. A failure occurred. The IPL is terminated. Ensure that there is enough memory to IPL the partition.	No service action required
A2*xx*8112	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. A failure occurred. The IPL is terminated.	No service action required
A2*xx*8113	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. A problem occurred on the path to the load source for the partition. There was an error mapping memory for the partition's IPL. Call your next level of support.	No service action required
A2*xx*8114	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. A problem occurred on the path to the load source for the partition. There was a failure verifying VPD for the partition's resources during IPL. Call your next level of support.	No service action required
A2*xx*8115	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. There was a low level partition to partition communication failure.	No service action required
A2*xx*813A	A problem occurred during the IPL of a partition. Communication to the service processor has failed. The IPL will continue and the partition will likely be usable, but the console attached to the serial port might not be usable. A system power off followed by a reset/reload of the FSP might clear up the problem.	No service action required
A2*xx*A100 to A2*xx*A101	A problem occurred after a partition ended abnormally. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. This partition could not stay running and shut itself down. Work any error logs in the Serviceable Event View. If there are no errors, contact your next level of support.	No service action required
A2*xx*B07B	System log entry only, no service action required	No service action required
A2*xx*A215	A problem occurred after a partition ended abnormally. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. There was a communications problem between this partition's service processor and the platform's service processor. The platform will need to be reIPLed before that partition can be used. Call your next level of support.	No service action required

Table 490. (A2xxxxxx) Logical partition reference codes (continued)

SRC	Description/Action	Failing Item
A2*xx*D150	A problem occurred after a partition ended abnormally. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. There was a communications problem between this partition and code that handles resource allocation. Call your next level of support.	No service action required
A2*xx*E0AA	A problem occurred during the IPL of a partition. Communication to the service processor has failed. The IPL will continue and the partition will likely be usable, but the console attached to the serial port might not be usable. A system power off followed by a reset/reload of the FSP might clear up the problem.	No service action required
A2*xx*F001	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. An operation has timed out. Ignore this error if there are other serviceable errors. Work those error logs for this partition and for the platform from the Serviceable Event View. If there are no errors, contact your next level of support.	No service action required
A2*xx*F003	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. Partition processors did not start LIC within the timeout window. Capture a Partition Dump and call your next level of support.	No service action required
A2*xx*F004 to A2*xx*F005	A problem occurred during a power off of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. This partition had a communications problem. Capture a Partition Dump and call your next level of support.	No service action required
A2*xx*F006	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. The code load operation for the partition's IPL timed out. Work any error logs for this partition in the Serviceable Event View. If there are no errors, contact your next level of support.	No service action required
A2*xx*F007	A problem occurred during a power off of a partition. The partition ID is characters 3 and 4 of the A2*xx* reference code in word 1 of the SRC. A problem occurred on the path to the load source for the partition. A timeout occurred during the process of trying to stop a partition from running. Contact your next level of support.	No service action required

(A7*xxxxxx*) Licensed Internal Code (LIC) reference codes

For use by service providers.

Use this table for A7*xxxxxx* reference codes.

Perform the following actions:

1. Find the unit reference code by looking at characters 5 through 8 of the top 16 character line of function 11 (4 rightmost characters of word 1). These 4 characters are the unit reference code.
2. Look up the unit reference code in the following table.
3. Perform the actions in the Description/Action column of the table.

In all cases, once the failing item is determined, go to the locations table for the system you are working on to determine the location, and use the remove and replace procedure for the failing item.

Table 491. (A7xxxxxx) Licensed Internal Code (LIC) Reference Codes

SRC	Description/Action	Failing Item
A7*xx*0103	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The platform Licensed Internal Code (LIC) detected an internal problem. Collect all the SRC words and the platform system dump, and then contact your next level of support.	"LICCODE" on page 429
A7*xx*0106	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. A secondary failure due to an invalid SRC occurred when the platform attempted to terminate. Collect all the SRC words and the platform system dump, and then contact your next level of support.	"LICCODE" on page 429
A7*xx*0302	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. Perform a platform system dump and notify your service provider. IPL the system.	"LICCODE" on page 429
A7*xx*0441	Service processor failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The platform encountered an error early in the IPL or termination process.	"SVCPROC" on page 963"NEXTLVL" on page 899 on page 899 on page 899 on page 899
A7*xx*0443	Service processor failure	"SVCPROC" on page 963"NEXTLVL" on page 899 on page 899 on page 899 on page 899
A7*xx*0601	System log entry only, no service action required Support can use this SRC and associated data to determine why the time of day for a partition was lost. No corrective action is required.	"SVCDOCS" on page 963

Table 491. (A7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
A7*xx*0602	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. Platform Licensed Internal Code (LIC) detected an error condition. The second word indicates the severity of the error and the specific error condition. If word 2 is not 10000A01 the error is informational only. If word 2 is 10000A01 then record the SRC words and call your next level of support.	"NEXTLVL" on page 899
A7*xx*0611	System clock problem Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. For systems managed by an HMC, use the ASM interface to reset the system clock at power on standby. For systems without an HMC, you can ignore this error. If the error occurs a second time, call your next level of support.	"SVCDOCS" on page 963
A7*xx*0621	System log entry only, no service action required No service action required.	
A7*xx*0A00	System log entry only, no service action required A user request initiated an I/O tower/drawer power off. No corrective action is required.	"SVCDOCS" on page 963
A7*xx*1150 to A7*xx*1151	System log entry only, no service action required No action needed unless a serviceable event was logged. If a serviceable event was logged, resolve that error.	"SVCDOCS" on page 963
A7*xx*1152	System log entry only, no service action required No service action is required for this event. If there is a A7001150 SRC present, and then the service processor was reset automatically to correct for the communications problem. If something more severe occurred there will be a SRC requiring a service action logged as well.	"SVCDOCS" on page 963
A7*xx*1160	Service processor failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The platform encountered an error communicating with the service processor. The platform code attempts a graceful shutdown of partitions and powers off the server after a certain time, or when the last partition indicates shutdown, whichever comes first.	"SVCPROC" on page 963"LICCODE" on page 429 on page 429 on page 429 on page 429
A7*xx*1161	System log entry only, no service action required The platform encountered a service processor event indicating that the power status has changed. Note that this is A7*xxxxxx* only.	
A7*xx*1730	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The VPD for the system is not what was expected at IPL. The IPL will not continue. Call your next level of support.	"SVCDOCS" on page 963

Table 491. (A7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
A7*xx*1731	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The VPD for the system is not what was expected at IPL. Call your next level of support.	"CAPACTY" on page 363
A7*xx*1732	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The VPD for the system is not what was expected at IPL. The VPD on a processor card is not correct. Call your next level of support.	"NEXTLVL" on page 899
A7*xx*1733	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The VPD for the system is not what was expected at IPL. The VPD on a memory card is not correct. Call your next level of support.	"NEXTLVL" on page 899
A7*xx*4400	There is a platform dump to collect Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. Use the operating system's interface designated to collect platform dumps.	"SVCDOCS" on page 963
A7*xx*4401	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The platform LIC detected an internal problem. Contact your next level of support.	"NEXTLVL" on page 899
A7*xx*4700 to A7*xx*4701	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. A problem occurred when initializing, reading, or using system VPD.	"CAPACTY" on page 363
A7*xx*4703	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. A problem occurred when initializing, reading, or using system VPD.	"LICCODE" on page 429
A7*xx*4704	Platform LIC detected an error The Capacity on Demand function is no longer available. Look for and correct errors with SRCs of the form 1*xxxxxxx* in the Serviceable Event View. If that does not correct the problem, or no errors were found, contact your next level of support.	"SVCDOCS" on page 963

Table 491. (A7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
A7*xx*4705	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. A problem occurred when initializing, reading, or using system VPD.	"LICCODE" on page 429
A7*xx*4710	Platform LIC detected an error This SRC is always of the form A700*xxxx*. A communications problem with the service processor occurred. Look for errors with SRCs of the form 1*xxxxxxx* or A7*xx*69*xx* in the Serviceable Event View. Work those errors. If no such errors are present, no service action is required.	"SVCDOCS" on page 963 "LICCODE" on page 429"CAPACTY" on page 363 on page 363 on page 363 on page 363
A7*xx*4712	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. A problem occurred when initializing, reading, or using system VPD.	"CAPACTY" on page 363
A7*xx*4714	Platform LIC has detected a new VPD card The new VPD card requires new activation codes. Enter the new activation codes.	"SVCDOCS" on page 963
A7*xx*4715	Platform LIC detected an error A problem occurred when initializing, reading, or using system VPD. Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. Look for errors with SRCs of the form 1*xxxxxxx* in the Serviceable Event View. Work those errors first. If that does not correct the problem, contact your next level of support.	"SVCDOCS" on page 963 "CAPACTY" on page 363"SVCPROC" on page 963 on page 963 on page 963 on page 963
A7*xx*4716	User intervention required The Capacity on Demand activation code recovery period has been started. Either obtain more capacity or allocate fewer resources.	"SVCDOCS" on page 963
A7*xx*4730	Platform LIC detected an error This SRC is always of the form A700*xxxx*. A problem occurred when configuring the logical partitions on the system. More resources were allocated than there are available for use. Either obtain more capacity or allocate fewer resources.	"SVCDOCS" on page 963"LPARCFG" on page 432 on page 432 on page 432 on page 432
A7*xx*4731	Platform LIC detected an error This SRC is always of the form A700*xxxx*. A problem occurred initializing, reading, or using system VPD. No service action is required.	"CAPACTY" on page 363
A7*xx*4733	Platform LIC failure This SRC is always of the form A700*xxxx*. A problem occurred initializing, reading, or using system VPD. No service action is required.	"LICCODE" on page 429

Table 491. (A7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
A7*xx*4740	Platform LIC detected an error An incorrect activation code has been detected. Resources associated with this activation code have been disabled. Enter a valid activation code.	"SVCDOCS" on page 963
A7*xx*4741	Platform LIC detected an error The number of allowable attempts to enter a valid activation code has been exceeded. A system IPL is required in order to retry entering a valid activation code.	"SVCDOCS" on page 963
A7*xx*4742	Platform LIC detected an error A communications problem with the service processor occurred. No Capacity on Demand changes can be made. Look for errors with SRCs of the form A1*xxxxxx* or A7*xx*69*xx* in the Serviceable Event View. Work those errors first. If that does not correct the problem, contact your next level of support.	"SVCDOCS" on page 963
A7*xx*4747	User intervention required One hour remains until the On/Off Capacity on Demand request expires. All temporary resources should be removed from partitions before the request expires.	"SVCDOCS" on page 963
A7*xx*4748	User intervention required One hour remains until the Reserve Capacity on Demand request expires. In order to reactivate temporary resources, a new Reserve Capacity on Demand enablement code is required.	"SVCDOCS" on page 963
A7*xx*4749	User intervention required One hour remains until the Trial Customer on Demand activation expires. All temporary resources should be removed from partitions before the request expires.	"SVCDOCS" on page 963
A7*xx*4750	A Capacity on Demand change has been detected A Reserve Capacity on Demand resource has been activated.	"SVCDOCS" on page 963
A7*xx*4780 to A7*xx*4783	System log entry only, no service action required The data obtained from the system is not what was expected. The IPL will continue. Should other errors occur, call your next level of support.	"SVCDOCS" on page 963
A7*xx*47FF	System log entry only, no service action required The Capacity on Demand History Log has been written to the error log. No service action is required.	"SVCDOCS" on page 963
A7*xx*5120	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. If the system is not exhibiting problematic behavior, this error can safely be ignored. Otherwise, contact your next level of support.	"NEXTLVL" on page 899
A7*xx*5122	Platform LIC detected an error	"LICCODE" on page 429

Table 491. (A7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
A7*xx*5190	Operating System error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The platform detected a problem in an Operating System. Check for errors in the partition ID specified in word 4 of the SRC. If correcting those errors does not correct the problem, or if you find no errors, contact your next level of support.	"SVCDOCS" on page 963
A7*xx*5300	Platform LIC detected a failure while partitioning resources Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. Platform partitioning code encountered an error. This SRC represents a large number of possible problems, most of which involve the platform Licensed Internal Code (LIC). Work any error logs found in the Serviceable Event View. If this fails to correct the problem, or if there are no other errors, contact your next level of support.	
A7*xx*5400	A resource has been disabled due to hardware problems Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The platform detected a problem with a processor. The processor is not functional. Look in the Serviceable Event View for a A1*xxxxxx* error that implicates a processor. If the Serviceable Event View contains no A1*xxxxxx* error, or if resolving the error fails to correct the problem, contact your next level of support.	"SVCDOCS" on page 963
A7*xx*5600 to A7*xx*5601	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. There was a problem initializing, reading, or using system VPD.	"NEXTLVL" on page 899
A7*xx*6900	PCI host bridge failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. If the Serviceable Event View is not available then use the failing item list presented here for servicing this reference code.	"SIIOADP" on page 958 "PRI_PCI" on page 913 "MA_BRDG" on page 435 "MABIP50" on page 437"PIOCARD" on page 912 on page 912 on page 912 on page 912
A7*xx*6906	System bus error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"SIIOADP" on page 958

Table 491. (A7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
A7*xx*6907	System bus error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"SIIOADP" on page 958"LICCODE" on page 429 on page 429 on page 429 on page 429 on page 429 on page 429
A7*xx*6908	System bus error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"PRI_PCI" on page 913
A7*xx*6909	System bus error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"PRI_PCI" on page 913"LICCODE" on page 429 on page 429 on page 429 on page 429
A7*xx*6970	PCI host bridge failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"SIIOADP" on page 958 "PRI_PCI" on page 913 "MA_BRDG" on page 435 "MABIP50" on page 437"PIOCARD" on page 912 on page 912 on page 912 on page 912
A7*xx*6971	PCI secondary bus failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"MABIP50" on page 437 "MA_BRDG" on page 435 "MASBUS" on page 894"PIOCARD" on page 912 on page 912 on page 912 on page 912
A7*xx*6972	System bus error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"MA_BRDG" on page 435"PRI_PCI" on page 913 on page 913 on page 913 on page 913

Table 491. (A7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
A7*xx*6973	System bus error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. If the first half of word 7 is not 0001, remove SVCPROC (the service processor) from the list of possible FRUs.	"PIOCARD" on page 912 "MA_BRDG" on page 435 "SVCPROC" on page 963 "PRI_PCI" on page 913"MASBUS" on page 894 on page 894 on page 894 on page 894 on page 894 on page 894
A7*xx*6974	Multi-adapter bridge configuration change or error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"MABRCFG" on page 438"PIOCARD" on page 912 on page 912 on page 912 on page 912
A7*xx*6980	Network Interface Controller (NIC) resource failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. **Note:** A fiber optic cleaning kit might be required for optical HSL connections.	"SICNTRL" on page 958"OPT_CLN" on page 903 on page 903 on page 903 on page 903
A7*xx*6981	High Speed Link (HSL) I/O bridge failure If you find a A1*xxxxxx* SRC logged on the same tower as one of the FRUs here, and then close this problem and work the A1*xxxxxx* SRC. Use the unit value of the location codes to determine if the tower is the same. Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"SIIOADP" on page 958
A7*xx*6982	High Speed Link (HSL) connection failure Perform the "RIOIP11" on page 950 procedure. Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. **Note:** A fiber optic cleaning kit might be required for optical HSL connections.	"SVCDOCS" on page 963 "HSL_LNK" on page 414 "OPT_CLN" on page 903 "FRPORT" on page 378"TOPORT" on page 966 on page 966 on page 966 on page 966

Table 491. (A7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
A7*xx*6983	An invalid High Speed Link (HSL) configuration was detected Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The four rightmost characters of word 4 in the reference code represent the Program Return Code (PRC), which describes the problem detected. The four leftmost digits of word 7 represent the loop number in hexadecimal format. Convert the loop number to decimal format before comparing it to loop numbers shown in serviceable event views and service tools. To determine the problem, find the PRC in the list below. **Note:** The FRU description in the serviceable event view might already contain a message that identifies the problem. • *xxxx*0008 indicates the system serial number is not set. Set the serial number on the system unit. If the problem persists contact your next level of support. • *xxxx*3201 indicates there are clustered systems on multiple HSL/RIO loops. You will need to ensure all clustered systems are on the same HSL/RIO loop. • *xxxx*3217 indicates there is a model 5791, 5792, or 5794 IO drawer on a loop with clustered systems. This is not a supported configuration. **This ends the procedure.**	"SIRGCFG" on page 958
A7*xx*6984	System log entry only, no service action required An HSL loop has switched to its alternate path. This is an informational SRC only. Word 7 of the SRC contains the loop number in the leftmost 4 digits. The loop number is in hexadecimal format. You must convert the hexadecimal loop number into decimal format to recognize the loop number. This SRC can be caused by a tower on the HSL loop powering off. This SRC might also appear in a Serviceable Event View you are using, with a A7006982 or A7006981 logged at approximately the same time. In that case the other SRC is reporting a failure and this SRC is reporting that the alternate RIO path is now being used. Service the other SRC if present.	"SVCDOCS" on page 963
A7*xx*6985	High Speed Link (HSL) loop status message This is a serviceable event only if this error is in a serviceable event view such as the Service Focal Point on HMC, the SAL on i5/OS, the Diagnostic Results Log on AIX or Linux, or the ASMI Error Log. If this is a serviceable event then perform "RIOIP12" on page 951. Otherwise if this is NOT a serviceable event then to determine what this SRC means use symbolic FRU "SIRSTAT" on page 959. Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. **Note:** A fiber optic cleaning kit might be required for optical HSL connections.	"SVCDOCS" on page 963 "HSL_LNK" on page 414 "OPT_CLN" on page 903 "FRPORT" on page 378"TOPORT" on page 966 on page 966 on page 966 on page 966
A7*xx*6986	System bus error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. If the Serviceable Event View is not available then use the failing item list presented here for servicing this reference code.	"TWRCARD" on page 967"PWRCBL" on page 927 on page 927 on page 927 on page 927

Table 491. (A7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
A7*xx*6987	High Speed Link (HSL) connection failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. If the Serviceable Event View is not available then use the failing item list presented here for servicing this reference code.	"HSL_LNK" on page 414"OPT_CLN" on page 903 on page 903 on page 903 on page 903 on page 903 on page 903
A7*xx*6990	Service processor failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. If the Serviceable Event View is not available then use the failing item list presented here for servicing this reference code.	"SVCPROC" on page 963
A7*xx*6991 to A7*xx*6992	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"LICCODE" on page 429
A7*xx*6993	Service processor failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. If the Serviceable Event View is not available then use the failing item list presented here for servicing this reference code.	"SVCPROC" on page 963"LICCODE" on page 429 on page 429 on page 429
A7*xx*6994	Service processor failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. If the Serviceable Event View is not available then use the failing item list presented here for servicing this reference code.	"SVCPROC" on page 963
A7*xx*69E1	Host Channel Adapter The Infiniband Host Channel Adapter has failed	"SVCDOCS" on page 963
A7*xx*69E2	Platform LIC failure A Platform Licensed Internal Code error occurred related to Infiniband. The system will continue to run with this Host Channel Adapter disabled. Perform a platform dump prior to IPLing the system. An IPL is required to recover the Host Channel Adapter.	"LICCODE" on page 429
A7*xx*69E3	System log entry only, no service action required Part of the HCA chip failed but was not terminating. When thresholded, these errors will result in a A70069E1.	
A7*xx*69E4	An invalid High Speed Link (HSL) configuration was detected An error was detected in the Infiniband fabric. Have the customer check for problems reported at the Infiniband Network Manager. This includes cases such as path migration, etc.	"SVCDOCS" on page 963
A7*xx*69E5	System log entry only, no service action required An Infiniband communications error occurred. Unrecognized command from Subnet Manager. Does not require service.	

Table 491. (A7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
A7*xx*69E6	System log entry only, no service action required The cable connection to the Infiniband switch is broken. Verify that the cable is connected and the switch is powered on. After repairing the problem, verify that the connection has been restored by using the Infiniband Network Manager. Does not require service.	
A7*xx*69E7	System log entry only, no service action required The cable connection to the Infiniband switch has been restored. No service action required.	
A7*xx*69E9	System log entry only, no service action required Initial communication has occurred with the Subnet Manager. No service action required. The CEC and switch firmware are now communicating.	
A7*xx*69EA	System log entry only, no service action required Reported when the logical switch receives a setPortInfo for the switch management port that sets a new SM LID. This indicates the point where DMA can report changes in switch port states to SM via a TRAP and also that SM has received and accepted out responses to the initial gets. This proves that there is 2-way communication. Note that this will also tell us when a subnet merge has occurred and a new SM has issued a setPortInfo with an SMLID that differs from the previous one. No service action required.	
A7*xx*69EB	User intervention required An Infiniband configuration error was detected by the HCA. Verify that the Infiniband configuration is correct at the HCA. The Port 1 and 2 configurations conflict.	"SVCDOCS" on page 963
A7*xx*C2AC	System log entry only, no service action required The Capacity on Demand License acceptance has completed. No corrective action is required.	"SVCDOCS" on page 963
A7*xx*F103	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The platform LIC detected an internal problem. Collect all the SRC words and the platform system dump, and then contact your next level of support.	"LICCODE" on page 429
A7*xx*F104	Operating System error Platform LIC terminated a partition. Platform LIC terminated a partition with an unresponsive Operating System. Collect all the SRC words and the platform system dump, and then contact your next level of support.	"NEXTLVL" on page 899
A7*xx*F105	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The platform LIC detected an internal problem. Collect all the SRC words and the platform system dump, and then contact your next level of support.	"NEXTLVL" on page 899

(AA*xxxxxx*) Partition firmware reference (attention) codes

For use by service providers.

Partition firmware posts AA*xxxxxx* system reference codes (SRCs), which offer information about the next target state for the platform firmware. These codes might also indicate that you need to perform an action, such as opening a firmware console or checking serial connections.

The AA*xxxxxx* table uses the following format:

- The first column, SRC, contains numbers that identify a particular action your server performs during initialization of firmware.
- The second column, Description/Action, offers a brief description about this SRC. It may also contain instructions for continuing the problem analysis.
- The third column, Failing item, offers a link to instructions service actions for recovering from a hang on an attention code.

Note: Click the failing item code only when you experience a hang condition on an attention code. For example, a hang condition occurs when your server performs a requested action but the SRC in the control panel display does not change for several minutes and the partition firmware appears to be hung.

Table 492. (AAxxxxxx) Partition firmware reference (attention) codes

SRC	Description/Action	Failing item
AA00E158	Waiting for an SMS terminal to be created on the HMC. Open a virtual terminal window on the HMC.	
AA00E159	Waiting for the serial connection to the service processor to be established. Check the serial connection to the service processor. Correct all problems that are found.	
AA00E175	The I/O configuration exceeds the recommended size. Some operating systems might crash when using this configuration. Increase the logical memory block size to 256 megabytes (MB) and reboot the managed system. **Note:** If the logical memory block size is already 256 MB, contact your next level of support.	
AA00E1A8	The system is booting to the open firmware prompt.	"PFW1548" on page 909
AA00E1A9	The system is booting to the System Management Services (SMS) menus. **Note:** If the system or partition returns to the SMS menus (as indicated by this progress code) after a boot attempt failed, use the ASMI menus to inspect the progress code history: • Look for a BAxx xxxx reference (error) code, which might indicate why the boot attempt failed. When you find a BAxx xxxx error code, see "(BA*xxxxxx*) Partition firmware reference (attention) codes" on page 2028 to find the code, and then follow the actions indicated to resolve the boot problem. • If you do not find a BAxx xxxx error code, see "MAP4040 Isolating LPAR operating system boot problems" on page 654 (for AIXand Linux) to resolve the boot problem.	"PFW1548" on page 909
AA00E1B0	Waiting for the user to select the language and keyboard. Select the language and keyboard.	"PFW1548" on page 909

Table 492. (AAxxxxxx) Partition firmware reference (attention) codes (continued)

SRC	Description/Action	Failing item
AA00E1B1	Waiting for the user to accept or decline the license agreement. Accept or decline the license agreement.	"PFW1548" on page 909
AA00E1F3	Admin access password prompt. On the firmware console, enter the password for the admin user of the service processor.	"FWPWD" on page 403
AA060007	A keyboard was not found. Ensure that a keyboard is attached to the USB port assigned to the partition.	
AA06000B	The system or partition was not able to find an operating system on any of the devices in the boot list. Modify the boot list using the SMS menus, so that it includes devices that are know to have a good copy of the operating system, and retry the boot. If you are still unable to boot an operating system, go to "MAP4040 Isolating LPAR operating system boot problems" on page 654.	
AA06000C	The media in a device in the boot list was not bootable. Replace the media in the device with known-good media, of modify the boot list to boot from another bootable device. If you are still unable to boot an operating system, go to "MAP4040 Isolating LPAR operating system boot problems" on page 654.	
AA06000D	The media in the device in the boot list was not found under the I/O adapter specified by the boot list. Verify that the medium (CD-ROM, for example) from which you are trying to boot is bootable, or try another medium. If you are still unable to boot an operating system or diagnostic CD-ROM, go to "MAP4040 Isolating LPAR operating system boot problems" on page 654.	
AA06000E	The adapter specified in the boot list is not present or is not functioning. If AIX is being booted and can be booted from another device, do so, and then run online AIX diagnostics against the failing adapter. If AIX cannot be booted from another device, boot standalone AIX diagnostics from CD-ROM or a NIM server and run diagnostics against the device. If Linux is being booted, boot standalone AIX diagnostics from CD-ROM or a NIM server and run diagnostics against the device.	
AA060010	The FAT file system on the boot disk is configured in a way that might cause a boot failure. Increase the FAT partition size by 10% to keep the number of data clusters to fewer than approximately 4080.	

Table 492. (AAxxxxxx) Partition firmware reference (attention) codes (continued)

SRC	Description/Action	Failing item
AA060011	The firmware did not find an operating system image and it was unable to detect at least one hard disk in the boot list. Firmware is now retrying the entries in the boot list. This error might occur before the initialization of an enclosure that contains the boot disk completes or when the boot disk belongs to another partition. If this problem persists, do the following: 1. Verify that the boot disk belongs to the partition that is being booted. 2. Verify that the boot list in the SMS menus is correct.	
AA130013	Bootable media is missing from a USB CD-ROM. Put a bootable CD in the USB CD-ROM and retry the boot operation.	
AA130014	The media in a USB CD-ROM has been changed. 1. Retry the operation. 2. Check for server firmware updates; apply if available, and then retry the operation.	
AA170210	Setenv/$setenv parameter error: the name contains a null character.	"PFW1548" on page 909
AA170211	Setenv/$setenv parameter error: the value contains a null character.	"PFW1548" on page 909
AA190001	The server firmware function to get and set the time-of-day clock reported an error. 1. Use the operating system utility to set the system clock. 2. If the problem persists, check for server firmware updates and apply them, if available.	
AA260001	The system is waiting for someone to enter the machine type, model, and serial number. At the system prompt, type the machine type, model, and serial number of the system.	

(B1*xxxxxx*) Service processor firmware reference codes

A B1*xxxxxx* reference code indicates that an exception occurred in a service processor firmware-detected operation. To resolve any B1*xxxxxx* reference code, determine if the SRC requires a service action or if it is informational in nature (which does not require a service action).

If you already know the nature of your B1*xxxxxx* reference code, use the following links to see the appropriate information:

- For a B1*xxxxxx* SRC that requires a service action, see "(B15172*xx* or B18172*xx*) Service processor early termination reference codes" on page 1999 for further instructions.
- For a B1*xxxxxx* SRC that is informational, see "(B1*xxxxxx*) Service processor firmware reference codes" on page 1902 for a description of the error.

To determine the nature of the SRC, use Table 493 on page 1902.

1. In the first column of the table, find the entry that indicates the location where you found the SRC.
2. In the second column for that entry, follow the instructions about how to determine the nature of the SRC.

Table 493. How to determine the nature of a (B1xxxxxx) reference code

Where you found the SRC	How to determine the nature of the SRC
AIX error log	After you find a B1*xxxxxx* SRC in the AIX error log, look in the AIX diagnostics results log. • If you find the same SRC in the AIX diagnostics results log, it requires a service action. See "(B15172*xx* or B18172*xx*) Service processor early termination reference codes" on page 1999 for instructions. • If you do not find the same SRC in the AIX diagnostics results log, it is informational. See "(B1*xxxxxx*) Service processor firmware reference codes" for a description of the error.
Hardware management console (HMC) SRC history for either a partition or the server	After you find a B1*xxxxxx* SRC in the HMC history for either a partition or the server, look in the service focal point. • If you find the same SRC in the service focal point, it requires a service action. See "(B15172*xx* or B18172*xx*) Service processor early termination reference codes" on page 1999 for instructions. • If you do not find the same SRC in the service focal point, it is informational. See "(B1*xxxxxx*) Service processor firmware reference codes" for a description of the error.
Advanced system management interface (ASMI)	Use the ASMI functions to display detailed information about the nature of the SRC. • If the SRC requires a service action, see "(B15172*xx* or B18172*xx*) Service processor early termination reference codes" on page 1999 for instructions. • If the SRC is informational, see "(B1*xxxxxx*) Service processor firmware reference codes" for a description of the error. **Note:** For more information, see "MAP6F00 Accessing the ASMI" on page 851.

(B1*xxxxxx*) Service processor firmware reference codes

A B1*xxxxxx* reference code indicates that an exception occurred in a service processor firmware-detected operation.

If you wish to determine if the SRC requires a service action or if it is for tracking purposes only, see "(B1*xxxxxx*) Service processor firmware reference codes" on page 1901 for instructions.

Note: See "(B1*xxxxxx*) Service processor firmware reference codes" for a list of B1xx SRCs and descriptions.

B1xxyyyy where:

xx= Indicates the subsystem where the event or error occurred. See Table 494 on page 1903.

yyyy= The reason for the event or error (reason code). See Table 496 on page 1991.

A B1xx reference code indicates that an event or exception occurred in a service processor firmware-detected operation. The following tables describe the B1xx SRCs.

- Table 494 lists ranges of B1xx Service processor subsystem IDs and gives a general description of the associated event or error.
- Table 495 on page 1904 lists B1xx SRCs and descriptions.
- Table 496 on page 1991 lists ranges of B1xx SRCs in the format B1xx yyyy, where yyyy refers to a series of characters (called the reason code). This table includes the reason code and a more detailed description of the exception in the firmware or in a firmware operation.

Table 494. (B1xx) Service processor subsystem IDs

Subsystem ID	Description
10	Processor subsystem event or error reported by the service processor.
11	Processor FRU event or error reported by the service processor.
12	Processor chip (including internal cache) event or error reported by the service processor.
13	Processor unit (CPU) event or error reported by the service processor.
14	Processor/system bus controller and interface event or error reported by the service processor.
20	Memory subsystem event or error reported by the service processor.
21	Memory controller event or error reported by the service processor.
22	Memory bus interface event or error reported by the service processor.
23	Memory DIMM event or error reported by the service processor.
24	Memory card/FRU event or error reported by the service processor.
25	External cache event or error reported by the service processor.
30	I/O subsystem event or error reported by the service processor.
31	I/O hub (Remote I/O) event or error reported by the service processor.
32	I/O bridge event or error reported by the service processor.
33	I/O bus interface event or error reported by the service processor.
34	I/O processor event or error reported by the service processor.
35	SMA hub event or error reported by the service processor.
36	Remote I/O loop and associated I/O hub event or error reported by the service processor.
37	Remote I/O loop and associated I/O bridge event or error reported by the service processor.
38	Processor Host Bridge (PHB) event or error reported by the service processor.
39	EADS/EADS-X global event or error reported by the service processor.
3A	EADS/EADS-X slot event or error reported by the service processor.
40	I/O adapter event or error reported by the service processor.
46	I/O device event or error reported by the service processor.
50	System unit hardware event or error reported by the service processor.
51	Service processor event or error reported by the service processor.
55	VPD device and interface event or error reported by the service processor.
56	I2C device and interface event or error reported by the service processor.
57	JTAG device and interface event or error reported by the service processor.
58	Clock and control event or error reported by the service processor.
59	Control panel event or error reported by the service processor.
5A	Time-of-day hardware (including the battery) event or error reported by the service processor.

Table 494. (B1xx) Service processor subsystem IDs (continued)

Subsystem ID	Description
5B	Storage/memory device on service processor event or error reported by the service processor.
60	Power/cooling subsystem and control event or error reported by the service processor.
61	Power supply event or error reported by the service processor.
62	Power control hardware event or error reported by the service processor.
63	Fan or other air moving device event or error reported by the service processor.
70	Other event or error reported by the service processor.
71	HMC subsystem and hardware event or error reported by the service processor.
72	Test tool event or error reported by the service processor.
73	Removal media event or error reported by the service processor.
74	Multiple subsystems event or error reported by the service processor.
75	Unknown, invalid event or error reported by the service processor.
76	Informational event reported by the service processor.
7B	Connection monitoring error: service processor lost communication with the server firmware.
7C	Connection monitoring error: service processor lost communication with the HMC.
7D	Connection monitoring error: HMC lost communication with a logical partition.
80	Platform firmware event or error reported by the service processor.
81	Service processor firmware event or error reported by the service processor.
82	Server firmware event or error reported by the service processor.
85	SPCN firmware event or error reported by the service processor.
86	Bulk power firmware event or error reported by the service processor.
87	HMC code or firmware event or error reported by the service processor.
90	Software event or error reported by the service processor.
A0	External environment event or error reported by the service processor
A1	Input power source (AC) event or error reported by the service processor.
A2	Room (ambient) temperature event or error reported by the service processor.
A3	User error reported by the service processor.

Table 495. (B1xx) SRC Descriptions

Reference Code	Description	Action
B103F684	Xscoms are not supported	See Note.
B104FAA9	Failed trying to get pointer to functional unit group for type	See Note.
B110E500	Bad hardware	See Note.
B110F138	Scom attention detected on the current chip	See Note.
B110F139	Master Attention Alone detected	See Note.
B110F141	Indicates a potential problem with clock card	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B110F7B0	The interposer plug count for the MCM in the callout has exceeded the limit	See Note.
B110F7B1	The interposer plug count for the MCM in the callout has exceeded the limit	See Note.
B110F7B2	The interposer plug count for the MCM in the callout has exceeded the limit	See Note.
B110F7B3	The interposer plug count for the MCM in the callout has exceeded the limit	See Note.
B110F7B4	The interposer plug count for the MCM in the callout has exceeded the limit	See Note.
B110F7B5	The interposer plug count for the MCM in the callout has exceeded the limit	See Note.
B110F7B6	The interposer plug count for the MCM in the callout has exceeded the limit	See Note.
B110F7B7	The interposer plug count for the MCM in the callout has exceeded the limit	See Note.
B111E500	Bad hardware	See Note.
B111F64B	Fabric latency calculation packet not received on processor	See Note.
B111F658	Invalid fabric rotation length	See Note.
B111F665	Processor's POR State Machine not at idle after free running logic reset	See Note.
B112E500	Bad hardware	See Note.
B112F64E	PLL Health check failed on Trimaran	See Note.
B112F65B	Invalid L2 Slice Configuration	See Note.
B112F66E	Handling CE detected by the fabric firs and the L3 firs	See Note.
B112F66F	Handle errors detected by L3 firs and the ebist engine	See Note.
B112F670	Handle CE detected by L3 firs	See Note.
B113E500	Bad hardware	See Note.
B114E500	Bad hardware	See Note.
B114F2DF	Fatal IAP Error	See Note.
B114F663	Fabric initialization failed on processor	See Note.
B114F66C	Clock period from Fabric out of calculated range	See Note.
B114F66D	Operation attempted on nonfunctional Functional unit	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B114F66E	Handling CE detected by the Fabric firs and the L3 firs	See Note.
B114F6A1	Processor chip didn't have all zeros in the ring scanned	See Note.
B114F6A2	Processor chip didn't have all ones in the ring scanned	See Note.
B114F6C1	Actual Processor chip lbist signature didn't match the expected values	See Note.
B114F6D0	Processor chip abist timeout	See Note.
B114F6D1	Processor chip abist fail	See Note.
B114F6D2	Processor chip missing fusemap data in VPD	See Note.
B114F6D3	No repairs found for pending array repair	See Note.
B114F7A4	Processor gets clock errors with each clock input	See Note.
B114FB53	Wiretest has detected an EST error	See Note.
B120E500	Bad hardware	See Note.
B120F228	A memory block trying to be referenced is out of range	See Note.
B120F667	Fir bit UE (uncorrectable error) during maintenance scrub or L3 connections test display	See Note.
B120F685	Single-shot command never completed	See Note.
B121E500	Bad hardware	See Note.
B121F2DF	Undetermined failure on IAP	See Note.
B121F666	Fir bit indicates problem with memory controller	See Note.
B121F66A	Cache line write buffer CEs after a flush if Manufacturing mode set	See Note.
B121F66B	No fir bits on. Maintenance command timed out	See Note.
B121F66E	Handling CE detected by the Fabric firs and the L3 firs	See Note.
B121F684	This level of hardware does not support 8GB DIMMs that require ranks 8-15	See Note.
B121F690	Fir bit indicates MC CE	See Note.
B121F7A5	The memory controller gets clock errors with both clock inputs	See Note.
B123E500	Bad hardware	See Note.
B123F642	The DIMMs in the callout list are part of an incomplete group because of missing DIMMs	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B123F643	The DIMMS in the callout list don't match, so they form an invalid memory group	See Note.
B123F667	Fir bit UE (uncorrectable error) during maintenance scrub or L3 connections test display	See Note.
B123F669	Maintenance CE threshold exceeded during maintenance scrub or L3 connections test display	See Note.
B123F688	The DIMMS in the callout list are on a processor card that only allows quad stacked DIMMs	See Note.
B123F7BB	The system resource(s) in the callout list failed a system configuration test	See Note.
B124E500	Bad hardware	See Note.
B124F622	Failed JTAG function call	See Note.
B124F62A	POR Complete not reached on SMI2. Chip is most likely locked up	See Note.
B124F64E	PLL Lock Failure (PLL is unlocked)	See Note.
B124F65F	SMI didn't exit power down mode after Exit Power Down maintenance command executed	See Note.
B124F66C	Clock period from SMI out of calculated range	See Note.
B124F68D	Fir bit indicates problem with SP code or SMI	See Note.
B124F68E	Fir bit indicates interface problem with DIMMs	See Note.
B124F68F	Fir bit indicates interface CEs with DIMMs	See Note.
B124F690	Fir bit indicates MC CE	See Note.
B124F691	SMI Masked Fir Bit On	See Note.
B124F6C7	SMI2 lbist signature didn't match the expected values	See Note.
B125E500	Bad hardware	See Note.
B125F622	Failed JTAG function call	See Note.
B125F62A	Timed out waiting for Trimaran LBIST to complete	See Note.
B125F66C	Clock period from Trimaran out of calculated range	See Note.
B125F66E	Handling CE detected by the Fabric firs and the L3 firs	See Note.
B125F66F	Handle errors detected by L3 firs and the ebist engine	See Note.
B125F670	Handle CE detected by L3 firs	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B125F671	Trimaran not ready for ebist Command	See Note.
B125F6A7	Trimaran didn't pass setting the ring to all zeros	See Note.
B125F6A8	Trimaran didn't pass setting the ring to all ones	See Note.
B125F6C4	Trimaran lbist signature didn't match the expected values	See Note.
B125FAA1	Ebist engine timed out	See Note.
B125FAA5	L3 Address to be deleted	See Note.
B125FAA7	Error detected by EBIST engine	See Note.
B130E500	Bad hardware	See Note.
B130F2DF	Fatal IAP Error	See Note.
B131F138	Scom attention detected on the current chip	See Note.
B131E500	Bad hardware	See Note.
B131F242	The part found in RID location is not supported in this configuration	See Note.
B131F2DF	Fatal IAP Error	See Note.
B131F64B	Auto TLAR calculation failed. Acknowledge never received	See Note.
B131F64E	PLL Lock Failure (PLL is unlocked)	See Note.
B131F657	Galaxy scom operation did not complete	See Note.
B131F66C	Clock period from chip out of calculated range	See Note.
B131F6A3	Enterprise scanned ring to all 0 test failed	See Note.
B131F6A4	Enterprise scanned ring to all 1 test failed	See Note.
B131F6AF	P5IOC scanned ring to all 0 test failed	See Note.
B131F6B0	P5IOC scanned ring to all 1 test failed	See Note.
B131F6C2	Actual Enterprise chip lbist signature didn't match the expected values	See Note.
B131F6C9	Actual P5IOC chip lbist signature didn't match the expected values	See Note.
B131F6D4	Enterprise failed abist test	See Note.
B131F6DA	P5IOC failed abist test	See Note.
B132E500	Bad hardware	See Note.
B132F6A5	Winnipeg didn't pass the scan test of all zeros	See Note.
B132F6A6	Winnipeg didn't pass the scan test of all ones	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B132F6C3	Actual Winnipeg chip lbist signature didn't match the expected values	See Note.
B132F6D5	Winnipeg didn't pass abist test	See Note.
B132F7A8	Failed to enable host PCI	See Note.
B132F7A9	Failed to verify host PCI	See Note.
B133E500	Bad hardware	See Note.
B135E500	Bad hardware	See Note.
B135F62A	We timed out waiting for the PLLs to lock	See Note.
B135F6C6	CanopusPlus didn't pass setting the ring to all zeros or ones ring	See Note.
B135F6C8	LDC lbist signature didn't match the expected values	See Note.
B135F6D8	CanopusPlus abist test failed	See Note.
B1431583	Failed to get input buffer from SCED	See Note.
B1503517	Failed to determine system type	See Note.
B150355A	Error in determining FSP-A/B position	See Note.
B150355B	Error in determining FSP-A/B position	See Note.
B15035D5	Failed to close I2C ADAL	See Note.
B150D133	Server process failed	See Note.
B150E500	Bad hardware	See Note.
B150E670	Error in determining system type. We cannot determine system type because gpio read gave unsupported values	See Note.
B150E675	Failed to open I2C ADAL	See Note.
B150E676	Failed to transmit data using I2C ADAL	See Note.
B150E678	Failed to obtain control of MUX	See Note.
B150E679	Failed to setup I2C ADAL configuration	See Note.
B150E67A	Failed to obtain control of MUX	See Note.
B150E67B	Failed to close I2C ADAL	See Note.
B150E67C	Failed to receive data from I2C ADAL	See Note.
B150E67D	Failed to transmit data using I2C ADAL	See Note.
B150E67E	Failed to transmit data using I2C ADAL	See Note.
B150E67F	Failed to receive data from I2C ADAL	See Note.
B150E680	Failed to setup GPIO pins	See Note.
B150E681	Failed to read GPIO pins	See Note.
B150E691	Failed to close I2C ADAL	See Note.
B150F12C	Unmatched CRC	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B150F206	There is a card in the system that is missing or has corrupted VPD data	See Note.
B150F207	Detected a card in the system without chips	See Note.
B150F20A	Failed to create daughter card object	See Note.
B150F22A	There was not enough functional nodes found in the system to continue IPLing.	See Note.
B150F2C2	Fabric bus lost synchronization, IPL cannot continue	See Note.
B150F2DE	Elastic Interface Alignment Procedure never completed	See Note.
B150F2DF	Fatal IAP Error	See Note.
B150F2E0	Non-fatal IAP Error/Warning	See Note.
B150F2E7	There is a checkstop present prior to running FOCR Sync	See Note.
B150F239	Detected a missing chip	See Note.
B150F244	It seems that both clock cards, which should be present in the system, are not present in the system	See Note.
B150F620	Invalid bits set	See Note.
B150F627	Error detected while waiting for Trimaran display to complete	See Note.
B150F62A	Timeout while waiting for display to complete	See Note.
B150F66D	Handle errors detected by the Fabric firs and the L3 firs	See Note.
B150F805	Functional Unit procedure error	See Note.
B150F806	Procedure error	See Note.
B150F80e	Error while stopping Core clocks	See Note.
B150F80f	Error while stopping Fabric clocks	See Note.
B150F810	Error while starting Core clocks	See Note.
B150F811	Error while starting Fabric clocks	See Note.
B150F819	Error while reading data in from ring buffer or alias	See Note.
B150F81a	Error while writing ring buffers or alias to hardware	See Note.
B150F81c	Error reading from register	See Note.
B150F81d	Error writing to register	See Note.
B150FAA2	Data Miscompare found in L3 Connections test but no Fir bit on	See Note.
B150FB53	Wiretest has detected an EST error	See Note.
B150FB54	RDT has detected a hardware error	See Note.
B150FB55	Processor group pointer is NULL	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B150FB61	Processor group pointer is NULL	See Note.
B150FB64	Processor group pointer is NULL	See Note.
B150FD00	GARD Actions were performed on all items that were marked to be gard'd by the system that are not resource recoverable	See Note.
B150FD01	GARD Actions were performed on all items that were marked as gard'd manually via the menus or system gard'd items that can be resource recovered	See Note.
B1513598	Garding out FSPA due to communication fail	See Note.
B151E40A	Detected DRAM Recovered Errors	See Note.
B151E40B	Detected NVRAM Recovered Errors	See Note.
B1523592	Sibling FSP is expected but not present	See Note.
B1523599	Garding out FSPB due to communication fail	See Note.
B1551300	First level of basic input parameter validation failed	See Note.
B1551301	Second level of basic input parameter validation failed	See Note.
B1551304	Machine model invalid	See Note.
B1551305	Invalid offset type received in structure	See Note.
B1551306	Number of devices is less than or equal to zero	See Note.
B1551307	Can't open device list file	See Note.
B1551308	Data pointer is NULL	See Note.
B1551310	Failed to read root path from registry	See Note.
B1551311	Failed to read device path from registry	See Note.
B1551312	Read sink path failed	See Note.
B1551313	Read check value failed	See Note.
B1551320	No data returned from ADAL	See Note.
B1551321	Maximum arbitration retries exceeded	See Note.
B1551322	Error from the ADAL trying to set the device Master timeout	See Note.
B1551323	Write to old hub failed	See Note.
B1551324	Failed VPD dataport read	See Note.
B1551325	Failed VPD dataport write	See Note.
B1551326	Pass through to open file	See Note.
B1551330	Failed to release I2C lock	See Note.
B1551331	Failed to unlock I2C hub	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1551332	Error unlocking hub	See Note.
B1551333	Error from ADAL trying to unlock the device behind the hub	See Note.
B1551334	Error unlocking CHUNKY device	See Note.
B1551340	Invalid operation type received in structure	See Note.
B1551341	Invalid number of nodes received in structure	See Note.
B1551342	Busy condition	See Note.
B1551343	Lock on first address of the chunky device failed	See Note.
B1551344	Error locking CHUNKY device	See Note.
B1551345	Error from ADAL trying to set the Master timeout	See Note.
B1551346	Failed to get hub type	See Note.
B1551350	Could not get the bus to start the transaction	See Note.
B1551351	Error trying to close the bus	See Note.
B1551352	Error from the ADAL trying to park the I2C mux	See Note.
B1551353	Error from ADAL trying to set Master timeout value	See Note.
B1551354	Error from ADAL trying to set device timeout value	See Note.
B1551355	Error from ADAL trying to lock the device behind the hub	See Note.
B1551356	Attempt to lock this device failed	See Note.
B1551357	Failed to set I2C lock	See Note.
B1551358	Error trying to set the bus speed in preparation for a retry	See Note.
B1551359	Error trying to read the maximum memory size of the device from the ADAL	See Note.
B155135A	Error trying to read the bus speed to see if it can be lowered for a retry	See Note.
B155135B	Write to set new hub failed	See Note.
B1551360	Write to new hub failed	See Note.
B1551361	Write to set the device failed	See Note.
B1551362	Write to set old hub failed	See Note.
B1551363	Retry at lower bus speed also failed	See Note.
B1551364	Retry after the bus reset still failed	See Note.
B1551365	Retry after bus busy condition still failed	See Note.
B1551366	Retry after loss of arbitration failed	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1551370	Receive from device failed	See Note.
B1551371	Read from device failed	See Note.
B1551372	Failed to receive data from hub	See Note.
B1551373	Failed to receive data	See Note.
B1551380	Error trying to write register to device	See Note.
B1551381	Error trying to do the read	See Note.
B1551390	Error trying to reset bus	See Note.
B1551392	Error while closing an I2C bus or unlocking an I2C device or parking an I2C MUX	See Note.
B1551393	Failed to create network client address	See Note.
B1551394	Failed network connection between client and server	See Note.
B1551395	Communication error while trying to send or receive	See Note.
B1551396	Failed to unflatten server error log	See Note.
B1551397	Failed to close network client	See Note.
B1551398	Invalid input received from the caller	See Note.
B1551399	Error while trying to unflatten the server error log	See Note.
B155139A	Error while trying to unflatten the server error log	See Note.
B155139B	Failed to turn on FRONT light strip	See Note.
B155139C	Failed to turn on BACK light strip	See Note.
B155B006	Failed to update the Module VPD	See Note.
B155B017	Keyword can not be found in the VPD buffer	See Note.
B155B028	We failed trying to read smart chip block	See Note.
B155B02C	There was a failure trying to update one of the smart chip blocks	See Note.
B155B036	We failed trying to get smart chip block size	See Note.
B155B03D	Failed to write to I2C device	See Note.
B155B03E	Error reading from the device	See Note.
B155B03F	Reading thermal sensor data or RIO cable id failed for the given FRU	See Note.
B155B048	ECC check failed on the given FRU	See Note.
B155B04D	Checksum in the VPD data does not match calculated checksum	See Note.
B155B058	The VPD data which describes the wiring path of a FRU is invalid	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B155B05E	No valid copy of System VPD was found on this system	See Note.
B155B060	There was a mismatch in VINI record for primary and redundant root node VPD	See Note.
B155B061	Unable to use either VPD Chip because we could not reach them or they are garded out	See Note.
B155B065	Reading all blocks from smart chip failed	See Note.
B155B06D	Failed to process VPD chip	See Note.
B155B06F	No valid copy of Enclosure VPD was found on this system	See Note.
B155B070	Invalid/Un-Programmed System Serial Number (SE)	See Note.
B155B071	Invalid/Un-Programmed Serial Number in Enclosure	See Note.
B155B072	Invalid/Un-Programmed System Storage Serial Number (SG)	See Note.
B155B073	Invalid/Un-Programmed System Type Model (TM)	See Note.
B155B074	Invalid/Un-Programmed System Storage Type Model (TN)	See Note.
B155B075	Invalid/Un-Programmed System Manufacturing ID (MN)	See Note.
B155B076	Invalid/Un-Programmed System ID (ID)	See Note.
B155B077	Invalid/Un-Programmed System Unique ID (SU)	See Note.
B155B078	Invalid/Un-Programmed World Wide Node Name (NN)	See Note.
B155B079	Invalid/Un-Programmed System Brand (BR)	See Note.
B155B07D	Invalid/Un-Programmed Feature Code in Enclosure	See Note.
B155B083	Pin failure failed after root node mismatch	See Note.
B155B086	A device did not respond to an I2C or smartchip request but using other logic we found in firmware that the FRU is actually present on the system	See Note.
B155B087	We had an error in trying to detect if this FRU was actually present or not on the system	See Note.
B155B08F	We failed trying to configure bits for 9555/9554 controllers	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B155B090	We failed trying to create smart chip block	See Note.
B155B091	Error occurred while locking/unlocking DASD device	See Note.
B155B096	Unsupported bit definition found in the VPD data for record_99	See Note.
B155B0AA	Error reading from the device	See Note.
B157E500	Bad hardware	See Note.
B157F131	Last bits of chip command status are not 0x01	See Note.
B157F20D	The JTAG chain pointer was initialized to NULL and maybe do to an invalid input	See Note.
B157F244	A chip has been found to be missing	See Note.
B158E500	Bad hardware	See Note.
B158F7A3	Clock failure during test	See Note.
B158F7A4	Processor gets clock errors with each clock input	See Note.
B158F7A5	The memory controller gets clock errors with both clock inputs	See Note.
B159A070	Indicates that the Panel is being deactivated	See Note.
B15A5000	There is a hardware problem with the RTC	See Note.
B15A5002	One-time log stating that the FSP time is invalid and needs to be reset	See Note.
B15A5004	The FSP battery needs replacing	See Note.
B1701001	DMA driver has encountered an error	See Note.
B1701002	DMA driver has encountered an error	See Note.
B1701003	DMA driver has encountered an error due to hardware checkstop during a read operation in the IPL mode	See Note.
B1701004	DMA driver has encountered an error due to a target abort in the IPL mode during a read operation	See Note.
B1701005	DMA driver has encountered an unknown error in TCE mode during read operation	See Note.
B1701006	DMA driver has encountered an error due to hardware checkstop during a write operation in the IPL mode	See Note.
B1701007	DMA driver has encountered an error due to a target abort in the IPL mode during a write operation	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1701008	DMA driver has encountered an unknown error in IPL mode during write operation	See Note.
B1701009	DMA driver has encountered an error due to hardware checkstop during a read operation in the TCE mode	See Note.
B170100A	DMA driver has encountered an error due to a target abort in the TCE mode during a read operation	See Note.
B170100D	DMA driver has encountered an error due to a target abort in the TCE mode during a write operation	See Note.
B170100F	DMA driver returned a zero	See Note.
B1701010	User given data length doesn't match with the amount of data being DMA'd	See Note.
B1701012	User given data length doesn't match with the amount of data being DMA'd	See Note.
B1701018	Failed to verify host PCI	See Note.
B1701019	Failed to enable host PCI	See Note.
B1701029	Data which is written via DMA does not match with the data being read from the same address using JTAG	See Note.
B170102A	Data which is written via DMA does not match with the data being read from the same address using DMA	See Note.
B170102B	DMA verification failed while writing random data at the host address	See Note.
B1701040	Error occurred in code	See Note.
B170901F	SPIRA does not have sufficient space for the data structure	See Note.
B1709029	Data read from mainstore is not the same as what was written to mainstore	See Note.
B170E500	Bad hardware	See Note.
B170F668	Maintenance SUE during memory preserving or exit/error state IPL	See Note.
B1748812	A Fatal system attention was received so the Service Routine failed to complete	See Note.
B175E019	Communication with the IPAP failed	See Note.
B175E01A	This entry is to record a successful communication with RETAIN, contains the PMH number and the response from retain regarding the call packet.	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B175E01B	We sent the 20 record to RETAIN, for some reason they did not ask for the first call data packet, we log this error and move on, since we did not send the error data to RETAIN it's not a success.	See Note.
B175E01C	We sent the logon record and did not get a successful response	See Note.
B175E01D	We sent the user record and did not get a successful response the machine may not be entitled	See Note.
B175E500	Bad hardware	See Note.
B1764020	Invalid data was found in the registry entry	See Note.
B1764024	The Hyperboot capability value is being changed from ENABLED to CAPABLE due to the value of Service Processor IPL type.	See Note.
B176501F	Invalid data was found in the rtim registry entry	See Note.
B1765020	The system time was changed	See Note.
B1765023	The Timed Power On was disabled due to invalid system time	See Note.
B1765024	The rtiminit daemon received an invalid command in a socket message	See Note.
B176E500	Bad hardware	See Note.
B176F687	Bit 2 set in Interrupt Register on Winnipeg	See Note.
B176F7BC	The user specified LMB size is not valid for this system's memory size, so the system will use the default LMB size for this configuration	See Note.
B17BE434	PHYP failed to send its heartbeat message within the stipulated time	See Note.
B17CE433	Hardware Management Console failed to send its heartbeat message within the stipulated time	See Note.
B1806003	Unable to complete fork operation	See Note.
B1806006	Failed to allocate memory for object	See Note.
B1806007	Error receiving message	See Note.
B1806009	Invalid state set for State Manager	See Note.
B180600A	Invalid state set for State Manager	See Note.
B180600C	Error in the size of the registry value	See Note.
B180600D	Bad size of registry value	See Note.
B180600E	Could not read the registry	See Note.
B180600F	Failed to write to the registry	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1806010	Invalid current and next state	See Note.
B1806011	Invalid file state	See Note.
B1806013	Invalid state set for State Manager	See Note.
B180601A	Failed to reset the file open	See Note.
B180601C	Failed to decode reset values	See Note.
B180601D	Failed to allocate memory for object	See Note.
B1806021	Failed to write to message in queue	See Note.
B1806022	Failed to read from message in queue	See Note.
B1806023	Failed to look up file from required type	See Note.
B1806025	Failed to reboot	See Note.
B1806026	Failed to open map file	See Note.
B180602B	Failed to read Manufacturing flag for reset/reload	See Note.
B1806030	Invalid character	See Note.
B1806031	Error receiving log from client library	See Note.
B1806033	Failed to synchronize with the State Manager server	See Note.
B1806035	Failed IPL type	See Note.
B1806036	Validation of PCS failed	See Note.
B1806037	Tool reset occurred	See Note.
B180E500	Bad hardware	See Note.
B1811013	Failed to open DMA driver	See Note.
B1811016	Could not retrieve debug configuration information from the DMA driver	See Note.
B1811017	Could not retrieve debug configuration information from the DMA driver	See Note.
B181101A	User asking to do a zero length DMA	See Note.
B181101B	User asking to do a zero length DMA	See Note.
B181101C	Invalid FSP address received from user	See Note.
B181101D	Invalid FSP address received from user	See Note.
B181101E	Bad tag data	See Note.
B181101F	Bad tag data	See Note.
B1811020	Bad tag data	See Note.
B1811021	Cannot DMA when FSP state is between Instruction Start and OLC	See Note.
B1811022	Invalid value for bus controller	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1811026	There has been a power off just before or during the DMA	See Note.
B1811027	Could not open file	See Note.
B1811028	Could not open file	See Note.
B181102C	Client thread that was supposed to collect DMA error data timed out	See Note.
B181102D	Event Manager constructor failed	See Note.
B181102F	Could not query the CHIC reserve identity	See Note.
B1811030	DMA event listener deleted by another DMA thread	See Note.
B1811031	Failed to wait for thread conditional	See Note.
B1811032	Failed to join with thread	See Note.
B1811033	Client thread that was supposed to collect DMA error data encountered some error	See Note.
B1811035	TCE mode shouldn't have been set before PHYP lids are loaded	See Note.
B1811036	No useful DMA error data returned	See Note.
B1811037	No HOM ID for the enterprise chip found was returned	See Note.
B1811038	Maximum number of Service Processor resource identities returned was zero	See Note.
B1811039	Service Processor resource identities is zero	See Note.
B181103A	No identity match for current FSP	See Note.
B181103B	No corresponding DMA path was returned for the current resource identity	See Note.
B181103D	No resource id for the enterprise chip found was returned	See Note.
B181103E	No HOM ID for the node found was returned	See Note.
B181103F	User gave an invalid TCE address. The upper 32 bits of the TCE token is non zero which is not a valid token.	See Note.
B1811040	Failed to get processor state	See Note.
B1811041	Current power state is undefined	See Note.
B1811044	Timeout waiting for CEC debug data	See Note.
B1811045	The MainStore address being written to is within a range which produces unpredictable results	See Note.
B1811101	Bad command given when trying to send on I2C	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1811103	Failed to receive on slave I2C	See Note.
B1811104	Failed to send on I2C	See Note.
B1811109	Panel display line 1 data truncated	See Note.
B1811110	Panel display line 2 data truncated	See Note.
B1811112	Checksum failure	See Note.
B1811114	Failed to open I2C	See Note.
B1811115	Failed to close I2C	See Note.
B1811117	Button press/release sequence violated	See Note.
B1811118	Failed to configure I2C	See Note.
B1811119	Failed to receive on slave I2C	See Note.
B1811401	Invalid parameter passed to function	See Note.
B1811402	Failed to open I2C	See Note.
B1811403	Failed to close I2C	See Note.
B1811404	Failed to transmit on I2C	See Note.
B1811405	Failed to configure I2C	See Note.
B1811406	Message received from RPC was bigger than buffer	See Note.
B1811501	Failed to set reset	See Note.
B1811502	Failed chip select	See Note.
B1811503	Failed to set wrap enable	See Note.
B1811504	Failed to get present device	See Note.
B1811505	Failed to set GPIO lines	See Note.
B1811506	Failed to setup UART hardware to wrap	See Note.
B1811507	Failed to open UART	See Note.
B1811508	Failed to set timeout for UART	See Note.
B1811509	Failed to set automatic transmit for UART	See Note.
B181150a	Failed to set normal transmit for UART	See Note.
B181150b	Failed to set received for UART	See Note.
B181150c	Failed to write UART buffer	See Note.
B181150d	Failed to read UART buffer	See Note.
B181150e	Wrap test data compare failed	See Note.
B181150f	Failed to set functioning device	See Note.
B1811510	Failed to close UART	See Note.
B1811511	Failed to get present device	See Note.
B1811512	Failed to set reset	See Note.
B1811513	Failed to receive input deglitch from SPCN via UART	See Note.
B1811514	Failed to set present device	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1811515	Failed to set device unit representation	See Note.
B1811516	Failed to set GPIO driver type to PUSHPULL	See Note.
B1811517	Failed to set GPIO pin	See Note.
B1811518	Failed to reset pins	See Note.
B1811519	Failed to reset pin polarity	See Note.
B181151a	Failed to set baud rate for UART	See Note.
B181151b	Failed to set parity mode for UART	See Note.
B181151c	Failed to set check mode for UART	See Note.
B181151d	Failed to set stop bit length for UART	See Note.
B181151e	Failed to set end of transmit timeout for UART	See Note.
B181151f	Failed to set end of message timeout for UART	See Note.
B1811520	Failed to select chip pins	See Note.
B1811521	Failed to get chip pins	See Note.
B1811522	Timeout waiting to receive message on UART	See Note.
B1811523	Timeout waiting to receive message on UART	See Note.
B1811524	Failed to write to UART	See Note.
B1811525	Failed to select pins for function	See Note.
B1811526	Failed to select pins for function	See Note.
B1811527	Failed to select pins for function	See Note.
B1811528	Failed to get address line setting	See Note.
B1811529	Failed to get address pins polarity	See Note.
B181152a	Failed to set address GPIO value	See Note.
B181152b	Failed to set address GPIO driver type to PUSHPULL	See Note.
B181152c	Registry Read call returned an error	See Note.
B181152d	Failed to set function line	See Note.
B181152e	Failed to close UART	See Note.
B181152f	Failed to open UART	See Note.
B1811531	A non-present device was accessed	See Note.
B1811532	Failed to prep for read/write	See Note.
B1811533	Failed to get sequence retry count	See Note.
B1811534	Failed to set next send/receive flag	See Note.
B1811535	Failed to get next send/receive flag	See Note.
B1811536	Requested transaction size too large	See Note.
B1811537	Failed to set next send sequence bit	See Note.
B1811538	Failed to set next receive sequence bit	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1811539	Received message from smart chip is invalid	See Note.
B181153a	Failed to set next receive sequence bit	See Note.
B181153b	Failed to set next send sequence bit	See Note.
B181153c	Failed to set next send receive flag	See Note.
B181153d	Failed to set next send sequence bit	See Note.
B181153e	Failed to set next receive sequence bit	See Note.
B181153f	Failed to set next send receive flag	See Note.
B1811541	Failed to set next send sequence bit	See Note.
B1811542	Failed to set next receive sequence bit	See Note.
B1811543	Failed to execute wrap reset test	See Note.
B1811544	Failed to execute transaction	See Note.
B1811545	Failed to reset VPD devices	See Note.
B1811546	Failed reset test	See Note.
B1811547	Failed to zero all device sequence bits	See Note.
B1811548	Failed to set valid configuration flag	See Note.
B1811549	Failed to get next receive sequence bit	See Note.
B181154a	Failed to get next send sequence bit	See Note.
B181154b	Failed to reset devices	See Note.
B181154c	Failed to get valid configuration flag	See Note.
B181154d	Failed reading the configuration id from GPIO	See Note.
B181154e	The configuration id read from the GPIO pins on this system is invalid	See Note.
B181154f	Configuration registry read back test failed	See Note.
B1811550	Failed to get reserve for sced	See Note.
B1811551	Failed to reset	See Note.
B1811552	Failed to release reserve for sced	See Note.
B1811553	Non-zero response code returned	See Note.
B1811554	The number of bytes read doesn't match the bytes requested	See Note.
B1811555	Failed to send command	See Note.
B1811556	No sender id detected in call	See Note.
B1811557	Failed to get mux information from VPD	See Note.
B1811558	Failed any bytes in or out	See Note.
B1811559	Failed zero bytes in or out	See Note.
B181155a	Registry write call returned an error	See Note.
B181155b	Registry Read call returned an error	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181155c	Failed to get file name for GPIO configuration parser	See Note.
B181155d	Failed to open file	See Note.
B181155e	Failed to read number of entries from file	See Note.
B181155f	Failed to read pin information from file	See Note.
B1811560	Invalid pointer	See Note.
B1811561	Received a undefined command type	See Note.
B1811562	Received a undefined command type	See Note.
B1811563	GPIO pin file not loaded yet	See Note.
B1811564	Bad value in pin group	See Note.
B1811565	Registry Read call returned an error	See Note.
B1811566	Failed to set device present flag to false	See Note.
B1811567	GPIO pin file not loaded yet	See Note.
B1811568	Bad value in pin group	See Note.
B181156a	Error from sced internals	See Note.
B181156b	Error from network server address	See Note.
B181156e	Failed message control	See Note.
B181156f	Failed to get message	See Note.
B1811570	Failed to create thread for sced	See Note.
B1811571	Failed to create thread for event handling	See Note.
B1811572	Failed to get path from registry for synchronization	See Note.
B1811573	Failed to bind socket for network server	See Note.
B1811574	Failed to listen on socket for network server	See Note.
B1811575	Failed to synchronize with server for sced	See Note.
B1811576	Invalid pointer returned from synchronization	See Note.
B1811577	Failed to connect to network server	See Note.
B1811578	Failed to receive from network server	See Note.
B1811579	Failed to send message	See Note.
B181157a	Reached maximum number of failures for attempts with network server	See Note.
B181157b	Message Processing Request has an unknown operation	See Note.
B181157c	Failed to get path from registry	See Note.
B181157d	Invalid current packet number	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181157e	Failed to reset type in and zero out	See Note.
B181157f	Failed to zero single device sequence bits	See Note.
B1811580	Failed to reset single device	See Note.
B1811581	Failed to reset single VPD device	See Note.
B1811590	Failed to get reserve for sced	See Note.
B1811591	Maximum number of pin failures has been reached	See Note.
B1811596	Failed to get reserve for sced	See Note.
B1811597	Failed to get reserve for sced	See Note.
B181159A	Parsing of return packet failed	See Note.
B181159D	Received an unexpected signal	See Note.
B1812000	Unexpected signal received	See Note.
B1812001	Failed to open file	See Note.
B1812002	Failed to initialize trace	See Note.
B1812003	No name for thread in trace	See Note.
B1812004	Error reading from registry	See Note.
B1812005	Error setting up iterator for SRCs	See Note.
B1812006	Failed to get SRC from SRC iterator	See Note.
B1812007	Invalid pointer	See Note.
B1812008	Failed to lock the mutex	See Note.
B1812009	Failed to unlock the mutex	See Note.
B181200a	Error from event manager constructor	See Note.
B181200b	Error from event management monitor	See Note.
B181200c	Error from event management signal	See Note.
B1812017	Could not initialize queue mutex	See Note.
B1812018	The condition variables could not be initialized	See Note.
B1812019	The condition variables could not be destroyed	See Note.
B181201a	Could not destroy queue mutex	See Note.
B181201b	A power fault has been detected	See Note.
B181201c	Failed to wait on thread conditional	See Note.
B181201d	Failed to write to registry	See Note.
B181201e	Failed to signal on thread conditional	See Note.
B181201f	Failed to create notify thread	See Note.
B1812020	Failed to cancel the threads	See Note.
B1812021	Failed to set cancel state of thread	See Note.
B1812023	Failed to join to thread created	See Note.
B1812024	Failed to communicate with SPCN	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1812025	Failed to stop communication with SPCN	See Note.
B1812026	Thread is being canceled while in the middle of sending a command to SPCN	See Note.
B1812027	Server has routed an acknowledgment message to the command queue	See Note.
B1812028	The command was rejected by SPCN	See Note.
B1812029	Could not send a message through the interface to SPCN	See Note.
B181202a	Could not read a message from the interface to SPCN	See Note.
B181202b	Failed to create network server object	See Note.
B181202c	Failed to listen to socket for network server	See Note.
B181202d	Failed process synchronization with client	See Note.
B181202e	Failed to close network server	See Note.
B181202f	Failed to connect to network server	See Note.
B1812030	Failed to receive from network server	See Note.
B1812031	Failed to bind to socket for network server	See Note.
B1812032	Incorrect data received	See Note.
B1812033	The delayed response has been aborted and the caller is prohibited from attempting to update the socket value	See Note.
B1812034	Failed to get configuration ID from SPCN	See Note.
B1812035	Failed to set configuration ID	See Note.
B1812036	Failed to deattach thread	See Note.
B1812037	Error getting subfunction ranges for SPCN panel function	See Note.
B1812038	The notification cannot be sent to state manager because the fsp is not in a particular state	See Note.
B1812039	Error from state manager power off notification	See Note.
B181203a	Error from state manager power on notification	See Note.
B181203b	The condition was not satisfied before specified interval	See Note.
B181203c	Failed to wait for thread conditional	See Note.
B181203d	Server queue is full	See Note.
B181203e	Server queue is empty	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181203f	Already started server	See Note.
B1812040	Unrecognized command	See Note.
B1812041	Failed to get path from registry	See Note.
B1812042	Failed direct command to SPCN	See Note.
B1812043	Failed to get maximum number of RIDs from SVPD	See Note.
B1812044	Unexpected SVPD data	See Note.
B1812045	Failed to get RIDs from SVPD	See Note.
B1812046	Failed to figure out which FSP running on	See Note.
B1812047	Timed out waiting for an acknowledgment	See Note.
B1812048	Failed to set UPS status for SPCN	See Note.
B1812049	Error from SPCN when trying to power off I/O	See Note.
B181204A	Error from SPCN command line handler	See Note.
B1812100	Failed to initialize	See Note.
B1812102	Failure creating thread	See Note.
B1812103	Pipe system call failed	See Note.
B1812104	System call failed	See Note.
B1812105	Select system call failed	See Note.
B1812106	Invalid parameter passed to function	See Note.
B1812107	Could not create message queue	See Note.
B1812108	Received invalid command from RPC device	See Note.
B1812109	Invalid function ID from message	See Note.
B181210A	Timeout receive though no timeout was given	See Note.
B181210B	Expected file descriptor not set after select call	See Note.
B181210C	Failed to do an I2C slave address change on a redundant FSP failover	See Note.
B181210D	Could not insert initial events into queue	See Note.
B181210E	Error removing message from queue	See Note.
B181210F	Failed to get power state	See Note.
B1812110	Failed IPL lock function	See Note.
B1812111	Failed to close network server	See Note.
B1812112	Error from Event Manager	See Note.
B1812113	Could not create token queue	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1812114	Could not insert tokens into token queue	See Note.
B1812115	Over total thread threshold	See Note.
B1812201	Failed to open and lock the IPL Lock data file	See Note.
B1812202	Failed to unlock and/or close the IPL Lock data file	See Note.
B1812203	Failed to initialize the header of the IPL Lock data file	See Note.
B1812204	Failed to read from registry	See Note.
B1812205	Failed to position the cursor in the file or read the header from the file	See Note.
B1812206	Failed to position the cursor in the file or write the lock information to the file	See Note.
B1812207	Failed to read lock information	See Note.
B1812208	Failed to write the new lock information to the IPL Lock data file	See Note.
B1812209	Failed to read the header in the IPL Lock data file	See Note.
B181220A	Failed to update new header in IPL Lock data file	See Note.
B181220B	Invalid parameter passed into function	See Note.
B181220C	Invalid power state for IPL requested	See Note.
B181220D	Failed to get current power state of system	See Note.
B181220E	Failed to open and lock the IPL Lock data file	See Note.
B181220F	Failed to close and/or unlock the IPL Lock data file	See Note.
B1812210	No locks exist or the requested lock exceeds the total number of locks that exist	See Note.
B1812211	A lock by the requesting component still exists and is active	See Note.
B1812212	An error occurred trying to find the lock for the component	See Note.
B1812213	Failure to allocate memory for timer thread structure	See Note.
B1812214	Failure to create timer thread for lock	See Note.
B1812215	Failure to remove requested lock	See Note.
B1812216	Component requesting refresh does not have a lock in the IPL Lock data file	See Note.
B1812218	IPL requested is blocked due to an IPL lock	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1812219	Value passed in to set Power IPL in Progress to was out of range	See Note.
B181221A	Emergency IPL was received and locks were bypassed	See Note.
B181221B	IPL was rejected by State Manager or the acknowledge was not accepted	See Note.
B181221C	A Power IPL has already been requested and queued	See Note.
B181221D	Failed to send Power On event to Panel for requested IPL	See Note.
B181221E	Failed to send Power Off event to Panel	See Note.
B181221F	Failed fork system call	See Note.
B1812220	Failed to start IPL Power process due to not being able to replace current executable with IPL Power process	See Note.
B1812221	Invalid argument was passed into the timer thread	See Note.
B1812222	Invalid signal received	See Note.
B1812223	Failure to detach timer thread so memory resources will not be freed upon termination of the timer thread	See Note.
B1812224	A Power IPL is in progress	See Note.
B1812225	Failed to get Power IPL in Progress indicator	See Note.
B1812226	Failed to write to Power IPL in Progress registry variable	See Note.
B1812227	Failed to indicate that a Power IPL will be in progress	See Note.
B1812228	Failed to get current and next state	See Note.
B1812229	Failed to read current FSP Role from registry	See Note.
B181222A	An invalid pointer was passed into the function	See Note.
B181222B	Failed to determine the size of the IPL Lock data file	See Note.
B181222C	An error occurred trying to get current ticks	See Note.
B1812300	Unexpected signal received	See Note.
B1812301	Failed fork operation	See Note.
B1812304	Error while querying for CEC termination	See Note.
B1812305	Synchronization with State Manager failed	See Note.
B1812306	Failed to read maximum size of error	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1812307	Failed to write to registry	See Note.
B1812308	Error creating termination iterator	See Note.
B1812309	Failed to read termination SRC	See Note.
B181230B	Failed to read path from registry	See Note.
B181230C	Error from event monitor	See Note.
B181230D	Server not ready or daemon is not running	See Note.
B181230E	Failed to synchronize with client	See Note.
B181230F	Error returned from IPL lock function	See Note.
B1812311	Error from event manager constructor	See Note.
B1812401	Failed to write WOL Policy to registry	See Note.
B1812402	Failed to read WOL Policy from registry	See Note.
B1812403	Failed to HIGH-LOW-HIGH the Wake on LAN reset line	See Note.
B1812404	Failure to setup Wake on LAN reset line	See Note.
B1812405	Failed to get current power state, so we were not able to activate the Wake on LAN hardware	See Note.
B1812406	Invalid signal received	See Note.
B1812407	Failed to activate Wake on LAN hardware	See Note.
B1812408	Failed to IPL the system via Wake on LAN	See Note.
B1812409	Failed to get Wake on LAN Policy	See Note.
B181240A	The value for the Wake on LAN Policy is out of range for what is acceptable	See Note.
B181240B	Failed fork system call	See Note.
B181240C	An error was returned as we tried to wait for the Wake on LAN interrupt line	See Note.
B181240D	An error occurred processing the Wake on LAN interrupt	See Note.
B181240E	Failed to get root path from the registry.	See Note.
B181240F	A daemon is already up and running	See Note.
B1812410	Failed to create the daemon synchronization file	See Note.
B1812411	Due to the type of machine, the Wake on LAN functionality is not supported	See Note.
B1812412	Failed to read current state data from registry	See Note.
B1812413	Failed to read FSP Role from registry	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1812414	Failed to read machine model type from registry	See Note.
B1812415	Failed to read operational mode from registry	See Note.
B1813001	Someone is already updating code	See Note.
B1813002	Registry read fails	See Note.
B1813003	Registry write fails	See Note.
B1813006	Lid Entry is not found. The specified Lid number is not in the specified Masterlid file	See Note.
B1813007	Invalid Lid number	See Note.
B1813008	Lid is not valid	See Note.
B1813009	Request to update the wrong lid	See Note.
B181300A	Requestor did not start the update	See Note.
B181300C	Type of code update is already set	See Note.
B181300D	Invalid flash side	See Note.
B181300E	In correct flash side	See Note.
B181300F	Header has invalid magic number	See Note.
B1813010	System command fails to remove a file	See Note.
B1813011	File open error	See Note.
B1813012	Lid does not exist	See Note.
B1813013	Someone is currently updating the specified lid	See Note.
B1813014	Request IPL lock or unlock fails	See Note.
B1813015	Lid class is invalid	See Note.
B1813016	Specified buffer is too small for the requesting data	See Note.
B181301F	Updating on the running side is not allowed	See Note.
B1813020	Update good flash side, when other side is invalid	See Note.
B1813022	CRC miscompare	See Note.
B1813025	Invalid data size is detected	See Note.
B1813028	IPL lock refresh fails	See Note.
B1813029	Invalid component id	See Note.
B181302A	Lid is currently being modified by someone	See Note.
B1813030	Invalid code type	See Note.
B1813031	Invalid Marker Lid version	See Note.
B1813034	Invalid operation state	See Note.
B1813035	Offset is exceeding the file size	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1813036	Someone requests code update termination	See Note.
B1813038	Unable to create event	See Note.
B1813039	Unable to create thread to monitor the power lock timeout	See Note.
B181303a	Lid does not belong to FSP	See Note.
B181303b	The power log flag is not set	See Note.
B181303d	Invalid data	See Note.
B181303e	Function call fails	See Note.
B181303f	Reading offset to partition table failed	See Note.
B1813040	Write the partition name to a specific partition table entry failed	See Note.
B1813041	Seek file from the end of file failed	See Note.
B1813042	The status of the MTD device failed	See Note.
B1813043	Invalid Genus size	See Note.
B1813044	Incorrect file for update	See Note.
B1813045	Unable to find keyword that indicate bank id	See Note.
B1813047	The system has redundant FSP	See Note.
B1813048	The specified arguments for major/minor number are out of range	See Note.
B1813049	The filename that is passed in does not start with a '/'	See Note.
B181304a	The status of the MTD device failed	See Note.
B181304f	Invalid operation	See Note.
B1813050	Unknown signal	See Note.
B1813501	Error in call to other component interface	See Note.
B1813503	Error received from sibling FSP	See Note.
B1813509	Error setting network parameters for various Ethernet interfaces	See Note.
B181350B	Error creating network client object	See Note.
B181350C	We detected a sibling but the communication broke down in between	See Note.
B181350D	Error configuring various Ethernet interfaces	See Note.
B181350F	Error in call to other component interface	See Note.
B1813511	Error sending data to sibling	See Note.
B1813515	Error obtaining mux information	See Note.
B1813516	Error in interface call to other component	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1813519	Bad command received from sibling FSP	See Note.
B181351A	Communication to sibling failed	See Note.
B181351B	Error reading FSP State	See Note.
B181351C	Error waiting for an event	See Note.
B181351E	Error getting time of day	See Note.
B181351F	Error setting time of day	See Note.
B1813520	Error indicating that sibling FSP was already garded	See Note.
B1813521	Error creating a event object	See Note.
B1813523	Error creating network client object	See Note.
B1813524	We detected a sibling but the communication broke down in between	See Note.
B1813525	We detected a sibling but the communication broke down in between	See Note.
B1813527	Failed to read from registry	See Note.
B1813528	Failed to read size from registry	See Note.
B1813529	We detected a sibling but the communication broke down in between	See Note.
B181352A	Error reading registry entry size	See Note.
B181352B	Error writing pass phrase to registry entry	See Note.
B181352C	Error reading sibling Ethernet port 0 registry entry	See Note.
B181352D	Error writing to sibling Ethernet port 0 registry entry	See Note.
B181352E	Error reading sibling Ethernet port 1 registry entry.	See Note.
B181352F	Error writing to sibling ethernet port 1 registry entry.	See Note.
B1813531	Error writing MTMS to file	See Note.
B1813532	Error reading registry entry size	See Note.
B1813533	Error reading registry entry	See Note.
B1813534	Error reading/writing from file	See Note.
B1813535	Error reading/writing from file	See Note.
B1813536	Error reading/writing from file	See Note.
B1813537	Error reading/writing from file	See Note.
B1813538	Error reading/writing from file	See Note.
B1813539	Error reading/writing from file	See Note.
B181353A	Error reading/writing from file	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181353B	Error reading/writing from file	See Note.
B181353C	Error in network operation	See Note.
B181353D	Error in network operation	See Note.
B181353E	Error in network operation	See Note.
B181353F	Error in network operation	See Note.
B1813540	Error in network operation	See Note.
B1813541	Error in network operation	See Note.
B1813542	Error in network operation	See Note.
B1813543	Error in network operation	See Note.
B1813544	Error in network operation	See Note.
B1813545	Error in network operation	See Note.
B1813546	Error in network operation	See Note.
B1813547	Error in network operation	See Note.
B181354A	Error in network operation	See Note.
B181354B	Error in call to other component interface	See Note.
B181354C	Error in network operation	See Note.
B181354D	Error in call to other component interface	See Note.
B1813550	Error in network operation	See Note.
B1813551	Error in call to other component interface	See Note.
B1813552	Error in network operation	See Note.
B1813553	Error in call to other component interface	See Note.
B1813554	Error in network operation	See Note.
B1813555	Error in call to other component interface	See Note.
B1813556	Error in network operation	See Note.
B1813557	Error in network operation	See Note.
B1813558	Error in reading FSP Role registry	See Note.
B1813559	Error in call to other component interface	See Note.
B181355C	Error in call to other component interface	See Note.
B181355D	Error in call to other component interface	See Note.
B181355E	Error in call to other component interface	See Note.
B181355F	Error in call to other component interface	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1813560	Error in call to other component interface	See Note.
B1813561	Error in call to other component interface	See Note.
B1813562	Error in network operation	See Note.
B1813563	Error in call to other component interface	See Note.
B1813564	Error in call to other component interface	See Note.
B1813569	Error in network operation	See Note.
B181356A	Error writing MTMS to file	See Note.
B181356F	Error reading/writing from file	See Note.
B1813570	Error reading/writing from file	See Note.
B1813579	Error setting network parameters for various ethernet interface	See Note.
B181357A	Error in interface call to other component	See Note.
B181357B	Error trying to setup initial communication between FSP's	See Note.
B181357C	Error in call to other component interface	See Note.
B181357D	Error in call to other component interface	See Note.
B181357E	Error in interface call to other component	See Note.
B181357F	Error starting Surveillance	See Note.
B1813580	Error in call to other component interface	See Note.
B1813581	Error in network operation	See Note.
B1813582	Error in network operation	See Note.
B1813583	Error in interface call to other component	See Note.
B1813584	Error sending data to sibling	See Note.
B1813585	Error sending data to sibling	See Note.
B1813586	Error sending data to sibling	See Note.
B1813587	Error sending data to sibling	See Note.
B1813588	Error sending data to sibling	See Note.
B1813589	Error sending data to sibling	See Note.
B181358A	Error in call to other component interface	See Note.
B181358B	Error in call to other component interface	See Note.
B181358C	Error in interface call to other component	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181358D	Error while making open call to I2C adal	See Note.
B181358F	Error while making open call to I2C adal	See Note.
B1813591	Error while making open call to I2C adal	See Note.
B1813592	Sibling FSP is expected but not present	See Note.
B1813593	Error in call to other component interface	See Note.
B1813594	Error in call to other component interface	See Note.
B1813595	Discovery abort was requested	See Note.
B1813596	Error in call to other component interface	See Note.
B1813597	Error in putting message in message queue	See Note.
B181359A	Error while making open call to I2C adal	See Note.
B181359B	Error while making open call to I2C adal	See Note.
B181359E	Error setting up passwords	See Note.
B181359F	Error closing client socket	See Note.
B18135A0	Error closing server socket	See Note.
B18135A1	Invalid request to Discovery thread	See Note.
B18135A2	Eth0 IP address on FSP-B was set to default	See Note.
B18135A3	Eth1 IP address on FSP-B was set to default	See Note.
B18135A4	Error while making open call to I2C adal	See Note.
B18135A5	Exceeded maximum number of retries for communication errors between FSP's in various states	See Note.
B18135A6	Error in interface call to other component	See Note.
B18135A7	Error in interface call to other component	See Note.
B18135A8	Error in interface call to other component	See Note.
B18135A9	Both FSPs were reset	See Note.
B18135AA	Both FSPs were reset	See Note.
B18135AB	Both FSPs were reset	See Note.
B18135AC	Error sending data to sibling	See Note.
B18135AD	Error reading registry	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B18135AE	Error exchanging data with sibling	See Note.
B18135AF	Error receiving data from sibling	See Note.
B18135B0	Error writing registry	See Note.
B18135B1	Error receiving data from sibling	See Note.
B18135B2	Error exchanging data to/from sibling	See Note.
B18135B3	Error in data received from sibling	See Note.
B18135B4	Error receiving data from sibling	See Note.
B18135B5	Error in call to other component interface	See Note.
B18135B6	Error in call to other component interface	See Note.
B18135B7	Error in call to other component interface	See Note.
B18135B8	Error receiving data from sibling	See Note.
B18135B9	Error receiving data from sibling	See Note.
B18135BA	Error sending data to sibling	See Note.
B18135BB	Error writing registry	See Note.
B18135BC	Error receiving data from sibling	See Note.
B18135BD	Error sending data to sibling	See Note.
B18135BE	Error receiving data from sibling	See Note.
B18135BF	Error receiving data from sibling	See Note.
B18135C0	Error receiving data from sibling	See Note.
B18135C1	Eth1 IP address on FSP-B was set to default	See Note.
B18135C2	Eth1 IP address on FSP-B was set to default	See Note.
B18135C3	Reset of both FSPs. Possible new role assigned to FSP-A	See Note.
B18135C4	Reset of both FSPs. Possible new role assigned to FSP-A	See Note.
B18135C5	Reset of both FSPs. Possible new role assigned to FSP-A	See Note.
B18135C8	Gard did not return back a status but indicated a failure in the output parameter of their routine	See Note.
B18135C9	Error in call to other component interface	See Note.
B18135CA	Error in call to other component interface	See Note.
B18135CB	Error in call to other component interface	See Note.
B18135CC	Error in call to other component interface	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B18135CD	Error in putting message in message queue	See Note.
B18135CE	Error from network client gateway	See Note.
B18135CF	Error from network client gateway	See Note.
B18135D0	Registry entry indicates that a serial communication error is to be simulated	See Note.
B18135D1	Error reading serial error injection registry	See Note.
B18135D2	Error in putting message in message queue	See Note.
B18135D3	Error in putting message in message queue	See Note.
B18135D4	Error in call to other component interface	See Note.
B18135D7	Error while making open call to I2C adal	See Note.
B18135D8	Error in interface call to other component	See Note.
B18135D9	Error in interface call to other component	See Note.
B18135DA	Error in interface call to other component	See Note.
B18135DB	Error indicating that sibling FSP was already garded	See Note.
B1814000	Invalid command	See Note.
B1814001	Missing argument	See Note.
B1814002	Invalid argument	See Note.
B1814003	Invalid data received for process message operation number	See Note.
B1814004	Wrong number of arguments given to command	See Note.
B1814005	An error occurred reserving the semaphore	See Note.
B1814006	Received unexpected signal	See Note.
B1814006	Receive unexpected signal	See Note.
B1814007	A side switching IPL is not allowed for the given type of CEC IPL	See Note.
B1814008	A side switching IPL is needed, but the code is not valid on that side	See Note.
B1814008	A side switch reboot could not be performed because the code is not valid on the new next side	See Note.
B1814016	Invalid data was received for next system operation mode	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1814016	Invalid data was received for system click to accept state	See Note.
B1814017	Invalid data was received for next platform IPL side	See Note.
B1814018	Invalid data was received for next system IPL mode	See Note.
B1814019	Invalid data was received for next platform IPL speed	See Note.
B181401A	Invalid data was received for next platform IPL speed override	See Note.
B181401B	Invalid data was received for next Hypervisor IPL state	See Note.
B181401C	Invalid data was received for next RPA partition IPL mode	See Note.
B181401D	Invalid data was received for next CEC LMB size	See Note.
B1814021	The daemon could not get the lock	See Note.
B1814022	Failed fork system call	See Note.
B1814023	The daemon rebooted the FSP to Standby because the P2 registry data that controls labeling of Permanent and Temporary Flash images was replaced with P3 registry backup data.	See Note.
B1814025	Called interface not supported in context	See Note.
B1815001	Received unexpected signal	See Note.
B1815005	Invalid data received	See Note.
B1815006	An attempt was made to write to the system clock without proper user authority	See Note.
B1815007	The GPIO ADAL returned an error while reading the battery alert pin	See Note.
B1815008	A registry read error occurred	See Note.
B181501B	An undefined operation was requested	See Note.
B181501C	Error reading using Time of Day ADAL	See Note.
B181501D	Error writing using Time of Day ADAL	See Note.
B181501E	Error writing using Time of Day ADAL	See Note.
B1815021	The daemon could not get the lock	See Note.
B1815022	Failed fork system call	See Note.
B1815025	Failed to create thread	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1815026	The elapsed time since IPL Parameters time data was built was calculated with the RTC and TOD counter. The two results are off by more than 8 seconds.	See Note.
B1815027	The TOD counter was checked after writing, and was off by more than 65536 ticks (0.524 sec).	See Note.
B1815029	Failed to create RMGR synchronization thread	See Note.
B1816009	Invalid state set for State Manager	See Note.
B1816010	Invalid current and next state	See Note.
B181601C	Failed to decode reset values	See Note.
B1817000	Failure to create thread	See Note.
B1817003	Failed network server connection	See Note.
B1817004	Failed to receive message from network	See Note.
B1817005	Failed to close network connection	See Note.
B1817006	Failure to establish communications pipe	See Note.
B1817007	PHYP was not ready to be communicated with	See Note.
B1817008	Failed to write data	See Note.
B1817009	Failure reading data	See Note.
B181700A	Load SRC failed	See Note.
B181700D	Failed to read from or write to registry	See Note.
B1817010	Error reading data from server communications pipe	See Note.
B1817011	Data size mismatch	See Note.
B1817012	Error/Event notification throughout the system has failed for the given platform event log	See Note.
B1817013	Failed to scan for error/event logs	See Note.
B1817015	Error while attempting to change state	See Note.
B1817016	Corrupt input data	See Note.
B1817018	A log was picked up and the unique id assigned to it is zero	See Note.
B1817019	Error received while attempting to turn on virtual platform service indicator	See Note.
B181701A	The section identifier read from the data does not match the section id of the current object	See Note.
B181701B	Invalid section size detected	See Note.
B181701C	Section version mismatch	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181701D	Section count mismatch	See Note.
B181701E	Failed to send or receive on network	See Note.
B181701F	Unhandled signal received	See Note.
B1817020	Invalid input or data	See Note.
B1817021	File system failure	See Note.
B1817022	FSP call home attempt has failed	See Note.
B1817024	Failed to initialize the history log, logging cannot continue if the physical file cannot be initialized	See Note.
B1817025	Request to clear error/event logs has been processed	See Note.
B1817026	Error/Event logging server started	See Note.
B1817028	Error/Event log created from system log message	See Note.
B1817029	Linux system call failed	See Note.
B181702A	Error unloading virtual headers due to lack of file allocation space	See Note.
B181702B	Timeout waiting for sibling FSP command to complete	See Note.
B181703E	Unknown failure	See Note.
B1817102	Failed to setup process error recovery	See Note.
B1817107	Host driver or registry failure	See Note.
B181710B	Event manager failed	See Note.
B181710D	Event detection failed	See Note.
B1817112	Software failure resulted in a signal	See Note.
B1817113	Event loop exited	See Note.
B1817114	Failed to change directory	See Note.
B1817115	Failed to set session identity	See Note.
B1817200	User requested to boot from a side that is marked invalid	"FSPSP02" on page 381
B1817201	FSP had a kernel panic during last boot	"FSPSP02" on page 381
B1817202	Both FSP code banks are marked invalid	"FSPSP02" on page 381
B1817203	Error writing to Persistent Control Store (PCS)	"FSPSP02" on page 381
B1817204	Error reading from PCS	"FSPSP02" on page 381
B1817205	FSP Boot code failed during last boot causing the FSP to reset again	"FSPSP02" on page 381
B1817206	FSP had a Unit check timer reset	"FSPSP02" on page 381
B1817209	FSP had a Watchdog timeout reset	"FSPSP02" on page 381
B181720A	FSP had an internal hardware error	"FSPSP02" on page 381

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1818103	Failed to write to registry	See Note.
B1818106	Invalid bus owner argument	See Note.
B1818107	Invalid number of command line arguments	See Note.
B1818108	No argument value for --r option	See Note.
B1818109	Multiple -c arguments	See Note.
B181810A	-s option specified with –c	See Note.
B181810B	Multiple -s arguments	See Note.
B181810C	-c options specified with –s	See Note.
B181810D	Invalid command line option	See Note.
B181810E	Non-option element(s)	See Note.
B181810F	Null input numeric string	See Note.
B1818110	Empty input numeric string	See Note.
B1818111	Invalid character encountered in conversion	See Note.
B1818114	Failed to stop instructions	See Note.
B1818115	Failed to send signal for event manager	See Note.
B1818116	Failed to get processor state	See Note.
B1818203	Requested index is out of range	See Note.
B1818204	Failed to open given directory	See Note.
B1818211	Could not understand operation requested	See Note.
B1818212	Unexpected result	See Note.
B1818213	Invalid data	See Note.
B1818214	Incorrect input size (too small or too large)	See Note.
B1818215	A generic stream failure has been detected	See Note.
B1818216	Failed to write to file	See Note.
B1818217	The Callout substructure cannot be identified	See Note.
B1818218	Unhandled signal received	See Note.
B1818301	Already in the terminate state	See Note.
B1818302	Already in the power off state	See Note.
B1818303	Currently processing a power off request from SPCN	See Note.
B1818304	Currently processing an FSP terminate request from another component	See Note.
B1818305	Failed state manager termination request	See Note.
B1818307	Failed power transition request	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1818309	Too many client connections	See Note.
B181830B	Thread timed out while waiting for another busy thread to complete	See Note.
B181830D	Client request thread started with invalid pointer	See Note.
B181830E	Another instance of the server is already running	See Note.
B1818310	Timed out waiting for thread conditional	See Note.
B1818312	Failed to receive on network	See Note.
B1818313	Failed to connect to server over network	See Note.
B1818316	Failed to trace SRC on termination trace	See Note.
B1818317	Failed to read the registry	See Note.
B1818318	Could not update the CEC termination state	See Note.
B181831A	No log passed in. Will use default log to terminate system.	See Note.
B181831C	Couldn't retrieve the embedded SRC from error log	See Note.
B181831D	Failed to initialize thread attributes	See Note.
B181831E	Failed to set deattach state for thread	See Note.
B1818320	Failed to bind socket	See Note.
B1818321	Failed to lock the mutex	See Note.
B1818322	Could not cancel all the client request processing threads	See Note.
B1818323	Unknown error	See Note.
B1818328	Could not unflatten log object from the received byte stream	See Note.
B1818329	Log size maximum is less than the client data length	See Note.
B181832A	Zero data length	See Note.
B181832C	Failed to construct event manager	See Note.
B1818330	Failed to bind socket	See Note.
B1818331	Failed to create thread	See Note.
B1818333	Cannot reset CEC termination in the middle of a power fault request	See Note.
B1818336	Unknown FSP role returned	See Note.
B1818337	Already in the terminated state with force failover option	See Note.
B1818338	Currently processing an FSP terminate request with force failover option from another component	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1818341	Failed to flatten log	See Note.
B1818344	Bad length on flattened log	See Note.
B1818345	Server aborted or failed to connect to network	See Note.
B1818346	Server aborted or failed to send or receive on the network	See Note.
B1818347	Server not running	See Note.
B181834A	P0 root path not defined	See Note.
B1818500	Incorrect number of arguments	See Note.
B1818501	The caller wanted to get event related data but the buffer pointer is invalid	See Note.
B1818502	The daemon received a message with an invalid function field	See Note.
B1818503	Error returned from another component	See Note.
B1818504	Failed system call	See Note.
B1818505	Failed fork system call	See Note.
B1818507	Error trying to forward an event to 1 or more subscribers	See Note.
B1818508	The id of a tool request is invalid	See Note.
B1818509	Unexpected signal received	See Note.
B181850E	The user specified a time limit to wait for an event and limit was reached	See Note.
B181850F	Another thread is waiting	See Note.
B1818600	Application has received an unexpected signal	See Note.
B181860D	Application has not setup process error recovery	See Note.
B181860E	Killing process without having process error recovery setup	See Note.
B181860F	Process continues to get killed. Caught in a loop.	See Note.
B1818610	Application has received an unexpected signal	See Note.
B1818700	Error in selecting communicating socket	See Note.
B1818701	Failed to listen to socket for network server	See Note.
B1818702	Failed to bind to socket for network server	See Note.
B1818703	Failed to bind for TCP/IP	See Note.
B1818704	Error in accepting socket	See Note.
B1818705	Error in processing message from serial	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1818706	Error in accepting socket	See Note.
B1818708	Error creating unique key for message queue	See Note.
B1818709	Error in creating message queue	See Note.
B181870A	Error in queueing messages	See Note.
B181870B	Error in receiving message from queue when processing message	See Note.
B181870C	Failed to read registry	See Note.
B181870D	Error in creating inbound thread	See Note.
B181870F	Error in inbound connection	See Note.
B1818711	Error in receiving messages	See Note.
B1818714	Error processing message	See Note.
B1818718	Error in send message in DVS	See Note.
B181871B	Failed to destroy old message queue	See Note.
B181871E	Error in IPC address creation	See Note.
B181871F	Error in closing inbound socket	See Note.
B1818728	Can't remove the previous mount	See Note.
B181872A	Failed in registry read	See Note.
B181872C	Failed in file write	See Note.
B181872E	Can't activate user configuration setup file	See Note.
B1818730	Error in writing system name	See Note.
B1818731	Invalid user	See Note.
B1818736	Failed to set user password	See Note.
B1818737	Failed to validate password	See Note.
B1818738	Error in initial outbound remote thread setup	See Note.
B1818739	Failed to kill thread in outbound	See Note.
B181873A	Failure from remote message object	See Note.
B181873B	Failed to requeue message	See Note.
B181873C	Error in operation should not kill	See Note.
B181873D	Failed to destroy old message queue	See Note.
B181873F	Failed to create thread	See Note.
B1818740	Failed to create thread	See Note.
B1818748	Failed to read from registry	See Note.
B181874C	Serial message is invalid	See Note.
B1818752	Failed to open port for connection	See Note.
B1818753	Failed to configure baud for UART	See Note.
B1818755	Failed to set status field to failure for PHYP	See Note.
B1818756	Failed to verify dynamic password	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1818759	Failed to write password signature	See Note.
B1818760	Failed to write Manufacturing password signature	See Note.
B1818762	Failed to configure parity for UART	See Note.
B1818763	Failed to configure UART to transmit normal	See Note.
B1818764	Failed to auto receive on UART	See Note.
B1818765	Failed to configure UART to transmit automatically	See Note.
B1818767	Error from perc	See Note.
B1818768	Error in getting machine type VPD	See Note.
B1818769	Error in getting machine serial number	See Note.
B181876A	Error in reading machine brand name	See Note.
B181876B	Error initializing network serial server daemon	See Note.
B181876C	Failed to get a file descriptor	See Note.
B181876D	Error from status of file	See Note.
B181876E	Improper error path	See Note.
B181876F	Failed to write Manufacturing password signature	See Note.
B1818770	Illegal socket descriptor selected	See Note.
B1818771	Improper error path	See Note.
B1818772	Failed to get registry key status information	See Note.
B1818773	Failed to get registry key status information	See Note.
B1818776	Failed to configure UART	See Note.
B1818777	Failed to configure UART for loop back	See Note.
B1818778	Failed to configure UART	See Note.
B1818780	Failed to read registry	See Note.
B1818781	Failed to open file	See Note.
B1818782	Failed to get file handle	See Note.
B1818783	Socket creation failed	See Note.
B1818785	Socket bind error	See Note.
B1818786	Failed in socket listen	See Note.
B1818787	Failed in file write	See Note.
B1818788	Invalid client name length	See Note.
B181878A	Failure to get free entry	See Note.
B181878C	Failed in registry read	See Note.
B181878D	Update session entry failure	See Note.
B181878E	Session entry read failed	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181878F	Invalid lookup entry for maximum entry	See Note.
B1818791	Failed to seek file offset	See Note.
B1818792	Session entry not found	See Note.
B1818793	Session entry read failed	See Note.
B1818795	Failed to seek session entry	See Note.
B1818796	Update session write failed	See Note.
B1818797	Invalid process id value	See Note.
B1818799	Invalid constructor area	See Note.
B181879A	Failed in socket creation	See Note.
B181879B	Failed to read path for socket from registry	See Note.
B181879D	Failed to construct network client	See Note.
B181879E	Failed to allocate memory for a message	See Note.
B181879F	Failed to allocate memory for a message	See Note.
B18187A0	Length of the message buffer is incorrect	See Note.
B18187A1	Invalid pointer	See Note.
B18187A2	Invalid pointer	See Note.
B18187A3	Invalid pointer	See Note.
B18187A4	Invalid pointer	See Note.
B18187A5	Failed to get channel string id to server	See Note.
B18187A7	Failed to connect using UNIX	See Note.
B18187A8	Error in network connection using UNIX	See Note.
B18187AB	Failed to receive data from the network client	See Note.
B18187AC	Failed to connect using TCP/IP	See Note.
B18187AD	Failed to connect using UNIX	See Note.
B18187AF	Timed out waiting on connection	See Note.
B18187B0	Failed to get socket options	See Note.
B18187B1	Connection failed	See Note.
B18187B2	Failed to select socket	See Note.
B18187B3	Eth0 connection failure	See Note.
B18187B4	Failed to connect for network client serial connection to CMS	See Note.
B18187B6	Failed to send serial connection message to eth0 gateway	See Note.
B18187B7	Error in sending connection message	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B18187B8	Error in sending connection message to serial connection to CMS	See Note.
B18187B9	Failed to send data	See Note.
B18187BA	Error in opening port number	See Note.
B18187BC	Error writing to port	See Note.
B18187BD	Failed to close UART	See Note.
B18187BE	No object created	See Note.
B18187C0	Failed to receive data	See Note.
B18187C1	Failed to reset UART	See Note.
B18187CA	Failed to close	See Note.
B18187CB	Failed to close serial	See Note.
B18187CC	Error closing eth0 connection	See Note.
B18187CD	Error closing eth1 connection	See Note.
B18187D0	Unexpected signal received	See Note.
B18187D1	Error setting password	See Note.
B18187D6	Failed to send sdata	See Note.
B18187D7	Failed to send sdata	See Note.
B18187D8	Failed to configure UART	See Note.
B18187D9	Failed to configure UART	See Note.
B18187DA	Failed to configure UART	See Note.
B18187DB	Failed to configure UART	See Note.
B18187DC	Failed to configure UART	See Note.
B18187DE	Error receiving on serial interface	See Note.
B18187E5	Failed to read registry for network client	See Note.
B18187E6	Failed to connect for TCP/IP	See Note.
B18187E7	Socket error on select	See Note.
B18187E8	Timed out on select call	See Note.
B18187E9	Connect failed	See Note.
B18187EA	Failed to close	See Note.
B18187EC	Error in write operation	See Note.
B18187ED	Error in select while waiting for data	See Note.
B18187EE	Timeout in select while waiting for data	See Note.
B18187EF	Error in receive operation	See Note.
B18187F0	Bad eyecatcher detected in the data packet	See Note.
B18187F1	Timeout in select while waiting for data	See Note.
B18187F2	Error in select while waiting for data	See Note.
B18187F3	Error in select	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B18187F5	Error in sending connection message to serial connection to CMS	See Note.
B18187F6	Error processing message for gateway	See Note.
B18187F7	Error sending or receiving message	See Note.
B18187FA	Data sent in through constructor is bad	See Note.
B1818801	Invalid Service Routine	See Note.
B1818802	Requested processor core is not functional	See Note.
B1818803	Failed to get selected processor core functionality	See Note.
B1818806	Failed to restore the Attention Area into MainStore	See Note.
B1818807	Failed to restore the SPRs	See Note.
B1818808	Failed to restore the GPRs	See Note.
B1818809	Failed to create shared memory for Attention Area	See Note.
B181880A	Failed to invalidate the I-Cache and Instruction buffers for all processors	See Note.
B181880B	Failed to read path from registry	See Note.
B181880C	Failed to start instructions to run the Service Routine	See Note.
B181880D	Failed to write to Service Routine State in registry to indicate that a Service Routine is running	See Note.
B181880E	Timed out waiting for the Service Routine to finish	See Note.
B181880F	Failed to write to Service Routine State in registry to indicate that a Service Routine is not running	See Note.
B1818810	Failed to attach to shared memory area for Attention Area	See Note.
B1818813	Failed to set bit for SPR register setup	See Note.
B1818814	Failed to read GPRs for thread in User Data 2 of SRC so they could be saved	See Note.
B1818815	Failed to set bits in setup map buffer to indicate what register we wanted to set	See Note.
B1818816	Failed to read SPRs for thread in User Data 4 of SRC so they could be saved	See Note.
B1818817	Failed to read Attention Area from MainStore	See Note.
B1818818	Failed to get CPU Control Area from Host Data Area	See Note.
B1818819	Failed to get Service Routine structure from Host Data Area	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181881A	Failed to initialize Service Routine address buffer	See Note.
B181881B	Failed to write Service Routine address to GPR3 for thread in User Data 2 of SRC	See Note.
B181881C	Failed to read the current SPR values	See Note.
B181881D	Failed to initialize NIA buffer	See Note.
B181881E	Failed to setup SPR to run Service Routine	See Note.
B181881F	Failed to set NIA for Service Routine	See Note.
B1818820	Failed to initialize MSR buffer	See Note.
B1818821	Failed to set MSR for Service Routine	See Note.
B1818822	Failed to set LPCR for Service Routine	See Note.
B1818823	Failed to clear RMI bit in LPCR for Service Routine	See Note.
B1818824	Failed to get LPCR from SPR object	See Note.
B1818825	Invalid attention area pointer was passed into function	See Note.
B1818826	Failed to get shared memory area for Attention Area	See Note.
B1818827	Failed to deattach from shared memory area for Attention Area	See Note.
B1818828	Failed to create file to signify that the system attention has been handled	See Note.
B1818829	Failed to destroy file	See Note.
B181882A	Failed to destroy shared memory for Attention Area	See Note.
B181882B	Failed to get status of thread requested	See Note.
B181882C	No threads are alive on the requested processor core	See Note.
B181882D	Failed to get proper fabric identity so we could read MainStore	See Note.
B181882E	Failed to get Attention Area data from MainStore object	See Note.
B181882F	Timed out waiting for Attention Handler to begin running	See Note.
B1818830	Failed to start Attention Handler	See Note.
B1818831	Failed to unmap memory	See Note.
B1818901	Failed to read from the registry	See Note.
B1818902	The Server file does not exist and we have timed out	See Note.
B1818903	The Server file exists, but is not locked and we have timed out	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1818904	The file failed to open	See Note.
B1818905	The Server file failed to be created and opened	See Note.
B1818906	The Server file that was created/opened failed to lock	See Note.
B1818907	The Server file that was opened is already locked by another Server process	See Note.
B1818908	The Server file failed to be unlinked (destroyed)	See Note.
B181890A	The List file is at the end of file	See Note.
B181890B	The List file failed to read a line due to a reading error	See Note.
B181890C	The List file is in an invalid format	See Note.
B181890D	Failed to read the base path from the List file	See Note.
B181890E	The timeout value read from the List file was too small or too large	See Note.
B181890F	Failed to read the relative path of the file to be checked from the List file	See Note.
B1818910	Failed to read the timeout of the file to be checked from the List file	See Note.
B1818911	Failed to synchronize with a file from List file	See Note.
B1818912	Failed to synchronize with requested file in time allotted	See Note.
B1818913	A line was read from the List file, but it had invalid characters	See Note.
B1818914	The command was passed improper arguments	See Note.
B1818915	We have exceeded the maximum number of files that are allowed to be created and opened using Process Synchronization	See Note.
B1818916	The Server file descriptor could not be found	See Note.
B1818917	Failed to synchronize with requested file in time allotted	See Note.
B1818A01	Registry read or write failure due to an invalid key	See Note.
B1818A02	Registry read or write failure due to a size mismatch	See Note.
B1818A03	Building Block registry write failure	See Note.
B1818A04	Failed to determine the platform extension for the given write key	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1818A05	Redundant write failed for the given key	See Note.
B1818A06	Event signal failure for the given write key	See Note.
B1818A08	Redundant registry write failure due to stream failure	See Note.
B1818A09	Building Block registry failure	See Note.
B1818A0A	Error forming the registry path	See Note.
B1818A0D	Requested system operation failed	See Note.
B1818A0E	File not open	See Note.
B1818A0F	Reached end of file	See Note.
B1818A10	Bad memory receive pointer	See Note.
B1818A11	Stream is at end of file	See Note.
B1818A12	File removal failed in the underlying layer	See Note.
B1818A13	File lock failure with given parameters	See Note.
B1818A15	Semaphore initialization cannot complete due to failure getting semaphore	See Note.
B1818A16	Semaphore initialization cannot complete due to control failure of semaphore	See Note.
B1818A17	Semaphore operation failed	See Note.
B1818A18	Semaphore initialization cannot complete due to failure getting file token	See Note.
B1818A19	Loading of a shared library has failed	See Note.
B1818A1A	Loading of a shared library symbol has failed	See Note.
B1818A1B	Failed to execute the synchronization immediate platform extension during a registry operation	See Note.
B1818A1D	Building Block registry read failure	See Note.
B1818A1E	Error reading platform extension for the given registry key	See Note.
B1819002	Invalid number of arguments were passed	See Note.
B1819003	Incorrect number of arguments	See Note.
B1819004	Failed trying to make a directory	See Note.
B1819008	Failed trying to get status of a file	See Note.
B1819009	Failed attempting to allocate memory	See Note.
B181900A	Failed trying to allocate memory	See Note.
B181900B	Failed trying to allocate memory	See Note.
B181900C	Failed trying to memory map a file	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181900E	Failed trying to memory map a file	See Note.
B181900F	Failed trying to unmap a file	See Note.
B1819010	Failure from memory unmap	See Note.
B1819011	Unexpected signal received	See Note.
B1819014	Size of registry entry is not correct	See Note.
B1819018	LID's file size is too large	See Note.
B181901A	Failed trying to add another entry to an array	See Note.
B181901B	Attempted to add a RAM FRU for an invalid mainstore area	See Note.
B181901C	Failed trying to get status of primary LID's file	See Note.
B181901F	More PHYP LIDs have been added to the build for FSP to load and an array is not large enough to accommodate the new LIDs	See Note.
B1819020	Size of file cannot contain the amount of memory we want to map	See Note.
B1819021	VPD says a required FRU does not exist	See Note.
B1819022	Attempted to allocate memory but it failed	See Note.
B1819023	No resource ids were returned for a required FRU	See Note.
B1819026	VPD collection was not complete and it did not complete in a reasonable time	See Note.
B1819027	An error occurred trying to DMA a LID to mainstore	See Note.
B1819028	The number of I/O paths to the primary FSP is not valid	See Note.
B181904F	Another component had a failure	See Note.
B1819200	I/O control failed trying to set the DTR pin	See Note.
B1819202	HVSI received a response to the version query but did not get any data	See Note.
B1819203	OS protocol version does not match currently supported FSP version	See Note.
B1819206	The open on the requested device failed	See Note.
B1819207	HVSI was asked to open a port that did not exist	See Note.
B1819209	Invalid action requested or invalid data passed	See Note.
B181920A	Request for modem control signal status but the port is not open	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181920B	Error trying to read status register data	See Note.
B181920D	We failed reading data from the serial port	See Note.
B181920E	Write to the serial port failed	See Note.
B181920F	Failed to close	See Note.
B1819211	Stuck trying to write to serial port for more than 2 seconds	See Note.
B1819502	Unable to unlock an HMC queue mutex	See Note.
B1819505	Unable to post semaphore to wake up processing thread	See Note.
B1819506	Couldn't create the thread	See Note.
B1819509	The wrong number of bytes were written on mailbox interface	See Note.
B181950A	No bytes were returned on mailbox read	See Note.
B181950B	Failed to send message to PHYP	See Note.
B181950D	The size of data being sent exceeds the TCE size or the TCE's have never been allocated and written to the registry	See Note.
B181950E	Unable to start timer to block code update on DPO	See Note.
B1819510	Bad status in network response message	See Note.
B1819516	Got a socket message that doesn't belong to this sender	See Note.
B1819517	Unable to receive the error/event log from the daemon	See Note.
B1819518	Failed operating system call	See Note.
B1819519	Bad parameter for function	See Note.
B181951A	IPL handshake failed	See Note.
B181951B	Dump other than platform or FSP is being invalidated	See Note.
B1819520	State manager never made it to desired state in time we waited	See Note.
B1819521	HMC ID is too big	See Note.
B1819522	Daemon is down	See Note.
B1819524	Unable to clear bits in DSISR so PHYP may stop talking to the FSP, if the bits are actually set	See Note.
B1819525	Unable to display SRC for PHYP	See Note.
B1819526	On redundant FSPs, there are times when messages to PHYP are blocked and this is one of those times	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B1819527	On redundant FSPs, there are times when messages from PHYP are blocked and this is one of those times	See Note.
B1819902	Invalid signal received	See Note.
B1819903	An error occurred reading a registry variable	See Note.
B1819904	Failure to write to registry variable	See Note.
B1819905	Unrecognized power off IPL type	See Note.
B1819906	Invalid value read from registry variable	See Note.
B1819907	Invalid value trying to set registry variable to	See Note.
B1819908	An error occurred writing to the registry	See Note.
B1819909	Failure to write to registry for Controlled Power Off	See Note.
B181990A	Failure to write to registry for Loss of AC Power	See Note.
B181A000	Input parameter is incorrect	See Note.
B181A001	Socket connect failure	See Note.
B181A004	Send system call has failed	See Note.
B181A005	Send length not equal to the message length	See Note.
B181A006	Received length not equal to the server message length	See Note.
B181A007	Invalid parameter	See Note.
B181A008	Socket system call failed for server socket	See Note.
B181A009	Bind system call has failed for server socket	See Note.
B181A00A	Listen system call has failed for server socket	See Note.
B181A00B	Failed to accept socket	See Note.
B181A00E	Failed to receive message	See Note.
B181A00E	Failed to receive message	See Note.
B181A00F	Socket connect failure	See Note.
B181A010	Send system call failure	See Note.
B181A012	An error occurred reading the P0 root path from the registry	See Note.
B181A013	Trying to set invalid power state	See Note.
B181A015	Response doesn't match request	See Note.
B181A016	Incorrect mode	See Note.
B181A017	Function requested is disabled	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181A018	Invalid subfunction number	See Note.
B181A019	Function range is disabled	See Note.
B181A01C	Sequence error	See Note.
B181A01D	Timer creation error	See Note.
B181A01E	Resetting timer has failed	See Note.
B181A01F	Resetting scroll lock has failed	See Note.
B181A021	Error in starting process as a daemon	See Note.
B181A024	Failure to start thread	See Note.
B181A025	Type undefined for given function. Probably invalid function number	See Note.
B181A027	Unexpected signal received	See Note.
B181A028	An unsupported event id was received	See Note.
B181A029	Failed to select socket	See Note.
B181A02A	Timed out waiting for select	See Note.
B181A02B	Failed to select socket	See Note.
B181A02C	Timed out waiting for select	See Note.
B181A02E	The client has gone away	See Note.
B181A02F	The server has gone away	See Note.
B181A031	Failure building the display	See Note.
B181A032	Error while attempting to program panel buttons or displaying to Panel	See Note.
B181A033	Failed to read path from registry	See Note.
B181A036	Failed to remove an old message queue	See Note.
B181A038	Event message queue send failed	See Note.
B181A039	Event message queue receive failed	See Note.
B181A03A	Failed to allocate memory for event	See Note.
B181A040	Failed thread conditional broadcast	See Note.
B181A041	Failed to create thread	See Note.
B181A042	Failed to synchronize with server process	See Note.
B181A043	An error occurred while reading a Registry value	See Note.
B181A044	Failed to synchronize with client process	See Note.
B181A049	VPNL returned error while executing the specified function	See Note.
B181A050	Error getting function state	See Note.
B181A051	The caller has elected to NOT wait for VPD collection to complete	See Note.
B181A054	The specified RID does not correspond to a physically present op-panel	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181A055	An op-panel is currently active, and therefore the 'activate' request cannot be performed	See Note.
B181A056	Another concurrent maintenance operation is in progress	See Note.
B181A057	Failure to lock a mutex	See Note.
B181A058	Failure to unlock a mutex	See Note.
B181A059	An op-panel is not currently active, and therefore the 'deactivate' request cannot be performed	See Note.
B181A05A	This event indicates that the panel will not be activated for the system because it is a Redundant FSP, MLx system with the new FSP cables	See Note.
B181A061	Failure to initialize thread attribute variable	See Note.
B181A062	Failure to set thread attribute variable	See Note.
B181A063	Failure to cancel thread	See Note.
B181A064	Failed to get VPD state	See Note.
B181A065	Failed to get the maximum number of RIDs from VPD	See Note.
B181A066	Failed to get RID number from VPD	See Note.
B181A069	More than one op-panel is physically present in the system	See Note.
B181A071	The caller's array is too small to contain all the data	See Note.
B181A072	Experienced a problem while trying to detect old message queue	See Note.
B181A073	Timed out waiting for the thread to exit	See Note.
B181A074	Error while waiting for thread to exit	See Note.
B181A075	Error waiting on the 'CCM complete' condition	See Note.
B181A076	Only the primary FSP can activate an op-panel	See Note.
B181A077	Failed to get power state	See Note.
B181A078	An error occurred trying to extract the Display SRC function symbol from the panel client library	See Note.
B181A079	An error occurred trying to setup the environment to have the correct library path for finding the panel client library	See Note.
B181A07A	Error reading VPD	See Note.
B181A07B	Invalid RID count	See Note.
B181A07C	No sibling FSP found	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181A201	Invalid field update specified in request	See Note.
B181A203	An unsupported operation was requested	See Note.
B181A204	Failed IPL request	See Note.
B181A206	Error returned from IPL lock function	See Note.
B181A207	Failed lamp test	See Note.
B181A208	Error returned while reading registry	See Note.
B181A209	Registry write failure	See Note.
B181A20A	The operation request is not allowed because it was requested on the backup FSP	See Note.
B181A20B	Invalid request from caller	See Note.
B181A20C	This request has NULL output data pointer	See Note.
B181A20D	Error returned from dump function	See Note.
B181A20E	The requested function is not within the valid range or it is an unsupported function	See Note.
B181A20F	Error from mailbox	See Note.
B181A211	Rejected specified function/ subfunction request	See Note.
B181A214	The requested function is not within the valid range or it is an unsupported function	See Note.
B181A215	SPCN Panel function (07) is disabled	See Note.
B181A216	FSP dump failed	See Note.
B181A217	Requested subfunction is outside the valid range	See Note.
B181A219	Invalid signal received by process	See Note.
B181B000	Invalid parameter passed by the user	See Note.
B181B001	Update for the given keyword not allowed for second time	See Note.
B181B004	Cannot find given record	See Note.
B181B005	VTOC record not found	See Note.
B181B006	Failure reading / finding the module VPD file	See Note.
B181B009	RLCA Index greater than number of RLCA entries	See Note.
B181B00A	Invalid length of parameter	See Note.
B181B00B	Failure to read VPD File Path registry	See Note.
B181B00C	Error reading NVRAM entry	See Note.
B181B00E	We had an error opening the file for the given resource ID	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181B00F	We were unable to gain a lock on a VPD file	See Note.
B181B010	We had an error reading the VPD file	See Note.
B181B011	We were unable to unlock the file	See Note.
B181B012	Unable to build location code for the FRU	See Note.
B181B013	Error trying to locate the file	See Note.
B181B014	Invalid format for the VPD	See Note.
B181B015	Error renaming file	See Note.
B181B016	We had an error closing and/or unlocking the file	See Note.
B181B017	Cannot find given keyword in the block	See Note.
B181B01B	Cannot read VPD node for the given RID	See Note.
B181B01C	Cannot find PT keyword in the VTOC record	See Note.
B181B01D	Invalid input buffer length	See Note.
B181B01E	Error while writing to the registry	See Note.
B181B01F	Failure reading configurated id of machine model registry	See Note.
B181B020	Invalid parameter passed by the user	See Note.
B181B024	Error reading ECC for VHDR block	See Note.
B181B027	Invalid VTOC record length	See Note.
B181B028	We failed trying to get smart chip block size	See Note.
B181B02A	Error initializing smart chips	See Note.
B181B02C	There was a failure trying to update one of the smart chip blocks	See Note.
B181B030	Unable to find input resource ID in the RID table	See Note.
B181B031	Cannot find rlca index for the given location code	See Note.
B181B032	We were trying to generate a FRU callout because we had an error in one of the external interface and in process of generating that error we ran into another error	See Note.
B181B033	Cannot find MF tag for 1002 slotmap	See Note.
B181B035	Error writing Machine Brand registry	See Note.
B181B036	We failed trying to get smart chip block size	See Note.
B181B037	Invalid length for the keyword in the VPD	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181B038	Invalid Block id passed by the user	See Note.
B181B03A	Unable to find input resource ID in the RID table	See Note.
B181B03B	Cannot find data port node for VRM information	See Note.
B181B03C	Error initializing I2C devices	See Note.
B181B03D	Writing to I2C device failed	See Note.
B181B03E	Error trying to read the module VPD from the I2C Chip	See Note.
B181B03F	Reading thermal sensor data failed for the given FRU	See Note.
B181B040	Invalid controller type for frequency controller	See Note.
B181B041	Someone has requested the SMP cable ID on a non MLx system	See Note.
B181B043	Invalid RID or invalid FSP ID	See Note.
B181B044	The Input RID does not have a redundant resource associated with it	See Note.
B181B045	Invalid bit definition for 9551 controllers	See Note.
B181B046	Invalid bit definition for 9552 controllers	See Note.
B181B049	Invalid data	See Note.
B181B04A	Invalid keyword format VPD	See Note.
B181B04B	Invalid description length for keyword format VPD	See Note.
B181B04C	Invalid offset found in the keyword format VPD	See Note.
B181B04E	Invalid offset	See Note.
B181B04F	No 0x84 tag found	See Note.
B181B050	Invalid offset for the PT keyword in VTOC record	See Note.
B181B051	Invalid VTOC record offset	See Note.
B181B052	Invalid VHDR record size	See Note.
B181B053	Error reading "PR" keyword from the VINI record for the given RID	See Note.
B181B054	Invalid IN keyword size. Found zero number of VSRC entries	See Note.
B181B055	Zero plug count found for the given RID	See Note.
B181B056	Unsupported Resource Type	See Note.
B181B057	Unsupported Record Type	See Note.
B181B059	Offset is greater than buffer size	See Note.
B181B05A	Invalid 200A Slotmap	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181B05B	Cannot find rlca index for the given slca index	See Note.
B181B05C	Cannot find rlca index	See Note.
B181B05D	Failure to write Registry with Raw VPD data	See Note.
B181B061	Unable to use either VPD Chip because we could not reach them or they are garded out	See Note.
B181B063	Incorrect size passed in by user	See Note.
B181B064	Caller has asked us to update an invalid type of FRU	See Note.
B181B065	Failed to read anchor card VPD	See Note.
B181B067	Error converting to multiple stanza format converged VPD	See Note.
B181B068	Error converting to multiple stanza format keyword format VPD	See Note.
B181B06D	Failed to process VPD chip	See Note.
B181B06E	Failed to get RLCA index for a resource ID	See Note.
B181B073	We read an invalid Machine Type Model from the VPD	See Note.
B181B07A	Legacy SC buffer greater than original buffer	See Note.
B181B07C	Cannot find old file in directory	See Note.
B181B07E	Failed to write RLCA table	See Note.
B181B080	No valid Service Processor VPD was found on this system	See Note.
B181B082	No VPD collected for given processor card	See Note.
B181B083	Pin failure failed after root node mismatch	See Note.
B181B084	Pin failure is successful after root node mismatch	See Note.
B181B085	Invalid FRU Detect Data Port Type Found in VPD	See Note.
B181B086	We failed when trying to read the SMP cable ID from the 9552 controller on this MLx system	See Note.
B181B087	VPD Firmware had an error in trying to detect if this FRU was actually present or not on the system	See Note.
B181B088	No plug detect node found for this RID but the RLCA table said there should be	See Note.
B181B089	Error in finding out which FSP it is	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181B08A	We were unable to determine the maximum number of Resource ID's for the input FRU type	See Note.
B181B08B	Failed trying to determine the Resource ID's associated with the given FRU type	See Note.
B181B08C	We had a failure finding the LED node for this processor card	See Note.
B181B08D	We had a failure reading the SMP cable ID on a processor card	See Note.
B181B08E	We had a mismatch in the cable ID between two processor cards	See Note.
B181B08F	There was a failure trying to configure 9555/9554 controller	See Note.
B181B090	There was a failure trying to create smart chip blocks	See Note.
B181B091	Error occurred while locking/unlocking DASD device	See Note.
B181B092	VPD Firmware had an error in trying to read the size of a registry key	See Note.
B181B093	Failed to open source directory while copying a directory	See Note.
B181B094	Locking the VPD file has failed	See Note.
B181B095	Unlocking the VPD file has failed	See Note.
B181B097	Cannot find DR keyword in the given record while updating legacy smart chip VPD	See Note.
B181B098	TM field is already updated once. Second update for the given keyword not allowed because TYPE part of MTM does not match	See Note.
B181B099	Firmware needs to add support for an additional resource to the given FRU type	See Note.
B181B09A	Failed to get FRU status for the given RID in registry update function	See Note.
B181B09B	Failed to read the VPD and update the registry entry for the input RID	See Note.
B181B09C	Error writing NVRAM to VPD	See Note.
B181B09D	Mismatch in VPD vs NVRAM	See Note.
B181B09E	Failed to write System NVRAM values out to VPD	See Note.
B181B09F	Failed to write Enclosure NVRAM values out to VPD	See Note.
B181B0A0	Unable to add FRU to the rlcaTable because instanceTable shows no more FRU addition allowed	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181B0A1	Invalid algorithm type found in the VPD node for the given RID in the rlcaTable	See Note.
B181B0A2	Failed to update GARD with a resource ID	See Note.
B181B0A3	Failed to GARD out a resource ID	See Note.
B181B0A4	Failed to determine if chip is garded out or not	See Note.
B181B0A5	A chip on the Anchor card has been garded out	See Note.
B181B0A7	Failure to write registry for update status	See Note.
B181B0A8	Failure attempting to read the system configuration file	See Note.
B181B0A9	Failed to input line from system file	See Note.
B181B0AA	Mismatch SN or PN between primary and redundant fsp recollect during VPD verification	See Note.
B181B0AB	Error reading smart chip legacy block size	See Note.
B181B0AD	Error reading Raw Machine type model registry	See Note.
B181B0AF	Failed to process message for VPD	See Note.
B181B0B5	Cannot find RID for FRU_SP for this FSP	See Note.
B181B0B6	Error synchronizing file to the other FSP	See Note.
B181B0B7	Error reading system type registry	See Note.
B181B0B8	Error converting FRU type	See Note.
B181B0B9	Error converting FRU type	See Note.
B181B0BB	Sibling FSP state is set to NOT working	See Note.
B181B0BC	Unable to locate string in file	See Note.
B181B0BD	Invalid number of processor cards are present	See Note.
B181B0BE	Checksum in the VPD data does not match calculated checksum	See Note.
B181B0BF	Someone tries to read/write a keyword in corrupt VPD	See Note.
B181B0C0	Failure in getting the other RID from the system configuration file	See Note.
B181B0C1	Error in updating CCMM registry with the new primary RID	See Note.
B181B0C2	VPD is not collected both for primary RID and redundant RID or its child RID	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181B0C4	Failed to read GPIO pin value from FSP extender	See Note.
B181B0C5	Invalid number rlcaTable entries	See Note.
B181B0C6	New value has been written to the hyperboot capability registry	See Note.
B181B0C7	Error while getting the hyperboot capability registry value	See Note.
B181B0C8	VPD could not collect more Oppanel VPD for ASMI	See Note.
B181B0C9	No Oppanels present in system	See Note.
B181B0CA	Invalid raw brand name	See Note.
B181B0CB	Failed to copy or rename directory	See Note.
B181B0CC	Failed to remove directory	See Note.
B181B101	VPD indicates that no VPD headers are available	See Note.
B181B102	Location code for the associated resource ID not found in the VPD header array	See Note.
B181B103	Location code for the associated resource ID is not NULL terminated	See Note.
B181B104	Parent location code of resource ID being processed is not null terminated	See Note.
B181B105	The length of the location code being built is going to exceed the maximum allowed	See Note.
B181B106	Call made to read location code for a resource ID of zero	See Note.
B181B107	Call made to read location code, but the buffer provided is not large enough to hold a maximum length location code	See Note.
B181B108	Location code for the associated resource ID has a length mismatch	See Note.
B181B109	Call made to read location code, but the buffer reference provided was a NULL pointer	See Note.
B181B10B	Failed to get number of headers from VPD	See Note.
B181B10C	Failed to get all headers from VPD	See Note.
B181B10D	Failed to process a resource ID	See Note.
B181B10E	Failed to get maximum number of RIDs for enclosure	See Note.
B181B10F	Failed to get RID numbers for enclosure	See Note.
B181B110	Failed to get enclosure number and index using RID	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181B111	Error reading enclosure Feature Code and model data	See Note.
B181B112	Error reading system Type/Model data	See Note.
B181B113	Error reading system serial number data	See Note.
B181B114	Error updating location code	See Note.
B181B115	Failed to get RID number of children	See Note.
B181B116	Maximum number of RIDs returned is zero	See Note.
B181B117	Data length mismatch while reading enclosure Feature Code and model data	See Note.
B181B118	Data length mismatch while reading enclosure serial number data	See Note.
B181B119	Data length mismatch while reading system type/model data	See Note.
B181B11A	Data length mismatch while reading system serial number data	See Note.
B181B11B	Failed to read rlca table from VPD	See Note.
B181B11C	The rlca was searched for a FRU_ID of ″VV″ which is the starting point of the VPD tree. However, no ″VV″ entry was found in the rlca	See Note.
B181B11D	An FRU_ID ″VV″ root was being processed and an error was returned	See Note.
B181B11E	An enclosure was being processed and an error was returned	See Note.
B181B11F	User input invalid parameter	See Note.
B181B120	Error returned from reading VPD registry	See Note.
B181B121	Could not find VPD registry entry	See Note.
B181B201	Call was made to read location codes, but a NULL buffer pointer was provided	See Note.
B181B202	Call was made to read location codes, but the input buffer provided is not large enough to hold all the LED location codes	See Note.
B181B204	Call was made to get LED access data, but the input location code pointer was NULL	See Note.
B181B205	Call was made to get LED access data, but the input location code was not NULL terminated	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181B207	Call was made drive an LED to a specific state but the class controller type is invalid or not supported	See Note.
B181B208	Failed to open I2C bus	See Note.
B181B209	Failed to close I2C bus	See Note.
B181B20A	Failed to transmit data on I2C bus	See Note.
B181B20B	Failed to transmit data to the LED lightstrip controller	See Note.
B181B20C	Failed to lock the I2C hub	See Note.
B181B20D	The specified LED state is not valid	See Note.
B181B20E	Failed to get GMNOL from VPD	See Note.
B181B20F	Failed to get GAL from VPD	See Note.
B181B210	Call was made to read the number of enclosure LEDs, but none was found	See Note.
B181B211	Failed to read LED location codes	See Note.
B181B212	Failed to drive LED to specified state	See Note.
B181B213	Failed to drive LED to specified state	See Note.
B181B214	Failed to transmit data to the I2C hub	See Note.
B181B215	Failed to transmit park data to the I2C hub	See Note.
B181C000	VPD failure	See Note.
B181C001	Session entry failure	See Note.
B181C002	Failed network client call	See Note.
B181C003	Invalid authentication level or requestor was set	See Note.
B181C004	PHyp returned an error when attempting to open a PHyp session	See Note.
B181C005	Data buffer error	See Note.
B181C006	Failed Mailbox function call	See Note.
B181C007	Failed to read from or write to a registry entry	See Note.
B181C008	Internal event error	See Note.
B181C009	Internal file error	See Note.
B181C00A	Internal VTTY error	See Note.
B181C00B	Failed to signal a broadcast event	See Note.
B181C00C	Failed to successfully create a virtual serial object while running the virtual serial open command	See Note.
B181C00D	A virtual serial client attempted to open a virtual serial session before PHYP reached standby/runtime state	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181C00E	The DMA component returned an error log while attempting to read the VTTY buffer	See Note.
B181C00F	Received an error while trying to access the leds file	See Note.
B181C010	Received an error while accessing the semaphore object for the leds table during the lock table command	See Note.
B181C011	API error	See Note.
B181C012	Failure to calculate the timestamp stored in the session entry object	See Note.
B181C013	Failed to acknowledge surveillance	See Note.
B181C014	Internal lock error	See Note.
B181C015	Failed to obtain file lock	See Note.
B181C016	Failed to release file lock	See Note.
B181C017	Failed to access a file through the utility	See Note.
B181C018	Unable to authenticate password for an authorized virtual serial session	See Note.
B181C019	Failed to reset reload	See Note.
B181C01A	PHYP status error	See Note.
B181C01B	HMC/FSP interface protocol violation	See Note.
B181C01C	Internal error	See Note.
B181C01D	Protocol error	See Note.
B181C01E	Failed to get the cage and frame number	See Note.
B181C01F	Did not receive a valid data length or ack value	See Note.
B181C020	MP command cannot be executed since MP state is incorrect	See Note.
B181C021	Failed to write partial lid for code update	See Note.
B181C022	Internal error	See Note.
B181C023	Precondition failure	See Note.
B181C024	Request to open a PHyp connection was denied because the tool type is not allowed to perform that operation	See Note.
B181C025	Concurrent maintenance lock access failure	See Note.
B181D101	Failed to write to file	See Note.
B181D102	Failed to read breakpoint attention	See Note.
B181D103	File write operation failed	See Note.
B181D107	Failed to initialize the Hypervisor service routine flag	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181D108	Failed to read from registry	See Note.
B181D10A	Null pointer while trying to enable attentions	See Note.
B181D10C	Failure in Unmask attentions interface	See Note.
B181D10D	JTAG failed while waiting for attention	See Note.
B181D10E	Failed to write to MainStore	See Note.
B181D10F	JTAG read failure while reading the Interrupt Status Register	See Note.
B181D110	Fail to get the Hardware level in the JTAG controller	See Note.
B181D111	Failed to enable attentions	See Note.
B181D112	Timeout while waiting for JTAG lock	See Note.
B181D113	Request for system dump failed after getting attention	See Note.
B181D115	Utility read failure on a breakpoint attention	See Note.
B181D116	Utility write failure while writing the terminate flag	See Note.
B181D117	Failure while trying to open a file on a breakpoint attention	See Note.
B181D118	Phyp wrote an invalid SRC in the attention area in MainStore	See Note.
B181D119	Master FSP Communications failure	See Note.
B181D11A	Utility write failure while writing the terminate flag	See Note.
B181D11C	Spurious attention detected after attempt to clear all attentions for ISR	See Note.
B181D11D	Failed to get the reserve	See Note.
B181D11E	Failed while attempting to release the reserve	See Note.
B181D11F	No error created on a processor checkstop	See Note.
B181D120	Failed to read mainstore after a breakpoint attention	See Note.
B181D121	Failed to write to mainstore after a breakpoint attention	See Note.
B181D122	Failed to write the ISR back to the JTAG controller	See Note.
B181D123	Failed to release the JTAG lock	See Note.
B181D124	Failure when getting functional group	See Note.
B181D125	Failure while mapping mainstore to get attention area	See Note.
B181D126	Failed while reading the mainstore area	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181D127	Get data failure	See Note.
B181D128	Failure to instantiate an object	See Note.
B181D129	Attentions not found exceeded threshold	See Note.
B181D12A	Server process failed	See Note.
B181D12B	Interface failure	See Note.
B181D12C	Interface failure	See Note.
B181D12D	Interface failure	See Note.
B181D12E	Disable attentions failed	See Note.
B181D130	Interface failure on an asset protection attention	See Note.
B181D131	A trace trigger attention was detected	See Note.
B181D132	Detected a clock stop on error attention	See Note.
B181D133	Server process failed	See Note.
B181D134	Failed to synchronize with client process	See Note.
B181D135	Utility read failed to read the current state of the State Manager	See Note.
B181D136	Invalid type of attention	See Note.
B181D137	A TI was detected during either dump, power off or dump transition	See Note.
B181D138	Manufacturing interface to read the policy flag failed	See Note.
B181D139	Call to generate event failed during a Non IO checkstop	See Note.
B181D13A	Utility read failed to read the current role of the FSP	See Note.
B181D13B	FSP Dump event timed out	See Note.
B181D13C	Reset reload while handling P5IOC recovered error	See Note.
B181E001	Call home enabled but no destination phone numbers programmed	See Note.
B181E002	Failed to receive message	See Note.
B181E003	Pager data was not programmed	See Note.
B181E004	Error writing to serial port	See Note.
B181E005	The customer AGN account information is missing	See Note.
B181E006	Missing data from setup	See Note.
B181E007	Failed fork system call	See Note.
B181E008	Failed to rebuild the error log during call home	See Note.
B181E009	Failed fork system call	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181E00A	Child process failed	See Note.
B181E00B	Child process failed	See Note.
B181E00C	Child process died due to unhandled signal	See Note.
B181E00D	Child process died due to unhandled signal	See Note.
B181E00E	Failed trying to put the symptom string together	See Note.
B181E010	Serial port open failed	See Note.
B181E011	The file descriptor was is not valid	See Note.
B181E012	Failed select system call	See Note.
B181E015	Sending message on socket failed	See Note.
B181E016	Failed to get socket	See Note.
B181E017	Failed to get socket	See Note.
B181E01E	Call home test	See Note.
B181E01F	User issued a call home test	See Note.
B181E025	Failed serial port echo	See Note.
B181E026	Failed serial port echo	See Note.
B181E027	Trying to do call home test on same port that ASMI is active on	See Note.
B181E028	Trying to do call home test on same port that ASMI is active on	See Note.
B181E101	String was found in the input data and the system reIPL has been requested	See Note.
B181E201	Received an error and did not attempt a reboot	See Note.
B181E202	Received an error waiting for the backup FSP to terminate	See Note.
B181E303	Invalid modifier	See Note.
B181E30B	Cannot Query for LED Table	See Note.
B181E30D	The request sent in is not a valid request type for this function	See Note.
B181E310	Invalid request type	See Note.
B181E315	Failed on retry for SPCN command	See Note.
B181E31B	Failed to get LED state control	See Note.
B181E31C	SPCN PRS command to collect LED data did not return any data	See Note.
B181E31D	SPCN command to control the physical attention LED has failed	See Note.
B181E31E	Failed to get location code table from PHYP	See Note.
B181E400	Attempt to open file failed	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181E401	Attempt to open file failed	See Note.
B181E402	Attempt to open file failed	See Note.
B181E403	Attempt to close file failed	See Note.
B181E404	Attempt to close file failed	See Note.
B181E405	Attempt to open file failed	See Note.
B181E406	Attempt to open file failed	See Note.
B181E407	Attempt to open file failed	See Note.
B181E408	Attempt to close file failed	See Note.
B181E409	Attempt to close file failed	See Note.
B181E40A	Detected DRAM Recovered Errors	See Note.
B181E40B	Detected NVRAM Recovered Errors	See Note.
B181E40C	Failed to get statistics	See Note.
B181E40D	Attempt to open directory failed	See Note.
B181E40E	Attempt to open file failed	See Note.
B181E40F	File system corrupted	See Note.
B181E411	Failed to get the maximum number of RIDs from VPD	See Note.
B181E412	Failed to get the RID from VPD	See Note.
B181E425	Failed to initialize thread attributes	See Note.
B181E426	Failed to set thread to deattached state	See Note.
B181E427	Attempt to accept a client request failed	See Note.
B181E428	Attempt to receive client message failed	See Note.
B181E429	Failed to send response to client	See Note.
B181E42A	Unknown client command received	See Note.
B181E42F	Another instance of the process is already running	See Note.
B181E430	Failed thread call	See Note.
B181E432	System call for mutex failed	See Note.
B181E436	Client failed to send its heartbeat message within the stipulated time	See Note.
B181E437	Error while trying to connect to the daemon	See Note.
B181E438	Error while trying send or receive data with the daemon	See Note.
B181E439	Failed to synchronize with server	See Note.
B181E43A	Failed fork system call	See Note.
B181E43B	Could not close the client socket	See Note.
B181E43C	Error while attempting to close server address socket	See Note.
B181E43D	Failed to read path from registry	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181E43E	Error while trying to signal event to notify HMC of the change in the HMC Surveillance Flag	See Note.
B181E43F	Error returned while attempting to write to the registry	See Note.
B181E440	Error returned when attempting to read the registry	See Note.
B181E441	Error trying to notify PHYP of the change in HMC flag	See Note.
B181E443	Invalid type	See Note.
B181E444	Could not flatten log to send to client	See Note.
B181E445	Error while attempting to extract flattened log sent from the daemon	See Note.
B181E446	Client gateway was not able to talk to the master FSP	See Note.
B181E448	Gateway address creation to send surveillance heart beat to master FSP failed	See Note.
B181E449	Failed to connect to client gateway	See Note.
B181E44A	Failed to kill the Common Message Server of a failed HMC client	See Note.
B181E44F	Error while trying to reset the watchdog timer	See Note.
B181E451	Failed to query managed information	See Note.
B181E453	Attempt to bind to the listening address failed	See Note.
B181E454	Attempt to listen in server address failed	See Note.
B181E455	Attempt to open directory failed	See Note.
B181E457	The mux id requested to ping is not valid	See Note.
B181E458	Another component had an error	See Note.
B181E45B	Error while attempting to create listening socket	See Note.
B181E45C	Invalid Response Interval sent	See Note.
B181E45D	Error while trying to create server address	See Note.
B181E460	Failed to set thread schedule policy	See Note.
B181E462	Failed to get the maximum allowed thread priority	See Note.
B181E463	Failed to get the scheduling parameter	See Note.
B181E464	Failed to set scheduling parameter to thread	See Note.
B181E500	Bad hardware	See Note.
B181E601	Error while attempting to read registry	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181E602	Another process is already running	See Note.
B181E604	Network client failed to send or receive	See Note.
B181E606	Invalid major operation received	See Note.
B181E607	Error while attempting to create listening socket	See Note.
B181E608	Failed to send from network server	See Note.
B181E609	Failed fork system call	See Note.
B181E60A	Error returned while initializing a thread attribute	See Note.
B181E60B	Error returned while setting a thread attribute	See Note.
B181E60C	Error returned while creating a thread	See Note.
B181E60F	Received an invalid component type while attempting to create handler thread	See Note.
B181E610	Network client failed to connect	See Note.
B181E611	Network client failed to send or receive	See Note.
B181E612	Network client failed to close	See Note.
B181E613	Failed to synchronize with server	See Note.
B181E614	Failed to bind to socket	See Note.
B181E615	Failed to listen to socket	See Note.
B181E616	Network server failed to connect	See Note.
B181E618	Failed to initialize mutex	See Note.
B181E619	Error encountered while locking mutex	See Note.
B181E61A	Error encountered while unlocking mutex	See Note.
B181E61B	Network server failed to close	See Note.
B181E61C	Failed to return log	See Note.
B181E61D	Unknown minor operation id received	See Note.
B181E620	Invalid operation requested to data correlation handler	See Note.
B181E621	Failed to create object	See Note.
B181E622	Network client failed to close	See Note.
B181E623	Network client failed to send or receive	See Note.
B181E625	No file name sent in by client	See Note.
B181E627	Non existent registry variable sent	See Note.
B181E628	File does not exist	See Note.
B181E629	Error attempting to open file for reading or writing	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181E62A	Error while reading file	See Note.
B181E62B	Error while attempting write registry	See Note.
B181E62C	Error while writing to the file	See Note.
B181E62D	Backup is not running from the same flash side as primary FSP	See Note.
B181E62F	Sibling returned error on the requested operation	See Note.
B181E633	Error returned while attempting to create event handler object	See Note.
B181E634	Invalid event id was received	See Note.
B181E635	Error while attempting to signal Fsp Role Change event	See Note.
B181E64A	Backup FSP has a different level that the primary FSP	See Note.
B181E64B	Primary and backup FSP have different lid levels loaded	See Note.
B181E64C	Error returned when a flattened log was attempted to be restored	See Note.
B181E64D	Error unflattening the log sent by primary FSP	See Note.
B181E64F	Invalid role in the FSP	See Note.
B181E650	Invalid fail-over type requested	See Note.
B181E656	MUX control could not be taken	See Note.
B181E657	Unrecognized routing type received	See Note.
B181E659	Requested IPL failed	See Note.
B181E65B	Failed to determine fail-over type	See Note.
B181E65C	Surveillance failure of primary FSP detected at pre-standby state	See Note.
B181E65F	Error attempting to determine if the current platform can support redundant FSP	See Note.
B181E660	The system is in a state where fail-over operation cannot be initiated	See Note.
B181E661	Sibling returned error on the requested operation	See Note.
B181E663	Fail-over operation is not allowed	See Note.
B181E664	Force Terminate and fail-over operation is requested	See Note.
B181E665	Failed to terminate and force a fail-over	See Note.
B181E666	Requested FSP IPL failed	See Note.
B181E667	Invalid IPL type	See Note.
B181E669	Failed to determine fail-over type	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181E66D	AFO request received from primary FSP	See Note.
B181E66E	EFO operation is being performed by backup to take control of the host system	See Note.
B181E66F	Non I/O Path fail EFO operation is being performed by backup to take control of the host system	See Note.
B181E678	Error while obtaining mux control	See Note.
B181E67B	Failed to close I2C ADAL	See Note.
B181E683	Error while attempting to read Fsp Role registry	See Note.
B181E684	Sibling returned error on the requested operation	See Note.
B181E686	Error in connecting to address to talk to the Common Message Server of a failed HMC client	See Note.
B181E687	Failed to kill the Common Message Server of a failed HMC client	See Note.
B181E689	Sibling returned error on the requested operation	See Note.
B181E68A	The fail-over enable key has been changed by HMC	See Note.
B181E68B	Sibling has requested to initiate reset/reload operation	See Note.
B181E68C	Powering off primary FSP to get the hardware muxes released	See Note.
B181E68F	Backup FSP is not at Runtime	See Note.
B181E690	Fail-over cannot be enabled at runtime without having a backup that has not IPLed the system even once	See Note.
B181E692	Error trying to get FSP alpha version key	See Note.
B181E693	Failed check for fail-over capable	See Note.
B181E699	Unknown HMC command received	See Note.
B181E69D	Attempt to restart discovery command received	See Note.
B181E801	Failure to read from or write to registry	See Note.
B181E802	Failed to synchronize with client	See Note.
B181E803	Failure with network server	See Note.
B181E804	Thread failure	See Note.
B181E805	Client failure	See Note.
B181E806	Failure when calling Code Update	See Note.
B181E807	Failure from Mailbox function	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181E808	Failure to read or write using DMA for SMA Dump Header	See Note.
B181E809	The SMAs that were selected to perform an MP Fatal Dump did not all complete successfully	See Note.
B181E80A	System Type was not recognized	See Note.
B181E80B	Failure in Load IPC Bootstrap execution	See Note.
B181E80C	Null pointer while iterating through the SMAs	See Note.
B181E80D	Received invalid initialization type input	See Note.
B181E80E	The MP reset procedure failed	See Note.
B181E80F	The MP reset procedure failed	See Note.
B181E810	The MP reset procedure failed	See Note.
B181E811	The MP reset procedure failed	See Note.
B181E812	Failure to find a matching SMA Handle for the inputted SMA id	See Note.
B181E813	Received a command to invalidate an SMA Dump when no SMA Dump was present	See Note.
B181E814	Failure in dump utility that reads and formats System Type, Model, and Feature Code	See Note.
B181E815	Failure in attempting to signal event	See Note.
B181E81F	Test of log failed	See Note.
B181E901	Reset/reload occurred	See Note.
B181E902	No SRC in log	See Note.
B181E90a	Unable to clear bits in the DISR	See Note.
B181E90d	No routine for reset/reload call	See Note.
B181E90e	Invalid routine for reset/reload call	See Note.
B181E90f	Received unexpected signal	See Note.
B181E910	Unable to set bits in the DISR	See Note.
B181E911	Reset/reload occurred	See Note.
B181EA00	Unable to create a session entry object for the specified HMC index	See Note.
B181EA01	Error while packaging outbound payload data for the HMC	See Note.
B181EA02	Failure occurred with another component API	See Note.
B181EA03	Failed to read from or write to registry	See Note.
B181EA04	No Concurrent Maintenance lock found	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181EA05	Unable to convert location code to RID	See Note.
B181EA06	Failure occurred with another component API	See Note.
B181EA07	Failure occurred with another component API	See Note.
B181EA08	Failure occurred with another component API	See Note.
B181EA09	Invalid RID for Concurrent Maintenance request	See Note.
B181EA0A	Machine type or state incorrect for Concurrent Maintenance operations	See Note.
B181EA0B	Node or GX resource failed during hot add	See Note.
B181EA0C	Failure occurred with another component API	See Note.
B181EA0D	Sequencing failure or cannot write checkpoint because system is transitioning	See Note.
B181EA0E	Not enough memory to reserve a GX adapter	See Note.
B181EA0F	Failed to read path from registry	See Note.
B181EA10	Detected corruption of the GX reservation area	See Note.
B181EA11	Failed to send activation asynchronization message	See Note.
B181EA12	Failed to create session entry object	See Note.
B181EA13	Unable to gard the FSP	See Note.
B181EA14	Failed to unlock file mutex	See Note.
B181EA15	FSP aborted the transition file	See Note.
B181EA16	Failed to send progress code	See Note.
B181EA17	Unable to read sibling FSP state data	See Note.
B181EA18	Failed to activate power domain	See Note.
B181EA19	Abort detected	See Note.
B181EA1A	The system has new FSP cables attached to the system, but they are not the appropriate ones	See Note.
B181EA1E	Concurrent Maintenance operation started	See Note.
B181EA1F	Concurrent Maintenance operation stopped	See Note.
B181EF01	Only one active object is allowed per process	See Note.
B181EF02	Failed to detect error in normal path	See Note.
B181EF03	Check for valid FSP dump failure	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181EF0A	External failure writing registry	See Note.
B181EF0C	Inconsistency in saved data header	See Note.
B181EF0D	Failure reading or writing a file	See Note.
B181EF0F	Notify PHYP failure	See Note.
B181EF11	Failed to update headers	See Note.
B181EF12	Failed to update headers	See Note.
B181EF13	Failed to update headers	See Note.
B181EF17	Failed to seek correct position in file	See Note.
B181EF1A	Failed to display status to Panel	See Note.
B181EF1F	Failed to enable FSP dump	See Note.
B181EF28	I/O controller error	See Note.
B181EF2D	Failed to signal for HMC notification	See Note.
B181EF2E	Internal HMC notify failure	See Note.
B181EF2F	HMC notify failure	See Note.
B181EF32	Failed to initialize I/O controller	See Note.
B181EF33	Failed to close I/O controller	See Note.
B181EF34	Failed to check inputs	See Note.
B181EF35	Failed to check inputs	See Note.
B181EF36	Failed to setup for command	See Note.
B181EF37	Failed to setup for command	See Note.
B181EF38	Failed to trace command	See Note.
B181EF39	Failed to trace command	See Note.
B181EF3D	Failed to display status to Panel	See Note.
B181EF3E	Failed to read registry	See Note.
B181EF3F	Failed to write registry	See Note.
B181EF40	Failed to trace command	See Note.
B181EF41	Failed to trace command	See Note.
B181EF42	NULL command specified	See Note.
B181EF44	Failed default command	See Note.
B181EF45	Failed to zip memory	See Note.
B181EF46	Failed to collect data	See Note.
B181EF4A	Failed to read registry	See Note.
B181EF4B	Failed to write registry	See Note.
B181EF4C	Failed to complete headers	See Note.
B181EF4D	Failed to complete dumped headers	See Note.
B181EF52	Invalid input for FSP dump	See Note.
B181EF53	No data to gather for FSP dump specified	See Note.
B181EF54	Not enough room left on flash	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181EF55	Not enough room left on flash	See Note.
B181EF56	Moving backwards in the FSP dump file caused error	See Note.
B181EF57	Moving backwards in the FSP dump file caused error	See Note.
B181EF5A	Failed to get FSP dump id	See Note.
B181EF5B	Failed to get FSP dump length	See Note.
B181EF5C	Failed to read registry	See Note.
B181EF5D	Failed to read registry	See Note.
B181EF5E	Failed to execute Panel function 20	See Note.
B181EF5F	Failed to read registry	See Note.
B181EF62	Failed to execute FSP dump	See Note.
B181EF63	Failed to execute FSP dump	See Note.
B181EF64	Failed to execute FSP dump	See Note.
B181EF65	Out of flash failure	See Note.
B181EF66	FSP dump controller failure acknowledged, must continue	See Note.
B181EF67	FSP dump controller failure acknowledged, terminate FSP dump sequence	See Note.
B181EF69	FSP dump controller failure	See Note.
B181EF6C	Failed I/O boundary device	See Note.
B181EF6D	Failed to write FSP dump	See Note.
B181EF71	Failed to check for valid FSP dump	See Note.
B181EF73	Failed to start FSP dump due to not finding FSP dump file	See Note.
B181EF75	Failed to start FSP dump due to not finding FSP dump file	See Note.
B181EF79	Failed to start FSP dump	See Note.
B181EF7A	Failed to increment device bank	See Note.
B181EF7B	Failed opening FSP dump device for initial navigation	See Note.
B181EF7C	Failed to lock FSP dump device	See Note.
B181EF7D	Failed to close FSP dump device	See Note.
B181EF7E	Failed initial device navigation	See Note.
B181EF7F	Failed to close device navigation	See Note.
B181EF80	Code updated forced clear of all pending and existing FSP dumps	See Note.
B181EF81	Failed FSP dump cancellation checking	See Note.
B181EF82	Cancelled dump due to Code update	See Note.
B181EF83	Failed to invalidate FSP dump	See Note.
B181EF84	Failed to retrieve FSP dump	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181EF85	A FSP Dump occurred	See Note.
B181EF86	Failed to read registry	See Note.
B181EF87	Failed to set lid for FSP dump	See Note.
B181EF88	A user or surveillance initiated a FSP dump	See Note.
B181EF8B	Failed to set header value	See Note.
B181EF8D	Failed to check boot watchdog sideswitch	See Note.
B181EF8F	Failed to get dynamic MTD sizing	See Note.
B181EF90	Failure in creating a buffer about a critical FSP dump operation	See Note.
B181EF91	FSP dump was invalidated	See Note.
B181EF93	Cannot enable degraded mode as FSP dump device is locked	See Note.
B181EF94	Temporarily disabled function due to code update	See Note.
B181EF95	Code update deallocated part of FSP dump data and user is trying to access them	See Note.
B181EF96	Can't enable degraded mode because there are FSP dumps pending	See Note.
B181EF97	Degraded partition interface error	See Note.
B181EF98	Inconsistency in the persistent storage area in flash was detected	See Note.
B181EF99	Multiple FSP dump support logic failure	See Note.
B181EF9A	Out of FSP dump storage	See Note.
B181EF9B	Failed to open file	See Note.
B181EF9C	Failed to read registry	See Note.
B181EF9D	Confirm bank enablement failure	See Note.
B181EF9E	Persistent storage area was reinitialized	See Note.
B181EF9F	General failure during initialization of FSP dump	See Note.
B181F000	Failed to remove directory	See Note.
B181F003	Not able to create directory	See Note.
B181F004	Error return from file open command	See Note.
B181F005	Error return trying to read from a file	See Note.
B181F006	Error returned trying to write to a file	See Note.
B181F007	Failed to get status of file	See Note.
B181F009	Error returned trying to seek offset file	See Note.
B181F00E	Error returned from a DMA Write attempt	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181F00F	Failed to get next file space	See Note.
B181F010	Illegal MDRT section size detected	See Note.
B181F012	Failed to determine size of registry variable	See Note.
B181F013	Error return trying to read from the registry	See Note.
B181F014	Error returned trying to write to the registry	See Note.
B181F015	Error returned from thread function	See Note.
B181F017	Error return from another function	See Note.
B181F018	Received an unexpected signal	See Note.
B181F019	Object not found or returned	See Note.
B181F01A	The requested Policy value is not in the bounds	See Note.
B181F01B	Unable to stop Clocks within the dump hardware collection	See Note.
B181F01C	Control Block not valid size or invalid flattened control block	See Note.
B181F01E	Status failure in call to create SRC object	See Note.
B181F022	No file spaces left to store dump memory on	See Note.
B181F029	System busy or there is no dump pending flag set	See Note.
B181F02C	Override Content has change dump type to NO DUMP	See Note.
B181F02D	A No Dump request was made	See Note.
B181F02E	Manufacturing Policy Flag has set NO DUMP policy	See Note.
B181F02F	No dump correctable error file present	See Note.
B181F030	Mainstore dump not taken	See Note.
B181F031	A correctable error was encountered while invalidating dump	See Note.
B181F038	Termination of the system to occur	See Note.
B181F039	Requested to invalidate the dump on the system	See Note.
B181F03B	It was determined that no exit error state IPL would be needed because no mainstore dump is required	See Note.
B181F03C	Mainstore dump not taken	See Note.
B181F03D	Non-user requested dump and the dump policy is set to NO DUMP	See Note.
B181F03E	Dump pending. Must invalidate dump before another dump can be called	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181F100	Invalid position on chain	See Note.
B181F101	No chips in chain	See Note.
B181F102	Commands added exceed chain command size	See Note.
B181F104	Chip not found	See Note.
B181F105	Invalid Ring buffer size	See Note.
B181F10A	Failure to release lock	See Note.
B181F110	Failure with controller device driver	See Note.
B181F111	Invalid device number	See Note.
B181F118	Abort signaled	See Note.
B181F11A	Failure to release lock	See Note.
B181F11B	Attempt to release lock that is not held	See Note.
B181F125	Invalid command ID	See Note.
B181F126	Invalid use of get scom JTAG interface	See Note.
B181F127	Invalid use of put scom JTAG interface	See Note.
B181F128	Invalid use of flush JTAG interface	See Note.
B181F12C	Unmatched CRC	See Note.
B181F12D	Chip detected CRC miscompare on scan-in	See Note.
B181F12E	Detected scom attentions	See Note.
B181F12F	Bad parity or invalid command	See Note.
B181F130	Invalid flush operation code	See Note.
B181F131	Last bits of chip command status are not 0x01	See Note.
B181F132	Invalid ring selection	See Note.
B181F133	Clocks did not start	See Note.
B181F134	Could not stop clocks	See Note.
B181F135	Invalid call to enable drivers	See Note.
B181F136	Invalid call to disable drivers	See Note.
B181F138	Scom attention detected on the current chip	See Note.
B181F139	Master Attention Alone detected	See Note.
B181F13A	Unrecognized attention type condition	See Note.
B181F13B	Invalid function call to attentions	See Note.
B181F13D	Prohibited command found during initialize scom IPL step	See Note.
B181F13E	Unable to find CEC cage	See Note.
B181F140	Data shows invalid ECID value	See Note.
B181F141	Indicates a potential problem with clock card	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181F142	Could not get valid hom id of active clock card	See Note.
B181F200	Configuration failure	See Note.
B181F201	The HOM unit ID is not present in this system	See Note.
B181F202	The mainstore memory size has not been properly initialized	See Note.
B181F206	There is a card in the system that is missing or has corrupted VPD data	See Note.
B181F208	Avoid following the NULL rule facade pointer	See Note.
B181F209	The specified card object was not found	See Note.
B181F20A	The call to create a card returned a NULL pointer	See Note.
B181F20B	An error occurred while creating a system domain and returned a NULL pointer	See Note.
B181F20C	There was an error while attempting to create a group and the function returned a NULL group pointer	See Note.
B181F20D	There is an inconsistency between the size of the JTAG chain and the number of JTAG chains counted	See Note.
B181F20E	The chip rule facade pointer created was returned as NULL	See Note.
B181F211	Creation of a cage pointer failed	See Note.
B181F212	The cage rule facade pointer was not found	See Note.
B181F217	An error occurred while attempting to create the JTAG controller object and returned a NULL instance pointer	See Note.
B181F21C	The instance variable for the JTAG chains is NULL even after successful creation of the chains	See Note.
B181F21D	The FRU was not found or does not exist	See Note.
B181F21E	The MRU or FRU was not found or does not exist	See Note.
B181F21F	Invalid input	See Note.
B181F220	The functional unit for a JTAG operation was not found	See Note.
B181F222	The functional unit has experienced a hardware monitor error	See Note.
B181F225	Attempting to write an invalid frequency to a clock card	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181F227	An invalid VPD port number was encountered	See Note.
B181F228	A memory block trying to be referenced is out of range	See Note.
B181F22A	There was not enough functional hardware found in the system to continue IPLing	See Note.
B181F22B	A memory controller group pointer was initialized to NULL by the cvMapper	See Note.
B181F22C	Got an invalid unit id	See Note.
B181F239	Detected a missing chip	See Note.
B181F23E	There is a mismatch between the number of nodes present and the type of SMP cable being used	See Note.
B181F23F	The mainstore configuration changed from the previous IPL, mainstore cannot be preserved	See Note.
B181F241	Light strips have not been plugged correctly	See Note.
B181F242	The slot specified should NOT be turned on	See Note.
B181F243	PRS data returned indicates that the Light Strip attempting to be powered off was not powered off	See Note.
B181F244	It seems that both clock cards, which should be present in the system, are not present in the system	See Note.
B181F245	This is an unrecognized cable state for this machine	See Note.
B181F25E	Cannot get a pointer to the System Fabric Group	See Note.
B181F2C0	Function pointer from dynamic load is NULL	See Note.
B181F2C1	Functional Unit of wrong type	See Note.
B181F2CC	Invalid parameter passed in to function	See Note.
B181F2CD	Failed trying to release JTAG Controller lock after reading the JTAG Controller's interrupt registers	See Note.
B181F2DC	Received an empty list of Chips at attention	See Note.
B181F2DE	Elastic Interface Alignment Procedure never completed	See Note.
B181F2DF	Fatal IAP Error	See Note.
B181F2E0	Non-fatal IAP Error/Warning	See Note.
B181F2E3	Couldn't get pointer object	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181F2E4	Selected elastic interface is Non-functional	See Note.
B181F2E5	One or more lines are stuck low for the ISR because the value read back does not match FF's	See Note.
B181F2E6	The attention line stuck high test failed to clear all the FSP attention lines	See Note.
B181F301	Object not initialized	See Note.
B181F304	Object attributes not set	See Note.
B181F305	Failed to set scom register attributes	See Note.
B181F306	Attributes are not set	See Note.
B181F308	Attributes not yet set	See Note.
B181F309	Could not find a Functional Unit that used the specified ring or register	See Note.
B181F30A	Data not extracted	See Note.
B181F30B	Data not inserted	See Note.
B181F30F	Incorrect buffer size	See Note.
B181F310	Incorrect buffer size	See Note.
B181F311	Required register or ring not present	See Note.
B181F312	File open error	See Note.
B181F401	Illegally calling this function	See Note.
B181F405	Could not create cage rule facade for this cage	See Note.
B181F407	Could not find a unique or default entry for this combination of inputs	See Note.
B181F408	Could not read card slot table - end of file or file failure	See Note.
B181F409	End of file reached before row number found	See Note.
B181F40a	Size of array needed exceeds size of array passed in	See Note.
B181F40b	Number exceeded maximum number allowed	See Note.
B181F40c	Could not open library for the object to create or unflatten	See Note.
B181F40d	Could not open class for the object to create or unflatten	See Note.
B181F500	File IO error occurred	See Note.
B181F501	The specified HOM Object was not found	See Note.
B181F502	Specified HOM Object does not exist	See Note.
B181F504	The requested function is invalid	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181F505	User attempted to save a HOM signature into a data buffer that was too small for the amount of data to be saved	See Note.
B181F506	Got an invalid unit id	See Note.
B181F507	A thread failed to start	See Note.
B181F620	Failure with functional unit	See Note.
B181F621	Scom bus busy after timeout	See Note.
B181F625	Timed out waiting for instructions to stop	See Note.
B181F62A	Timeout reached on scom poll	See Note.
B181F62B	Tried a clock operation which isn't supported on this functional unit	See Note.
B181F62E	Trying to instruction step while they are still running	See Note.
B181F630	I2C lock counter is a negative number, it should always be positive or zero	See Note.
B181F633	Failure while trying to open the attention handler data file for write operation	See Note.
B181F634	The bits active in the Special Attention register are not supported	See Note.
B181F636	Object pointer returned NULL	See Note.
B181F638	Clocks need to be on or off but mode says not to change state	See Note.
B181F639	Bad parameter passed into function	See Note.
B181F63B	Instructions failed to start	See Note.
B181F63C	Instructions failed to step	See Note.
B181F63D	Unexpected NULL pointer for Fabric Functional unit	See Note.
B181F647	An attention is active from a thread which is not alive	See Note.
B181F648	Cannot process special attention since Memory controller object is null	See Note.
B181F649	XScom is busy or has errors	See Note.
B181F64A	FOCR state machine wasn't idle after clearing	See Note.
B181F64B	The GR GX auto TLAR calculation failed	See Note.
B181F64C	Failed to complete self synchronization	See Note.
B181F64D	Error encountered during self synchronization	See Note.
B181F64F	Address + entries exceeds maximum SMA External SRAM size	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181F653	Service buffer timed out while writing data	See Note.
B181F654	An attention not supported has been detected in SMA hardware	See Note.
B181F658	Invalid data	See Note.
B181F659	Not able to find master or slave target time data for a chip	See Note.
B181F65A	GS Figtree database not loaded for this object or Functional Unit	See Note.
B181F65D	Memory queues are not idle	See Note.
B181F65E	Maintenance command timed out	See Note.
B181F65F	Maintenance command failed	See Note.
B181F660	Command in progress while trying to send maintenance command	See Note.
B181F661	Instruction start or stop attempted on non alive thread	See Note.
B181F662	Fabric initialization failed on processor	See Note.
B181F663	Fabric initialization failed on processor	See Note.
B181F664	Fabric Quiesce failed	See Note.
B181F67B	Got an invalid unit id or NULL pointer	See Note.
B181F67C	Calling function on invalid object	See Note.
B181F67D	Operation attempted on nonfunctional Functional unit	See Note.
B181F686	Can't get the associated FRU ID	See Note.
B181F689	Could not find associated Chip	See Note.
B181F68C	Unsupported bit(s) set in the local special attention register	See Note.
B181F68D	Fir bit indicates problem with SP code or SMI	See Note.
B181F6F2	Microcode failed to execute	See Note.
B181F6F3	Microcode failed to execute	See Note.
B181F6F6	Bootstrap executed successfully, but FSP was not permitted to set MP Available latch	See Note.
B181F7A0	The dump file contains a dump and cannot be read by the saved configuration for fast boot feature to examine the previous system configuration	See Note.
B181F7A1	Figtree library call failed	See Note.
B181F7A2	No TCE region found for GX Controller	See Note.
B181F7A7	No valid MC PLL Multiplier found when MC uses internal clock source	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181F7A8	Host PCI enable failed	See Note.
B181F7A9	Host PCI verify failed	See Note.
B181F7AB	Memory Sharing Group is an invalid configuration	See Note.
B181F7AC	A chip is in Bus Trace Mode, but doesn't have any attached memory	See Note.
B181F7AD	Memory group contains chip in Bus Trace Mode, but base address is zero	See Note.
B181F7AE	No system EI table found for bus	See Note.
B181F7AF	No entry in system EI data table for bus and master chip position	See Note.
B181F7B8	Resource pointer was NULL	See Note.
B181F7B9	The passed in buffer pointer was NULL	See Note.
B181F7BA	Couldn't find frequency data type requested	See Note.
B181F7BB	The system resource(s) in the callout list failed a system configuration test	See Note.
B181F7BC	The user specified LMB size is not valid for this system's memory size, so the system will use the default LMB size for this configuration	See Note.
B181F801	NULL Functional Unit Pointer	See Note.
B181F802	Not enough space	See Note.
B181F803	Not enough space	See Note.
B181F804	Index out of bounds	See Note.
B181F805	Failed to read the number of memory chips	See Note.
B181F806	Procedure error using display/alter	See Note.
B181F807	Invalid thread selected for FPSCR	See Note.
B181F809	Unable to associate array ID for address	See Note.
B181F80a	Invalid operation specified	See Note.
B181F80b	Unable to Create or remap Logical to Physical Mapper	See Note.
B181F80c	Could not create server object instance	See Note.
B181F814	Invalid address. Does not map to any memory location	See Note.
B181F815	Invalid Data Length specified	See Note.
B181F816	NULL Rule Chip Facade Pointer	See Note.
B181F817	Error encountered while reading array entry	See Note.
B181F818	Error encountered while writing array entry	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181F81b	Mismatch data error	See Note.
B181F81e	Unable to allocate buffer or NULL pointer detected	See Note.
B181F950	received an unexpected signal	See Note.
B181F951	Error from abort message	See Note.
B181F952	Buffer is NULL or is too small to hold information	See Note.
B181F953	Failed to receive message	See Note.
B181F954	Error creating serial thread in cec server	See Note.
B181F955	Error creating listener thread in cec server	See Note.
B181F956	Failed to get token in cec server	See Note.
B181F957	Invalid command received	See Note.
B181F958	Failure obtaining mutex lock in serial thread	See Note.
B181F959	Error while sending message	See Note.
B181F95A	Error while sending message	See Note.
B181F95B	Error receiving message in serial thread	See Note.
B181F95E	Error initializing cec server daemon	See Note.
B181F95F	Invalid arguments	See Note.
B181F966	Error while unflattening HOM data	See Note.
B181F968	Error writing to bit buffer	See Note.
B181F96A	Not enough parameters	See Note.
B181F96B	No function specified	See Note.
B181F96C	Specified function not found	See Note.
B181F96D	Too many parameters supplied	See Note.
B181F96E	Unknown option specified	See Note.
B181F96F	Some value required for these options is missing	See Note.
B181F970	Unknown parameter type	See Note.
B181F971	Input value out of range	See Note.
B181F972	Invalid input character	See Note.
B181F973	String not found in lookup table	See Note.
B181F974	Buffer too small	See Note.
B181F975	Unknown output type	See Note.
B181F978	An HMC requested operation is not supported	See Note.
B181FAA3	Invalid parameter to function	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181FAA4	Number of packets sent does not equal number received or CRC not zero	See Note.
B181FAA9	Can't get the sharing group for this Chip	See Note.
B181FAB0	Physical Status registers not set to link up; test can not proceed	See Note.
B181FAB1	Number of packets sent does not equal number received or CRC not zero	See Note.
B181FAB2	RIO test failure	See Note.
B181FAB3	Galaxy test failed during communication stage	See Note.
B181FB51	Maximum number of wire test errors has been reached	See Note.
B181FB54	RDT has detected a hardware error	See Note.
B181FD00	An FSP or DMA path was GARDed out	See Note.
B181FD01	The command line was used to manually configure or deconfigure a resource	See Note.
B181FD02	GARD Data did not exist because either it was the first IPL on this machine or NVRAM had been cleared	See Note.
B181FD03	GARD detected a new version of the gard data area	See Note.
B181FD04	GARD detected corrupt gard date	See Note.
B181FD05	GARD could not open the Gard Memory File	See Note.
B181FD06	Error trying to read a file	See Note.
B181FD07	Error trying to write IO Data to the Gard file	See Note.
B181FD0A	Failed setting the rank status in the HOM	See Note.
B181FD0B	Failed setting functional status of a non-rank unit	See Note.
B181FD0D	Failed to read registry	See Note.
B181FD0E	Failed to read the VPD data for a given resource id	See Note.
B181FD10	The input Resource ID is not an FSP that can have its GARD state changed	See Note.
B181FD11	Manual deconfiguration of FSP is not allowed because FSP is already System Deconfigured or because we are at runtime	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B181FD12	This interface was called with more than the allowed number of DMA Paths	See Note.
B181FD13	The input DMA path did not match any stored in VPD	See Note.
B181FD14	Ungarding the sibling FSP is not allowed at Runtime	See Note.
B1828811	Incorrect command in Attention Area memory as it does not match up with the requested Service Routine	See Note.
B182901C	Failed trying to get status of the LID file	See Note.
B182901D	Failed to get OLC or CONTINUE ACK response from PHYP	See Note.
B182901F	SPIRA does not have sufficient space for the data structure	See Note.
B1829025	Event id which satisfied the monitor was incorrect	See Note.
B1829503	The FSP has queued its maximum number of messages to the send queue	See Note.
B1829504	There is nobody waiting on the message we just received from PHYP	See Note.
B1829507	Unable to write error\event log that PHYP wanted	See Note.
B1829508	PHYP passed the FSP a zero TCE or a TCE with something in the top 4 bytes	See Note.
B182950C	Indicates that PHYP sent the FSP a bad size, modifier or HMC index	See Note.
B182950D	PHYP didn't provide enough data to write the LID or the first TCE is too small to contain the LID header (although the latter is less likely)	See Note.
B1829511	Warning that HMC message has reached timeout limit	See Note.
B1829512	PHYP tried adding an existing HMC buffer to the list	See Note.
B1829513	PHYP is garding the anchor card and since we don't get any SRC from them, we make this one up	See Note.
B182951A	Wrong modifier received on OLC command	See Note.
B182951C	PHYP didn't acknowledge the message that the FSP sent to it within the architected timeout value	See Note.
B182951D	PHYP tried to use a HMC buffer that they haven't defined or they don't own	See Note.

Table 495. (B1xx) SRC Descriptions (continued)

Reference Code	Description	Action
B182951E	PHYP returned non-zero status in the acknowledge message	See Note.
B1829523	Failed on setup for reset/reload	See Note.
B182D004	Failed to get enclosure list	See Note.
B182D005	Failed to set drawer information	See Note.
B182E500	Bad hardware	See Note.
B182F023	Bad TCE returned	See Note.
B1878707	Error function not available	See Note.
B187E500	Bad hardware	See Note.
B1A3E500	Bad hardware	See Note.
Note: Repair the serviceable event that sent you here. If the FRU list is empty, call the next level of support.		

Table 496. (B1xx) Service processor reason codes' ranges

Reason codes for	Range	Description
End Device Abstraction Layer (EDAL) ranges		
DMA EDAL	'1000'x through '10FF'x	The direct memory access EDAL component (DMAE) is a shared library that allow applications to transfer data between system memory and the service processor's address space. DMAE is normally used by the Hypervisor data initialization (HDAT) component during boot. The dump component also uses DMAE for collecting dumps.
Control Panel I2C EDAL	'1100'x through '111F'x	IPNL provides an interface to the control panel hardware and handles all of the internal communication details. The PANL component uses IPNL extensively.
VPD I2C EDAL	'1300'x through '13FF'x	IVPD collects and reports vital product data (VPD) found in the system unit hardware. Data collected from the hardware is analyzed and stored file system of the service processor. Hardware VPD update facilities are also provided. VPD collection and reporting provides a system-wide view of the current hardware configuration.
RPC I2C EDAL	'1400'x through '141F'x	IRPC manages the low-level IIC bus interface to remote power controllers (RPCs) on some types of servers.
Smart Chip VPD EDAL	'1500'x through '15AF'x	SCED collects and reports VPD found in the system unit hardware. Data collected from the hardware is analyzed and stored in the file system of the service processor. Hardware VPD update facilities are also provided. VPD collection and reporting provides a system-wide view of the current hardware configuration.
Power control code ranges		
Power Control Interface	'2000'x through '204F'x	The system power interface (SPIF) component provides a communication interface between service processor components and the system power control network (SPCN). The server uses SPIF to obtain the system power state and other data.

Table 496. (B1xx) Service processor reason codes' ranges (continued)

Reason codes for	Range	Description
Remote Power Control	'2100'x through '211F'x	REMP manages the high-level communication protocol between the service processor and the RPCs on some types of servers.
IPL Lock	'2200'x through '222F'x	The IPL lock component synchronizes dependent operations with boot transition requests. It performs this synchronization by evaluating the system when a boot is requested. **Note:** A dependent operation is an operation that requires that no boot transition request of a certain type be allowed while the operation is being performed. Writing to flash memory is an example of a dependent operation.
Auto Power On Restart	'2300'x through '231F'x	This component's functionality is configured by the customer. If enabled, this component automatically performs a power-on reboot following an unexpected loss of power.
Remote Platform Power On	'2400'x through '241F'x	The remote platform power on component allows a user to remotely power on a system using the wake on LAN capability (which is accessed via the ASMI) when the system is powered off.
Thermal Management	'2600'x through '261F'x	The thermal management component is responsible for reading processor thermal calibration data, for providing an interface which firmware uses to read processor temperatures, and for handling thermal alerts generated by the processor's thermal sensors.
System infrastructure ranges		

Table 496. (B1xx) Service processor reason codes' ranges (continued)

Reason codes for	Range	Description
Code Update	'3000'x through '305F'x	CUPD controls the updating of firmware on the service processor. You might see this code when the error occurs: • During the code update (flash) process. • During the code promotion process. After the code updates successfully and the system reboots from the new code side, a user might use the *code promote* command to copy the new code from the temporary (or T side) to the permanent (or P) side. • When the service processor reboots after a code update, which is when the service processor makes the redundant boot code. • During the booting of the managed system, which is when the code update process attempts to verify flash image during the power on process for the system unit. The error can be caused by: • A bad or invalid system firmware image • A service processor failure, which leads to the firmware being unable to perform the code update • Corruption of the update file, which occurs when the file is sent from the management console (HMC) or the Hypervisor • An internal code problem • A problem with the network issue • A user error. which might occur when a user does not follow the update process
Discovery	'3500'x through '35FF'x	The DSCV component manages dual service processors in those systems that can have a primary and a secondary service processor. DSCV exchanges the required information between the service processors to establish the various communication links between them.
IPL Parameters	'4000'x through '402F'x	The IPLP component manages some of the service processor registry data that is transferred to the Hypervisor at boot time, such as IPL speed, logical memory block size, and so on.
RTC Application	'5000'x through '503F'x	The RTIM component manages the battery-backed real time clock hardware on the service processor, which is the source of the system-level time-of-day (TOD) clock.
State Manager	'6000'x through '603F'x	The SMGR component is responsible for supervising the IPL. It determines the validity of an IPL request and attempts to IPL the system.
State Transition Manager	'6500'x through '651F'x	The STTR component contains the various transition files that the system uses to make the transition from one state to another (for example, powering on or powering off the system unit, performing a platform dump, and so on).

Table 496. (B1xx) Service processor reason codes' ranges (continued)

Reason codes for	Range	Description
Error Logging	'7000'x through '703F'x	The ERRL component provides data logging, entry management, and the reporting of application errors to the operating system.
Primary PCI bus Initialization	'7100'x through '711F'x	The PPIN component monitors for power events, such as power on and power off.
Boot Plug-in	'7200'x through '721F'x	The BOOT component reads user preferences and determines which service processor flash side to boot from.
Service processor firmware utilities ranges		
Switch BCU utility	'8100'x through '811F'x	The SBCU component manages the PCI bus switch state in the registry. **Note:** Two switch states are possible: • The service processor owns the PCI bus • The system unit owns the PCI bus
SRC Interface	'8200'x through '821F'x	The SRCI component is a service processor utility that allows the user to do the following: • Create, display, and trace SRCs • Retrieve SRC entries from an SRC trace
CEC Termination	'8300'x through '834F'x	The CTRM (CEC Termination) component terminates the service processor. When an application encounters a fatal error (that the application determines should lead to system termination), the application uses its error log to call CTRM. After being called, CTRM displays the terminating SRC on the panel and records the error.
NVRAM Initialization	'8400'x through '841F'x	The NVRI component used to initialize and configure the service processor.
Event Notification	'8500'x through '853F'x	The EVEN component provides the facilities to signal and monitor for the occurrence of specified events. It is one way of performing interprocess communication within the service processor firmware.
Process Error Context	'8600'x through '861F'x	The PERC component allows a service processor application to collect some flight recorder information (FFDC) when the service processor receives an unexpected signal.
Network Server	'8700'x through '877F'x	The NETS code component dynamically loads libraries for the operations and functions that it services.
Network Client	'8780'x through '87FF'x	The NETC component is the client interface plug-in that applications running on the service processor, manufacturing and the HMC use to talk to the servers and other applications running on the service processors. NETC provides wrappers for the TCP/IP and sockets API and serial traffic APIs. It also provides a common message format for communication and data packets.
Hypervisor Service Routine	'8800'x through '883F'x	The HYSR component allows the user to run a Hypervisor service routine from the service processor. Typical uses of a Hypervisor service routine include validating a system storage address and performing a system storage dump for a platform dump.
Process Synchronization	'8900'x through '891F'x	The SINK component synchronizes the time when a server process is ready to interact with a client process.

Table 496. (B1xx) Service processor reason codes' ranges (continued)

Reason codes for	Range	Description
Utility Component	'8A00'x through '8A1F'x	The UTIL component provides common functionality throughout the service processor environment, such as common file, registry, and semaphore manipulation.
External firmware interfaces ranges		
Hypervisor Data Initialization	'9000'x through '904F'x	The HDAT component does the following: • Loads the Hypervisor code into system storage • Gathers various pieces of information that describe the hardware configuration and various boot parameters and loads that data into the main storage • Starts the execution of the processors that run the Hypervisor and the partition firmware
Host Virtual Serial Interface	'9200'x through '921F'x	The HVSI component provides the host virtual serial interface, which allows the host operating system to use the serial ports of the service processor as if they were the native serial ports.
Mailbox Handling	'9500'x through '952F'x	The MBOX component handles certain hardware on the service processor (called the mailbox) that is accessible to both the operating system and the service processor. The mailbox enables the system to transfer small amounts of data between the service processor and operating system, so that they can communicate to each other at runtime.
Service Processor Capacity Upgrade on Demand	'9900'x through '991F'x	The SCOD component provides information about the state of the previous power off and whether the system lost AC power after the power off.
Panel	'A000'x through 'A07F'x	The PANL component processes the pressing of control panel buttons and updates the control panel display appropriately.
Virtual Panel	'A200'x through 'A21F'x	The VPNL component implements the virtual control panel functions in the firmware.
Vital Product Data (VPD)	'B000'x through 'B0FF'x	The SVPD component collects and reports VPD found in the hardware of the system unit, which provides a system-wide view of the current hardware configuration. Data collected from the hardware is analyzed and stored in file system of the service processor. SVPD also provides hardware VPD update facilities.
VPD Location Codes	'B100'x through 'B11F'x	The VLOC component builds the location code table that the Hypervisor uses.
VPD LED Access	'B200'x through 'B21F'x	The VLED component provides library routines to drive the LEDs of the system unit. VLED uses the SVPD component to provide the bus mapping information. Other components can use the VLED routines to drive the LEDs to the desired state.
HMC Interface	'C000'x through 'C03F'x	The HMCX component provides the communications interface between the HMC and the service processor of the managed system.
Power Management	'C100'x through 'C1FF'x	The POWR component controls the power supplies, regulators and blowers and collects and reports power status, power VPD, and temperatures of the system unit and I/O towers and drawers.

Table 496. (B1xx) Service processor reason codes' ranges (continued)

Reason codes for	Range	Description
Service Processor Menus	'D000'x through 'D03F'x	The MENU component provides both a Web browser interface and a legacy TTY (text based) interface (both are known as the Advanced System Management Interface, or ASMI). The ASMI enables users to configure the service processor, change selected system-level settings, and access certain service processor resources.
Attention Handler	'D100'x through 'D13F'x	The ATTN component processes the checkstops, recovered errors, and special attentions that come from the hardware. ATTN also makes appropriate calls to components like processor runtime diagnostics (PRD) so that the system properly handles attentions.
Reliability, Availability, and Serviceability (RAS) ranges		
Call-in/Call-out	'E000'x through 'E02F'x	The CALL component provides remote service functions (like call home, call in, and call out) and SRC display on serial ports.
Snoop/Wrap	'E100'x through 'E11F'x	The SNOP component provides the serial port snoop function. SNOP can be used only when the system is in single partition mode. This component also detects the legacy iSeries™ UPS, if present, and reports the number of serial ports available to the operating system.
CEC Reboot	'E200'x through 'E21F'x	The RBOT component determines if an system unit re-IPL needs to occur after a termination.
LED Management	'E300'x through 'E31F'x	The LEDS component supports the service indicators (used by to identify failing FRUs) and controls the system attention indicator.
Surveillance	'E400'x through 'E460'x	The SURV component detects the failures of critical components, such as the Hypervisor or the HMC, and takes the appropriate actions.
Processor Runtime Diagnostics	'E500'x through 'E51F'x	When the service processor receives an attention from system hardware, PRDF examines the error registers in the system to determine what happened and creates an error log entry that calls out one or more failing items. **Note:** The E500 code denotes a hardware error, or an error in software other than processor runtime diagnostics. The E501 code is reserved for PRD code errors.
Redundancy Manager	'E600'x through 'E6A0'x	The RMGR component controls the interactions between the primary and the secondary service processors on a model 550, 590, or 595 system.
Synchronization of Redundant Service Processors	'E700'x through 'E71F'x	The SYNC component, which is part of the RMGR component, performs data synchronization between the primary and the secondary service processors on a model 550, 590, or 595 system.
SMA Dump	'E800'x through 'E81F'x	The SDMP component controls the sequencing of the initialization of SMA adapters to the *message passing available* state.
Reset/Reload	'E900'x through 'E91F'x	The RSRL component saves the most recent critical error log in the event of a reset or reload event (on the assumption that this log best explains the reason for the reset). In cases where the reset or reload event terminates the system, RSRL sends its error log to the administrator.

Table 496. (B1xx) Service processor reason codes' ranges (continued)

Reason codes for	Range	Description
Concurrent Maintenance	'EA00'x through 'EA1F'x	The CCMM component provides the interface between the concurrent maintenance program (which is part of Service Focal Point) on the HMC and the service processor of the managed system.
Service Processor Dump (Belly-up DuMP)	'EF00'x through 'EFCF'x	The BDMP component dumps data that the system can use to debug a failure that occurs when the service processor and bulk power subsystems encounter an error on servers that are housed in 24-inch racks. The following service processor or bulk power subsystem errors might cause this type of dump: • An application failure that leads to a core dump • A panic of the service processor kernel • An unexpected reset of the service processor or bulk power subsystem • A user-injected dump on the service processor or bulk power subsystem that captures the state of the entire subsystem at a given moment in time
Dump	'F000'x through 'F03F'x	After the system detects a checkstop or other hardware error condition, the DUMP component gathers required hardware and possibly system memory contents to facilitate error recreation and analysis.
Hardware Object Model (HOM) ranges		
HOM JTAG Interface	'F100'x through 'F16F'x	The HJTG component provides an interface for scanning data from firmware into the actual chips or from the chips into the firmware. The JtagInterface object represents the physical JTAG interface that is internal to each hardware chip. Firmware uses this piece of chip logic to communicate with the chip, and it is used anytime a JTAG operation is performed.
HOM Packaging Units	'F200'x through 'F25F'x	The HPKU component is a package management class that holds and manages the system hardware object model.
HOM Groups	'F2C0'x through 'F2FF'x	The HFUG component provides procedural support for chip functionality.
HOM Scan Rings	'F300'x through 'F31F'x	The HREG (HOM register) component provides a firmware object that represents a scan ring, SCOM register, or an alias, with its unique characteristics (address, length, etc.) in order to scan chips. HREG also provides the data storage area (called a bit buffer) that holds the data to be scanned as well as the algorithms the system uses to manipulate the data stored in the buffer.
HOM Rules	'F400'x through 'F41F'x	The RULE component provides access to certain configuration and engineering data that is stored in the esw_rtbl component. The system uses the data stored in the edw_rtbl component to model the system and to read from the hardware.
HOM Rules Tables	'F450'x through 'F46F'x	The RTBL component holds data.

Table 496. (B1xx) Service processor reason codes' ranges (continued)

Reason codes for	Range	Description
HOM Utilities	'F500'x through 'F51F'x	The HUTL component provides common utility functions used by all of the hardware access code. HUTL also handles error logging and recovery actions for the system unit hardware during booting and execution of high-level boot steps related to initializing the system unit.
HOM Functional Units	'F620'x through 'F6FF'x	The HFUS component provides internal access to the chip functionality.
Central Electronics Complex (CEC) ranges		
CEC Chip Initialization	'F700'x through 'F7FF'x	The CINI component initializes the chips in the system unit, based on the system configuration. These actions include configuring system memory and address ranges, chip modes, and communicating from chip to chip. CINI also determines and sets the processor and bus frequencies.
Display/Alter	'F800'x through 'F81F'x	The DADA component accesses (reads) and manipulates (writes) user information inside the system unit hardware by using the JTAG interfaces. Several hardware components use this functionality, including the certain CPU chips, L3 cache devices, and I/O controllers.
Hardware Interface Commands	'F950'x through 'F98F'x	The CHIC component provides the mechanism that allows a call made in an external service processor application to execute inside the system unit server application.
Automated Built-in Self-Test (ABIST)	'FA00'x through 'FA1F'x	The ABST component runs internal chip diagnostics as part of the system boot process. ABST tests the logic and arrays in each chip (as applicable) and peforms array repair (bit sparing) for processor chips, if necessary.
Logic Built-in Self-Test (LBIST)	'FA50'x through 'FA6F'x	The LBST component runs internal chip diagnostics as part of the system IPL process. LBST tests the logic and arrays in each chip (as applicable) and performs array repair (bit sparing) for processor chips, if necessary.
Memory Diagnostics	'FAA0'x through 'FABF'x	The MDIA component performs diagnostics on the system memory and L3 cache during the boot process by writing patterns into and reading the patterns back from system storage and L3 cache.
SIBATS	'FB00'x through 'FB1F'x	The SBAT component is part of the LBIST component.
Wiretest	'FB50'x through 'FB6F'x	The WIRE component, a diagnostic routine used when the system is booted in slow mode, verifies the continuity and independence of interconnections in the system unit. WIRE checks for open and short circuits on the testable nets between chips.
Ring API (CEC Utility)	'FC00'x through 'FC1F'x	The RAPI component does not display reason codes.
Resource Guard	'FD00'x through 'FD1F'x	The GARD component provides the repeat GARD functionality for all "gardable" items (memory and processors) that are deconfigured and then marked "garded out" either at IPL or runtime. GARD also provides system configuration information to the menu system about system configuration.

(B15172*xx* or B18172*xx*) Service processor early termination reference codes

A B15172*xx* or B18172*xx* reference code indicates that an exception occurred in a service processor firmware-detected operation.

Use the following to repair this problem.

1. Use the serviceable event that presented this reference code. If the reference code was displayed on the CEC enclosure control panel go to the next step.
2. Display and repair any related serviceable events for the CEC enclosure. If there are no related serviceable events, go to the next step.
3. If the reference code is B15172*xx* or B18172*xx*, go to the table below to continue the repair.
4. If the reference code is not B15172*xx* or B18172*xx* display the service processor error/event logs. Use the Advanced System Management Interface, see "MAP6F00 Accessing the ASMI" on page 851 and "MAP1221 ASMI menu structure" on page 498. Look for entries in the error/event log that contain B1*xxxxxx* and have an appropriate timestamp. If that does not provide a FRU to replace, go to the next step.
5. Try a slow boot to generate a different error or reference code that can be repaired. See "MAP4820 Performing a slow boot of a processor complex" on page 706. Was a new error or reference code created?
   - Yes, use the new error code to repair the problem.
   - No, call the next level of support.

Table 497. (B1xxxxxx) Service processor early termination reference codes

SRC	Description/Action	Failing Item
B1517200	Invalid boot request	"FSPSP02" on page 381
B1517201	Service processor failure	"FSPSP02" on page 381
B1517202	The permanent and temporary firmware sides are both marked invalid	"FSPSP02" on page 381
B1517203	Error setting boot parameters	"FSPSP02" on page 381
B1517204	Error reading boot parameters	"FSPSP02" on page 381
B1517205	Boot code error	"FSPSP02" on page 381
B1517206	Unit check timer was reset	"FSPSP02" on page 381
B151720A	Power-off reset occurred. FipsDump should be analyzed: Possible hardware problem	"FSPSP02" on page 381
B1811404	IRPC manages the low-level IIC bus interface to remote power controllers (RPCs) on some types of servers.	See Note at bottom of table.
B1811510	SCED collects and reports VPD found in the system unit hardware. Data collected from the hardware is analyzed and stored in the file system of the service processor. Hardware VPD update facilities are also provided. VPD collection and reporting provides a system-wide view of the current hardware configuration.	See Note at bottom of table.

Table 497. (B1xxxxxx) Service processor early termination reference codes (continued)

SRC	Description/Action	Failing Item
B1811523	SCED collects and reports VPD found in the system unit hardware. Data collected from the hardware is analyzed and stored in the file system of the service processor. Hardware VPD update facilities are also provided. VPD collection and reporting provides a system-wide view of the current hardware configuration.	See Note at bottom of table.
B181156A	SCED collects and reports VPD found in the system unit hardware. Data collected from the hardware is analyzed and stored in the file system of the service processor. Hardware VPD update facilities are also provided. VPD collection and reporting provides a system-wide view of the current hardware configuration.	See Note at bottom of table.
B1812028	The system power interface (SPIF) component provides a communication interface between service processor components and the system power control network (SPCN). The server uses SPIF to obtain the system power state and other data.	See Note at bottom of table.
B1812029	The system power interface (SPIF) component provides a communication interface between service processor components and the system power control network (SPCN). The server uses SPIF to obtain the system power state and other data.	See Note at bottom of table.
B1812033	The system power interface (SPIF) component provides a communication interface between service processor components and the system power control network (SPCN). The server uses SPIF to obtain the system power state and other data.	See Note at bottom of table.
B1812100	REMP manages the high-level communication protocol between the service processor and the RPCs on some types of servers.	See Note at bottom of table.
B181300A		See Note at bottom of table.
B1816009	The SMGR component is responsible for supervising the IPL. It determines the validity of an IPL request and attempts to IPL the system.	See Note at bottom of table.
B1817028	The ERRL component provides data logging, entry management, and the reporting of application errors to the operating system.	See Note at bottom of table.
B1817200	Invalid boot request	“FSPSP02” on page 381
B1817201	Service processor failure	“FSPSP02” on page 381
B1817202	The permanent and temporary firmware sides are both marked invalid	“FSPSP02” on page 381
B1817203	Error setting boot parameters	“FSPSP02” on page 381
B1817204	Error reading boot parameters	“FSPSP02” on page 381

Table 497. (B1xxxxxx) Service processor early termination reference codes (continued)

SRC	Description/Action	Failing Item
B1817205	Boot code error	"FSPSP02" on page 381
B1817206	Unit check timer was reset	"FSPSP02" on page 381
B1817207	Error reading from NVRAM	"FSPSP02" on page 381
B1817208	Error writing to NVRAM	"FSPSP02" on page 381
B1817209	The service processor boot watchdog timer expired and forced the service processor to attempt a boot from the other firmware image in the service processor flash memory.	"FSPSP02" on page 381
B181720A	Power-off reset occurred. FipsDump should be analyzed: Possible software problem.	"FSPSP02" on page 381
B1818600	The PERC component allows a service processor application to collect some flight recorder information (FFDC) when the service processor receives an unexpected signal.	See Note at bottom of table.
B1818903	The SINK component synchronizes the time when a server process is ready to interact with a client process.	See Note at bottom of table.
B1818A09	The UTIL component provides common functionality throughout the service processor environment, such as common file, registry, and semaphore manipulation.	See Note at bottom of table.
B1818A0E	The UTIL component provides common functionality throughout the service processor environment, such as common file, registry, and semaphore manipulation.	See Note at bottom of table.
B1819519	The MBOX component handles certain hardware on the service processor (called the mailbox) that is accessible to both the operating system and the service processor. The mailbox enables the system to transfer small amounts of data between the service processor and operating system, so that they can communicate to each other at runtime.	See Note at bottom of table.
B181950D	The MBOX component handles certain hardware on the service processor (called the mailbox) that is accessible to both the operating system and the service processor. The mailbox enables the system to transfer small amounts of data between the service processor and operating system, so that they can communicate to each other at runtime.	See Note at bottom of table.
B181A00F	The PANL component processes the pressing of control panel buttons and updates the control panel display appropriately.	See Note at bottom of table.
B181A038	The PANL component processes the pressing of control panel buttons and updates the control panel display appropriately.	See Note at bottom of table.

Table 497. (B1xxxxxx) Service processor early termination reference codes (continued)

SRC	Description/Action	Failing Item
B181A039	The PANL component processes the pressing of control panel buttons and updates the control panel display appropriately.	See Note at bottom of table.
B181A01C	The PANL component processes the pressing of control panel buttons and updates the control panel display appropriately.	See Note at bottom of table.
B181A027	The PANL component processes the pressing of control panel buttons and updates the control panel display appropriately.	See Note at bottom of table.
B181B006	The SVPD component collects and reports VPD found in the hardware of the system unit, which provides a system-wide view of the current hardware configuration. Data collected from the hardware is analyzed and stored in file system of the service processor. SVPD also provides hardware VPD update facilities.	See Note at bottom of table.
B181B030	The SVPD component collects and reports VPD found in the hardware of the system unit, which provides a system-wide view of the current hardware configuration. Data collected from the hardware is analyzed and stored in file system of the service processor. SVPD also provides hardware VPD update facilities.	See Note at bottom of table.
B181B060	The SVPD component collects and reports VPD found in the hardware of the system unit, which provides a system-wide view of the current hardware configuration. Data collected from the hardware is analyzed and stored in file system of the service processor. SVPD also provides hardware VPD update facilities.	See Note at bottom of table.
B181B08C	The SVPD component collects and reports VPD found in the hardware of the system unit, which provides a system-wide view of the current hardware configuration. Data collected from the hardware is analyzed and stored in file system of the service processor. SVPD also provides hardware VPD update facilities.	See Note at bottom of table.
B181C008		See Note at bottom of table.
B181E500	When the service processor receives an attention from system hardware, PRDF examines the error registers in the system to determine what happened and creates an error log entry that calls out one or more failing items. **Notes:** 1. The E500 code denotes a hardware error, or an error in software other than processor runtime diagnostics. 2. The E501 code is reserved for PRD code errors.	See Note at bottom of table.

Table 497. (B1xxxxxx) Service processor early termination reference codes (continued)

SRC	Description/Action	Failing Item
B181EF88	The BDMP component dumps data that the system can use to debug a failure that occurs when the service processor and bulk power subsystems encounter an error on servers that are housed in 24-inch racks. The following service processor or bulk power subsystem errors might cause this type of dump: • An application failure that leads to a core dump • A panic of the service processor kernel • An unexpected reset of the service processor or bulk power subsystem • A user-injected dump on the service processor or bulk power subsystem that captures the state of the entire subsystem at a given moment in time	See Note at bottom of table.
B181F023	After the system detects a checkstop or other hardware error condition, the DUMP component gathers required hardware and possibly system memory contents to facilitate error recreation and analysis.	See Note at bottom of table.
B181F100	The HJTG component provides an interface for scanning data from firmware into the actual chips or from the chips into the firmware. The JtagInterface object represents the physical JTAG interface that is internal to each hardware chip. Firmware uses this piece of chip logic to communicate with the chip, and it is used anytime a JTAG operation is performed.	See Note at bottom of table.
B181F12F	The HJTG component provides an interface for scanning data from firmware into the actual chips or from the chips into the firmware. The JtagInterface object represents the physical JTAG interface that is internal to each hardware chip. Firmware uses this piece of chip logic to communicate with the chip, and it is used anytime a JTAG operation is performed.	See Note at bottom of table.
B181F131	The HJTG component provides an interface for scanning data from firmware into the actual chips or from the chips into the firmware. The JtagInterface object represents the physical JTAG interface that is internal to each hardware chip. Firmware uses this piece of chip logic to communicate with the chip, and it is used anytime a JTAG operation is performed.	See Note at bottom of table.
B181F134	The HJTG component provides an interface for scanning data from firmware into the actual chips or from the chips into the firmware. The JtagInterface object represents the physical JTAG interface that is internal to each hardware chip. Firmware uses this piece of chip logic to communicate with the chip, and it is used anytime a JTAG operation is performed.	See Note at bottom of table.
B181F407	The RULE component provides access to certain configuration and engineering data that is stored in the esw_rtbl component. The system uses the data stored in the edw_rtbl component to model the system and to read from the hardware.	See Note at bottom of table.

Table 497. (B1xxxxxx) Service processor early termination reference codes (continued)

SRC	Description/Action	Failing Item
Note: The server group has not defined any additional action for this SRC. It is assumed that the serviceable event FRU list contains all needed repair information. If the FRU list does not repair the problem, call the next level of support.		

(B2*xxxxxx*) Logical partition reference codes

For use by service providers.

When the server posts these SRCs, you can find them in the Serviceable Event View or the view that you use to see informational logs (such as the Product Activity Log or ASM).

Characters 3 and 4 of word 1 are the partition ID of the logical partition with the problem.

Table 498. (B2xxxxxx) Logical partition reference codes

SRC	Description/Action	Failing Item
B2*xx*1150	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. This is a partitioning configuration problem. The LPARCFG Symbolic FRU will help correct the problem. If the problem persists, call your next level of support.	"LPARCFG" on page 432
B2*xx*1225	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. The partition attempted to IPL prior to the platform fully initializing. Retry the partition IPL after the platform IPL has fully completed and the platform is not in standby mode. If that IPL fails, call your next level of support.	"SVCDOCS" on page 963
B2*xx*1230	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. This is a partitioning configuration problem. The partition is lacking the necessary resources to IPL. This error might occur when you shut down a partition that is set to automatically IPL and then turn the managed system off and back on. When the partition automatically IPLs, it uses the resources specified in PHYP NVRAM, and this error occurs when the server does not find the exact resources specified in NVRAM. The solution is to activate the partition by using the partition profile on the HMC. The HMC applies the values in the profile to NVRAM. When the partition IPLs, it uses the resources specified in the profile.	"LPARCFG" on page 432 "LICCODE" on page 429
B2*xx*1260	A problem occurred during the IPL of a partition. The partition identified in the *xx* field of the B2*xx* SRC could not IPL at the Timed Power On setting because the IPL setting of the partition was not set to Normal.	"SVCDOCS" on page 963

Table 498. (B2xxxxxx) Logical partition reference codes (continued)

SRC	Description/Action	Failing Item
B2*xx*1265	A problem occurred during the IPL of a partition. The partition identified in the *xx* field of the B2*xx* SRC could not IPL. An operating system MSD IPL was attempted with the IPL side on D-mode. This is not a valid operating system IPL scenario, and the IPL will be halted. This SRC is usually seen when a D-mode SLIC install fails and attempts an MSD.	"SVCDOCS" on page 963
B2*xx*1266	A problem occurred during the IPL of a partition. The partition identified in the *xx* field of the B2*xx* SRC could not IPL. You are attempting to IPL an operating system that is not supported.	"SVCDOCS" on page 963
B2*xx*1310	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. No alternate (D-mode) IPL IOP was selected. The IPL will attempt to continue, but there might not be enough information to find the correct D-mode load source. Have the customer configure an alternate IPL IOP for the partition. Then retry the partition IPL.	"SVCDOCS" on page 963
B2*xx*1320	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. No default load source IOP was selected for an A/B-mode IPL. The IPL will attempt to continue, but there might not be enough information to find the correct load source. Have the customer configure a load source IOP for the partition. Then retry the partition IPL.	"SVCDOCS" on page 963
B2*xx*1321	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. The IOA for the load source device needed an IOP, and none was detected. Check your LPAR config and make sure the correct slot is specified for the IPL load source. Then retry the partition IPL.	"SVCDOCS" on page 963
B2*xx*1322	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. During the partition IPL, code tried to determine if the device in a slot was an I/O Processor or an I/O Adapter. That check failed. Check your LPAR configuration and make sure that the correct slot is specified for the IPL load source. Then retry the partition IPL. If this does not resolve the problem, perform "LICIP01" on page 429.	"SVCDOCS" on page 963
B2*xx*2250	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. A slot that was needed for the partition was unavailable. See the Symbolic FRU "SLOTUSE" on page 961 for more information on the cause of this error.	"SLOTUSE" on page 961
B2*xx*2300	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. A slot that was needed for the partition was unavailable. See the Symbolic FRU "SLOTUSE" on page 961 for more information on the cause of this error.	"SLOTUSE" on page 961

Table 498. (B2xxxxxx) Logical partition reference codes (continued)

SRC	Description/Action	Failing Item
B2*xx*2310, B2*xx*2320	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. The platform LIC for this partition attempted an operation. There was a failure. Contact your next level of support.	"NEXTLVL" on page 899
B2*xx*2425	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. The platform LIC for this partition attempted an operation. There was a failure. Contact your next level of support.	"NEXTLVL" on page 899
B2*xx*2426	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. The platform LIC for this partition attempted an operation. There was a failure. Contact your next level of support.	"NEXTLVL" on page 899
B2*xx*2475	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. A slot that was needed for the partition was either empty or the device in the slot has failed. See the Symbolic FRU for more information on the cause of this error. If you have a RAID enablement card (CCIN 5709) on your system, it will disable an embedded SCSI adapter. If that embedded slot is called out in the error, you can safely ignore this error.	"SLOTUSE" on page 961
B2*xx*2485	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. The platform LIC for this partition attempted an operation. There was a failure. Contact your next level of support.	"NEXTLVL" on page 899
B2*xx*3110	A problem occurred during the IPL of a partition. The search for a valid load source device was exhausted. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. Perform "LICIP01" on page 429.	"SVCDOCS" on page 963
B2*xx*3113	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. A problem occurred on the path to the load source for the partition. If present, look in the Serviceable Event View for a B7*xx xxxx* during the partition's IPL. Correct that error and retry the partition IPL.	"SVCDOCS" on page 963
B2*xx*3114	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. The B2*xxxxxx* SRC Format is Word 1: B2*xx*3114, Word 3: Bus, Word 4: Board, Word 5: Card.	"NEXTLVL" on page 899
B2*xx*3120	System log entry only, no service action required The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. Retry count exceeded. This is logged for each unsuccessful attempt to IPL with a loadsource candidate. If the IPL fails, look for other serviceable errors.	

Table 498. (B2xxxxxx) Logical partition reference codes (continued)

SRC	Description/Action	Failing Item
B2*xx*3123	System log entry only, no service action required	
B2*xx*3125	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. This is a platform LIC main store utilization problem. The platform LIC could not obtain a segment of main storage within the platform's main store to use for managing the creation of a partition.	"LICCODE" on page 429
B2*xx*3128	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. An unexpected failure return code was returned when attempting to query the IOA slots that are assigned to an IOP. Look for B700 69*xx* errors in the Serviceable Event View and work those errors.	"NEXTLVL" on page 899
B2*xx*3130	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. If word 3 is zero, and then this SRC is informational and can be ignored. Otherwise there is a problem in the platform LIC. A nonzero bus number has no associated bus object. Look for B700 69*xx* errors in the Serviceable Event View and work those errors. If there are no serviceable B700 69*xx* errors, or if correcting the errors did not correct this problem, contact your next level of support.	"NEXTLVL" on page 899
B2*xx*3135	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. An unknown bus type was detected.	"NEXTLVL" on page 899
B2*xx*3140	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. The load source IOP is not owned by the partition. This is a configuration problem in the partition. Have the customer reconfigure the partition to have the intended load source IOP. If there is not a configuration problem then contact your next level of support.	"SVCDOCS" on page 963

Table 498. (B2xxxxxx) Logical partition reference codes (continued)

SRC	Description/Action	Failing Item
B2*xx*3200	System log entry only, no service action required The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. Look for a SRC in the Serviceable Event View logged at the time the partition was performing an IPL. This error indicates a failure during a search for the load source. There might be a number of these failures prior to finding a good load source. This is normal. If a B2*xx*3110 error is logged, a B2*xx*3200 might be posted to the control panel. Work the B2*xx*3110 error in the Serviceable Event View. If the system IPL hangs at B2*xx*3200 and you cannot check the SRC history, perform the actions indicated for the B2*xx*3110 SRC.	
B2*xx*5106	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. There is not enough space to contain the partition main storage dump. Contact your next level of support.	"NEXTLVL" on page 899
B2*xx*5109	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. There was a partition main storage dump problem. Contact your next level of support.	"NEXTLVL" on page 899
B2*xx*5114	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. There is not enough space to contain the partition main storage dump. Contact your next level of support.	"NEXTLVL" on page 899
B2*xx*5115	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. There was an error reading the partition's main storage dump from the partition's load source into main storage.	"NEXTLVL" on page 899
B2*xx*5117	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. A partition main storage dump has occurred but cannot be written to the load source device because a valid dump already exists. Use the Main Storage Dump Manager to rename or copy the current main storage dump.	"SVCDOCS" on page 963
B2*xx*5121	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. There was an error writing the partition's main storage dump to the partition's load source.	"NEXTLVL" on page 899
B2*xx*5135, B2*xx*5137, B2*xx*5145	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. There was an error writing the partition's main storage dump to the partition's load source.	"NEXTLVL" on page 899

Table 498. (B2xxxxxx) Logical partition reference codes (continued)

SRC	Description/Action	Failing Item
B2*xx*5148	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. An error occurred while doing a main storage dump that would have caused another main storage dump. Contact your next level of support.	"NEXTLVL" on page 899
B2*xx*6006	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. A platform LIC error occurred when the partition's memory initialized. The IPL will not continue. Contact your next level of support.	"NEXTLVL" on page 899
B2*xx*6012	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. The partition's LID failed to completely load into the partition's mainstore area. Contact your next level of support.	"NEXTLVL" on page 899
B2*xx*6015	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. The load source media is corrupted or not valid.	"LSERROR" on page 433
B2*xx*6025	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. This is a problem with the load source media being corrupt or not valid.	"LSERROR" on page 433
B2*xx*6027	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. A failure occurred when allocating memory for an internal object used for LID load operations. Ensure the partition was allocated enough main storage, verify that no memory leaks are present, and then retry the operation.	"NEXTLVL" on page 899
B2*xx*6110	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. Error on load source device.	"LSERROR" on page 433

Table 498. (B2xxxxxx) Logical partition reference codes (continued)

SRC	Description/Action	Failing Item
B2*xx*7200	System log entry only, no service action required The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. An error condition was encountered when communicating with the load source I/O Processor for the partition identified in the *xx* field of the B2*xx* SRC. This informational error indicates a failure resetting the I/O Processor in the preceding B2*xx*3200 error. This is normal. If there is a hardware failure there will be a different serviceable event. If the system IPL hangs at B2*xx*7200 and you cannot check the SRC history, perform the actions indicated for the B2*xx*3110 SRC.	
B2*xx*8080	System log entry only, no service action required	
B2*xx*8081	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. An internal LIC timeout has occurred. The partition might continue to IPL but it might experience problems while running.	"LICCODE" on page 429
B2*xx*8105	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. There was a failure loading the VPD areas of the partition. The load source media has been corrupted or is unsupported on this system.	"LSERROR" on page 433
B2*xx*8107	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. There was a problem getting a segment of main storage in the platform's main store.	"LICCODE" on page 429
B2*xx*8109	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. A failure occurred. The IPL is terminated. Ensure that there is enough memory to IPL the partition.	"LICCODE" on page 429
B2*xx*8112	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. A failure occurred. The IPL is terminated.	"LICCODE" on page 429
B2*xx*8113	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. A problem occurred on the path to the load source for the partition. There was an error mapping memory for the partition's IPL. Call your next level of support.	"LICCODE" on page 429
B2*xx*8114	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. A problem occurred on the path to the load source for the partition. There was a failure verifying VPD for the partition's resources during IPL. Call your next level of support.	"LICCODE" on page 429

Table 498. (B2xxxxxx) Logical partition reference codes (continued)

SRC	Description/Action	Failing Item
B2*xx*8115	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. There was a low level partition to partition communication failure.	"LICCODE" on page 429
B2*xx*813A	A problem occurred during the IPL of a partition. Communication to the service processor has failed. The IPL will continue and the partition will likely be usable, but the console attached to the serial port might not be usable. A system power off followed by a reset/reload of the FSP might clear up the problem.	"SVCDOCS" on page 963
B2*xx*A100 to B2*xx*A101	A problem occurred after a partition ended abnormally. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. This partition could not stay running and shut itself down. Work any error logs in the Serviceable Event View. If there are no errors, contact your next level of support.	"SVCDOCS" on page 963
B2*xx*B07B	System log entry only, no service action required	
B2*xx*B215	A problem occurred after a partition ended abnormally. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. There was a communications problem between this partition's service processor and the platform's service processor. The platform will need to be reIPLed before that partition can be used. Call your next level of support.	"NEXTLVL" on page 899
B2*xx*D150	A problem occurred after a partition ended abnormally. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. There was a communications problem between this partition and code that handles resource allocation. Call your next level of support.	"LICCODE" on page 429
B2*xx*E0AA	A problem occurred during the IPL of a partition. Communication to the service processor has failed. The IPL will continue and the partition will likely be usable, but the console attached to the serial port might not be usable. A system power off followed by a reset/reload of the FSP might clear up the problem.	"SVCDOCS" on page 963
B2*xx*F001	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. An operation has timed out. Ignore this error if there are other serviceable errors. Work those error logs for this partition and for the platform from the Serviceable Event View. If there are no errors, contact your next level of support.	"SVCDOCS" on page 963
B2*xx*F003	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. Partition processors did not start LIC within the timeout window. Capture a Partition Dump and call your next level of support.	"NEXTLVL" on page 899

Table 498. (B2xxxxxx) Logical partition reference codes (continued)

SRC	Description/Action	Failing Item
B2*xx*F004 to B2*xx*F005	A problem occurred during a power off of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. This partition had a communications problem. Capture a Partition Dump and call your next level of support.	"NEXTLVL" on page 899
B2*xx*F006	A problem occurred during the IPL of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. The code load operation for the partition's IPL timed out. Work any error logs for this partition in the Serviceable Event View. If there are no errors, contact your next level of support.	"SVCDOCS" on page 963
B2*xx*F007	A problem occurred during a power off of a partition. The partition ID is characters 3 and 4 of the B2*xx* reference code in word 1 of the SRC. A problem occurred on the path to the load source for the partition. A timeout occurred during the process of trying to stop a partition from running. Contact your next level of support.	"LICCODE" on page 429

(B3*xxxxxx*) Connection monitoring reference codes

These error codes indicate a problem in the connection monitoring between the management console (HMC) and a partition that is running on the managed system. The HMC posts these error codes in the error log in Service Focal Point, but does not report them to the operating systems running on the managed system.

Use the following links to display the appropriate B3*xxxxxx* reference code table:

- B301*xxxx*
- B302*xxxx*
- B303*xxxx*
- B31*xxxxx*

Table 499. (B301xxxx) Connection monitoring reference codes

SRC	Description/Action	Failing item
B3010001	Management console (HMC) or partition connection monitoring fault.	"NEXTLVL" on page 899
B3010002	HMC or partition connection monitoring fault. Perform the following steps: 1. Verify the network between the HMC and the partition by pinging in both directions. Correct any problems that you detect. 2. Reboot the HMC.	"PTNNTWK" on page 914
B3010012, B3010013, B3010019, B3010020, B3010023, B3010025, B3010026	HMC or partition connection monitoring fault.	"NEXTLVL" on page 899

Table 499. (B301xxxx) Connection monitoring reference codes (continued)

SRC	Description/Action	Failing item
B3010027	HMC or partition connection monitoring fault.	"NEXTLVL" on page 899
B3010029, B301002B, B301002C, B301002D	HMC or partition connection monitoring fault.	"NEXTLVL" on page 899

Table 500. (B302xxxx) Connection monitoring reference codes

SRC	Description/Action	Failing item
B3020001	Management console (HMC) or partition connection monitoring fault.	"NEXTLVL" on page 899

Table 501. (B303xxxx) Connection monitoring reference codes

SRC	Description/Action	Failing item
B3030001	The communication link between the service processor and the management console (HMC) failed.	"FSPSP33" on page 390 "SPNETWK" on page 962
B3030002	A single partition HMC link failed.	"FSPSP33" on page 390 "SPNETWK" on page 962 "PTNNTWK" on page 914
B3030003	Multiple partition HMC links failed.	"FSPSP33" on page 390 "SPNETWK" on page 962 "PTNNTWK" on page 914
B3030004	All partition links for a single system to HMC failed.	"FSPSP33" on page 390 "SPNETWK" on page 962 "PTNNTWK" on page 914
B3030005	All system links from one system to a single HMC failed.	"FSPSP33" on page 390 "SPNETWK" on page 962
B3030006	The links between a single HMC and a single managed system failed.	"FSPSP33" on page 390 "SPNETWK" on page 962

Table 501. (B303xxxx) Connection monitoring reference codes (continued)

SRC	Description/Action	Failing item
B3030007	A single HMC link to more than one managed system occurred.	"FSPSP33" on page 390 "SPNETWK" on page 962 "HMCNTWK" on page 409
B3030008	One HMC link to another single HMC failed.	"FSPSP33" on page 390 "SPNETWK" on page 962 "HMCNTWK" on page 409
B3030009	One HMC link to more than one HMC occurred.	"FSPSP33" on page 390 "SPNETWK" on page 962 "HMCNTWK" on page 409
B303000A	The HMC lost links to all managed systems.	"FSPSP33" on page 390 "SPNETWK" on page 962
B303000B	Multiple HMCs lost links to a single managed system.	"FSPSP33" on page 390 "SPNETWK" on page 962
B303000C	Multiple HMCs lost links to multiple managed systems.	"FSPSP33" on page 390 "SPNETWK" on page 962
B303000D	Multiple HMCs lost links to multiple managed systems.	"FSPSP33" on page 390 "SPNETWK" on page 962 "HMCNTWK" on page 409
B303000E	The network interface card (NIC) failed. Use the error codes offered in the HMC Service Focal Point to diagnose and repair the problem. For more information, see "MAP1210 Displaying and repairing a serviceable event" on page 477.	"SYSNTWK" on page 964

Table 501. (B303xxxx) Connection monitoring reference codes (continued)

SRC	Description/Action	Failing item
B303000F	A single partition HMC link failure occurred on a redundant path.	"FSPSP33" on page 390 "SPNETWK" on page 962 "PTNNTWK" on page 914
B3030010	A single HMC link to one HMC failure occurred on a redundant path.	
B3030011	Server firmware connection monitoring to the flexible service processor failed.	"FSPSP33" on page 390 "SPNETWK" on page 962
B3030012	Flexible service processor connection monitoring of server firmware failed.	"FSPSP33" on page 390 "SPNETWK" on page 962
B3030013	The communication path (mailbox) between server firmware and the flexible service processor failed.	"FSPSP33" on page 390 "SPNETWK" on page 962 "MAILBOX" on page 440
B3031000	Customer reported a console problem when creating a serviceable event on the HMC user interface. Contact the customer for more information about the problem.	
B3031001	Customer reported a power problem when creating a serviceable event on the HMC user interface. Contact the customer for more information about the problem.	
B3031002	Customer reported a processor problem when creating a serviceable event on the HMC user interface. Contact the customer for more information about the problem.	
B3031003	Customer reported a LAN problem when creating a serviceable event on the HMC user interface. Contact the customer for more information about the problem.	
B3031004	Customer reported a software problem when creating a serviceable event on the HMC user interface. Contact the customer for more information about the problem.	
B3031005	Customer reported a input/output (I/O) problem when creating a serviceable event on the HMC user interface. Contact the customer for more information about the problem.	
B3031006	Customer reported a problem when creating a serviceable event on the HMC user interface. Contact the customer for more information about the problem.	

Table 501. (B303xxxx) Connection monitoring reference codes (continued)

SRC	Description/Action	Failing item
B3031007	Customer tested problem reporting by creating a serviceable event on the HMC user interface. Contact the customer for more information about the problem.	
B3031100	Customer reported a problem when creating a serviceable event on the HMC user interface. Contact the customer for more information about the problem.	
B3031101	Customer reported a power problem when creating a serviceable event on the HMC user interface. Contact the customer for more information about the problem.	
B3031102	Customer reported a processor problem when creating a serviceable event on the HMC user interface. Contact the customer for more information about the problem.	
B3031103	Customer reported a LAN problem when creating a serviceable event on the HMC user interface. Contact the customer for more information about the problem.	
B3031104	Customer reported a software problem when creating a serviceable event on the HMC user interface. Contact the customer for more information about the problem.	
B3031105	Customer reported a input/output (I/O) problem when creating a serviceable event on the HMC user interface. Contact the customer for more information about the problem.	
B3031106	Customer reported a problem when creating a serviceable event on the HMC user interface. Contact the customer for more information about the problem.	
B3031107	Customer tested problem reporting by creating a serviceable event on the HMC user interface. Contact the customer for more information about the problem.	

Table 502. (B31xxxxx) Connection monitoring reference codes

SRC	Description/Action **Perform all actions before exchanging failing items**	Failing item
B3100500, B3112420	Ethernet network failure. Do the following: 1. Reseat your Ethernet card. 2. Check your Ethernet cable connections. 3. If the previous actions do not resolve the problem, contact your next level of support.	"NEXTLVL" on page 899

(B7*xxxxxx*) Licensed Internal Code (LIC) reference codes

For use by service providers.

Use this table for B7*xxxxxx* reference codes.

Perform the following actions:

1. Find the unit reference code by looking at characters 5 through 8 of the top 16 character line of function 11 (4 rightmost characters of word 1). These 4 characters are the unit reference code.
2. Look up the unit reference code in the following table.
3. Perform the actions in the Description/Action column of the table.

In all cases, once the failing item is determined, go to the locations table for the system you are working on to determine the location, and use the remove and replace procedure for the failing item.

Table 503. (B7xxxxxx) Licensed Internal Code (LIC) Reference Codes

SRC	Description/Action	Failing Item
B7*xx*0103	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The platform Licensed Internal Code (LIC) detected an internal problem. Collect all the SRC words and the platform system dump, and then contact your next level of support.	"LICCODE" on page 429
B7*xx*0106	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. A secondary failure due to an invalid SRC occurred when the platform attempted to terminate. Collect all the SRC words and the platform system dump, and then contact your next level of support.	"LICCODE" on page 429
B7*xx*0302	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. Perform a platform system dump and notify your service provider. IPL the system.	"LICCODE" on page 429
B7*xx*0441	Service processor failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The platform encountered an error early in the IPL or termination process.	"SVCPROC" on page 963"NEXTLVL" on page 899 on page 899 on page 899 on page 899
B7*xx*0443	Service processor failure	"SVCPROC" on page 963"NEXTLVL" on page 899 on page 899 on page 899 on page 899

Table 503. (B7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
B7*xx*0601	System log entry only, no service action required Support can use this SRC and associated data to determine why the time of day for a partition was lost. No corrective action is required.	"SVCDOCS" on page 963
B7*xx*0602	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. Platform Licensed Internal Code (LIC) detected an error condition. The second word indicates the severity of the error and the specific error condition. If word 2 is not 10000A01 the error is informational only. If word 2 is 10000A01 then record the SRC words and call your next level of support.	"NEXTLVL" on page 899
B7*xx*0611	System clock problem Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. For systems managed by an HMC, use the ASM interface to reset the system clock at power on standby. For systems without an HMC, you can ignore this error. If the error occurs a second time, call your next level of support.	"SVCDOCS" on page 963
B7*xx*0621	System log entry only, no service action required No service action required.	
B7*xx*0A00	System log entry only, no service action required A user request initiated an I/O tower/drawer power off. No corrective action is required.	"SVCDOCS" on page 963
B7*xx*1150 to B7*xx*1151	System log entry only, no service action required No action needed unless a serviceable event was logged. If a serviceable event was logged, resolve that error.	"SVCDOCS" on page 963
B7*xx*1152	System log entry only, no service action required No service action is required for this event. If there is a B7001150 SRC present, and then the service processor was reset automatically to correct for the communications problem. If something more severe occurred there will be a SRC requiring a service action logged as well.	"SVCDOCS" on page 963
B7*xx*1160	Service processor failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The platform encountered an error communicating with the service processor. The platform code attempts a graceful shutdown of partitions and powers off the server after a certain time, or when the last partition indicates shutdown, whichever comes first.	"SVCPROC" on page 963"LICCODE" on page 429 on page 429 on page 429 on page 429
B7*xx*1161	System log entry only, no service action required The platform encountered a service processor event indicating that the power status has changed. Note that this is B7*xxxxxx* only.	

Table 503. (B7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
B7*xx*1730	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The VPD for the system is not what was expected at IPL. The IPL will not continue. Call your next level of support.	"SVCDOCS" on page 963
B7*xx*1731	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The VPD for the system is not what was expected at IPL. Call your next level of support.	"CAPACTY" on page 363
B7*xx*1732	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The VPD for the system is not what was expected at IPL. The VPD on a processor card is not correct. Call your next level of support.	"NEXTLVL" on page 899
B7*xx*1733	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The VPD for the system is not what was expected at IPL. The VPD on a memory card is not correct. Call your next level of support.	"NEXTLVL" on page 899
B7*xx*4400	There is a platform dump to collect Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. Use the operating system's interface designated to collect platform dumps.	"SVCDOCS" on page 963
B7*xx*4401	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The platform LIC detected an internal problem. Contact your next level of support.	"NEXTLVL" on page 899
B7*xx*4700 to B7*xx*4701	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. A problem occurred when initializing, reading, or using system VPD.	"CAPACTY" on page 363
B7*xx*4703	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. A problem occurred when initializing, reading, or using system VPD.	"LICCODE" on page 429

Table 503. (B7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
B7*xx*4704	Platform LIC detected an error The Capacity on Demand function is no longer available. Look for and correct errors with SRCs of the form 1*xxxxxxx* in the Serviceable Event View. If that does not correct the problem, or no errors were found, contact your next level of support.	"SVCDOCS" on page 963
B7*xx*4705	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. A problem occurred when initializing, reading, or using system VPD.	"LICCODE" on page 429
B7*xx*4710	Platform LIC detected an error This SRC is always of the form B700*xxxx*. A communications problem with the service processor occurred. Look for errors with SRCs of the form 1*xxxxxxx* or B7*xx*69*xx* in the Serviceable Event View. Work those errors. If no such errors are present, no service action is required.	"SVCDOCS" on page 963 "LICCODE" on page 429"CAPACTY" on page 363 on page 363 on page 363 on page 363
B7*xx*4712	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. A problem occurred when initializing, reading, or using system VPD.	"CAPACTY" on page 363
B7*xx*4714	Platform LIC has detected a new VPD card The new VPD card requires new activation codes. Enter the new activation codes.	"SVCDOCS" on page 963
B7*xx*4715	Platform LIC detected an error A problem occurred when initializing, reading, or using system VPD. Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. Look for errors with SRCs of the form 1*xxxxxxx* in the Serviceable Event View. Work those errors first. If that does not correct the problem, contact your next level of support.	"SVCDOCS" on page 963 "CAPACTY" on page 363"SVCPROC" on page 963 on page 963 on page 963 on page 963
B7*xx*4716	User intervention required The Capacity on Demand activation code recovery period has been started. Either obtain more capacity or allocate fewer resources.	"SVCDOCS" on page 963
B7*xx*4730	Platform LIC detected an error This SRC is always of the form B700*xxxx*. A problem occurred when configuring the logical partitions on the system. More resources were allocated than there are available for use. Either obtain more capacity or allocate fewer resources.	"SVCDOCS" on page 963"LPARCFG" on page 432 on page 432 on page 432 on page 432
B7*xx*4731	Platform LIC detected an error This SRC is always of the form B700*xxxx*. A problem occurred initializing, reading, or using system VPD. No service action is required.	"CAPACTY" on page 363

Table 503. (B7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
B7*xx*4733	Platform LIC failure This SRC is always of the form B700*xxxx*. A problem occurred initializing, reading, or using system VPD. No service action is required.	"LICCODE" on page 429
B7*xx*4740	Platform LIC detected an error An incorrect activation code has been detected. Resources associated with this activation code have been disabled. Enter a valid activation code.	"SVCDOCS" on page 963
B7*xx*4741	Platform LIC detected an error The number of allowable attempts to enter a valid activation code has been exceeded. A system IPL is required in order to retry entering a valid activation code.	"SVCDOCS" on page 963
B7*xx*4742	Platform LIC detected an error A communications problem with the service processor occurred. No Capacity on Demand changes can be made. Look for errors with SRCs of the form B1*xxxxxx* or B7*xx*69*xx* in the Serviceable Event View. Work those errors first. If that does not correct the problem, contact your next level of support.	"SVCDOCS" on page 963
B7*xx*4747	User intervention required One hour remains until the On/Off Capacity on Demand request expires. All temporary resources should be removed from partitions before the request expires.	"SVCDOCS" on page 963
B7*xx*4748	User intervention required One hour remains until the Reserve Capacity on Demand request expires. In order to reactivate temporary resources, a new Reserve Capacity on Demand enablement code is required.	"SVCDOCS" on page 963
B7*xx*4749	User intervention required One hour remains until the Trial Customer on Demand activation expires. All temporary resources should be removed from partitions before the request expires.	"SVCDOCS" on page 963
B7*xx*4750	A Capacity on Demand change has been detected A Reserve Capacity on Demand resource has been activated.	"SVCDOCS" on page 963
B7*xx*4780 to B7*xx*4783	System log entry only, no service action required The data obtained from the system is not what was expected. The IPL will continue. Should other errors occur, call your next level of support.	"SVCDOCS" on page 963
B7*xx*47FF	System log entry only, no service action required The Capacity on Demand History Log has been written to the error log. No service action is required.	"SVCDOCS" on page 963
B7*xx*5120	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. If the system is not exhibiting problematic behavior, this error can safely be ignored. Otherwise, contact your next level of support.	"NEXTLVL" on page 899

Table 503. (B7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
B7*xx*5122	Platform LIC detected an error	"LICCODE" on page 429
B7*xx*5190	Operating System error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The platform detected a problem in an Operating System. Check for errors in the partition ID specified in word 4 of the SRC. If correcting those errors does not correct the problem, or if you find no errors, contact your next level of support.	"SVCDOCS" on page 963
B7*xx*5300	Platform LIC detected a failure while partitioning resources Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. Platform partitioning code encountered an error. This SRC represents a large number of possible problems, most of which involve the platform Licensed Internal Code (LIC). Work any error logs found in the Serviceable Event View. If this fails to correct the problem, or if there are no other errors, contact your next level of support.	
B7*xx*5400	A resource has been disabled due to hardware problems Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The platform detected a problem with a processor. The processor is not functional. Look in the Serviceable Event View for a B1*xxxxxx* error that implicates a processor. If the Serviceable Event View contains no B1*xxxxxx* error, or if resolving the error fails to correct the problem, contact your next level of support.	"SVCDOCS" on page 963
B7*xx*5600 to B7*xx*5601	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. There was a problem initializing, reading, or using system VPD.	"NEXTLVL" on page 899
B7*xx*6900	PCI host bridge failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. If the Serviceable Event View is not available then use the failing item list presented here for servicing this reference code.	"SIIOADP" on page 958 "PRI_PCI" on page 913 "MA_BRDG" on page 435 "MABIP50" on page 437"PIOCARD" on page 912 on page 912 on page 912 on page 912

Table 503. (B7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
B7*xx*6906	System bus error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"SIIOADP" on page 958
B7*xx*6907	System bus error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"SIIOADP" on page 958"LICCODE" on page 429 on page 429 on page 429 on page 429 on page 429
B7*xx*6908	System bus error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"PRI_PCI" on page 913
B7*xx*6909	System bus error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"PRI_PCI" on page 913"LICCODE" on page 429 on page 429 on page 429 on page 429
B7*xx*6970	PCI host bridge failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"SIIOADP" on page 958 "PRI_PCI" on page 913 "MA_BRDG" on page 435 "MABIP50" on page 437"PIOCARD" on page 912 on page 912 on page 912 on page 912
B7*xx*6971	PCI secondary bus failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"MABIP50" on page 437 "MA_BRDG" on page 435 "MASBUS" on page 894"PIOCARD" on page 912 on page 912 on page 912 on page 912
B7*xx*6972	System bus error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"MA_BRDG" on page 435"PRI_PCI" on page 913 on page 913 on page 913 on page 913

Table 503. (B7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
B7*xx*6973	System bus error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. If the first half of word 7 is not 0001, remove SVCPROC (the service processor) from the list of possible FRUs.	"PIOCARD" on page 912 "MA_BRDG" on page 435 "SVCPROC" on page 963 "PRI_PCI" on page 913"MASBUS" on page 894 on page 894 on page 894 on page 894 on page 894 on page 894
B7*xx*6974	Multi-adapter bridge configuration change or error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"MABRCFG" on page 438"PIOCARD" on page 912 on page 912 on page 912 on page 912
B7*xx*6980	Network Interface Controller (NIC) resource failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. **Note:** A fiber optic cleaning kit might be required for optical HSL connections.	"SICNTRL" on page 958"OPT_CLN" on page 903 on page 903 on page 903 on page 903
B7*xx*6981	High Speed Link (HSL) I/O bridge failure If you find a B1*xxxxxx* SRC logged on the same tower as one of the FRUs here, and then close this problem and work the B1*xxxxxx* SRC. Use the unit value of the location codes to determine if the tower is the same. Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"SIIOADP" on page 958
B7*xx*6982	High Speed Link (HSL) connection failure Perform the "RIOIP11" on page 950 procedure. Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. **Note:** A fiber optic cleaning kit might be required for optical HSL connections.	"SVCDOCS" on page 963 "HSL_LNK" on page 414 "OPT_CLN" on page 903 "FRPORT" on page 378"TOPORT" on page 966 on page 966 on page 966 on page 966

Table 503. (B7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
B7*xx*6983	An invalid High Speed Link (HSL) configuration was detected Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The four rightmost characters of word 4 in the reference code represent the Program Return Code (PRC), which describes the problem detected. The four leftmost digits of word 7 represent the loop number in hexadecimal format. Convert the loop number to decimal format before comparing it to loop numbers shown in serviceable event views and service tools. To determine the problem, find the PRC in the list below. **Note:** The FRU description in the serviceable event view might already contain a message that identifies the problem. • *xxxx*0008 indicates the system serial number is not set. Set the serial number on the system unit. If the problem persists contact your next level of support. • *xxxx*3201 indicates there are clustered systems on multiple HSL/RIO loops. You will need to ensure all clustered systems are on the same HSL/RIO loop. • *xxxx*3217 indicates there is a model 5791, 5792, or 5794 IO drawer on a loop with clustered systems. This is not a supported configuration. **This ends the procedure.**	"SIRGCFG" on page 958
B7*xx*6984	System log entry only, no service action required An HSL loop has switched to its alternate path. This is an informational SRC only. Word 7 of the SRC contains the loop number in the leftmost 4 digits. The loop number is in hexadecimal format. You must convert the hexadecimal loop number into decimal format to recognize the loop number. This SRC can be caused by a tower on the HSL loop powering off. This SRC might also appear in a Serviceable Event View you are using, with a B7006982 or B7006981 logged at approximately the same time. In that case the other SRC is reporting a failure and this SRC is reporting that the alternate RIO path is now being used. Service the other SRC if present.	"SVCDOCS" on page 963
B7*xx*6985	High Speed Link (HSL) loop status message This is a serviceable event only if this error is in a serviceable event view such as the Service Focal Point on HMC, the SAL on i5/OS, the Diagnostic Results Log on AIX or Linux, or the ASMI Error Log. If this is a serviceable event then perform "RIOIP12" on page 951. Otherwise if this is NOT a serviceable event then to determine what this SRC means use symbolic FRU "SIRSTAT" on page 959. Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. **Note:** A fiber optic cleaning kit might be required for optical HSL connections.	"SVCDOCS" on page 963 "HSL_LNK" on page 414 "OPT_CLN" on page 903 "FRPORT" on page 378"TOPORT" on page 966 on page 966 on page 966 on page 966
B7*xx*6986	System bus error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. If the Serviceable Event View is not available then use the failing item list presented here for servicing this reference code.	"TWRCARD" on page 967"PWRCBL" on page 927 on page 927 on page 927 on page 927

Table 503. (B7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
B7*xx*6987	High Speed Link (HSL) connection failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. If the Serviceable Event View is not available then use the failing item list presented here for servicing this reference code.	"HSL_LNK" on page 414"OPT_CLN" on page 903 on page 903 on page 903 on page 903 on page 903 on page 903
B7*xx*6990	Service processor failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. If the Serviceable Event View is not available then use the failing item list presented here for servicing this reference code.	"SVCPROC" on page 963
B7*xx*6991 to B7*xx*6992	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange.	"LICCODE" on page 429
B7*xx*6993	Service processor failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. If the Serviceable Event View is not available then use the failing item list presented here for servicing this reference code.	"SVCPROC" on page 963"LICCODE" on page 429 on page 429 on page 429
B7*xx*6994	Service processor failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. If the Serviceable Event View is not available then use the failing item list presented here for servicing this reference code.	"SVCPROC" on page 963
B7*xx*69E1	Host Channel Adapter The Infiniband Host Channel Adapter has failed	"SVCDOCS" on page 963
B7*xx*69E2	Platform LIC failure A Platform Licensed Internal Code error occurred related to Infiniband. The system will continue to run with this Host Channel Adapter disabled. Perform a platform dump prior to IPLing the system. An IPL is required to recover the Host Channel Adapter.	"LICCODE" on page 429
B7*xx*69E3	System log entry only, no service action required Part of the HCA chip failed but was not terminating. When thresholded, these errors will result in a B70069E1.	
B7*xx*69E4	An invalid High Speed Link (HSL) configuration was detected An error was detected in the Infiniband fabric. Have the customer check for problems reported at the Infiniband Network Manager. This includes cases such as path migration, etc.	"SVCDOCS" on page 963
B7*xx*69E5	System log entry only, no service action required An Infiniband communications error occurred. Unrecognized command from Subnet Manager. Does not require service.	

Table 503. (B7xxxxxx) Licensed Internal Code (LIC) Reference Codes (continued)

SRC	Description/Action	Failing Item
B7*xx*69E6	System log entry only, no service action required The cable connection to the Infiniband switch is broken. Verify that the cable is connected and the switch is powered on. After repairing the problem, verify that the connection has been restored by using the Infiniband Network Manager. Does not require service.	
B7*xx*69E7	System log entry only, no service action required The cable connection to the Infiniband switch has been restored. No service action required.	
B7*xx*69E9	System log entry only, no service action required Initial communication has occurred with the Subnet Manager. No service action required. The CEC and switch firmware are now communicating.	
B7*xx*69EA	System log entry only, no service action required Reported when the logical switch receives a setPortInfo for the switch management port that sets a new SM LID. This indicates the point where DMA can report changes in switch port states to SM via a TRAP and also that SM has received and accepted out responses to the initial gets. This proves that there is 2-way communication. Note that this will also tell us when a subnet merge has occurred and a new SM has issued a setPortInfo with an SMLID that differs from the previous one. No service action required.	
B7*xx*69EB	User intervention required An Infiniband configuration error was detected by the HCA. Verify that the Infiniband configuration is correct at the HCA. The Port 1 and 2 configurations conflict.	"SVCDOCS" on page 963
B7*xx*C2AC	System log entry only, no service action required The Capacity on Demand License acceptance has completed. No corrective action is required.	"SVCDOCS" on page 963
B7*xx*F103	Platform LIC failure Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The platform LIC detected an internal problem. Collect all the SRC words and the platform system dump, and then contact your next level of support.	"LICCODE" on page 429
B7*xx*F104	Operating System error Platform LIC terminated a partition. Platform LIC terminated a partition with an unresponsive Operating System. Collect all the SRC words and the platform system dump, and then contact your next level of support.	"NEXTLVL" on page 899
B7*xx*F105	Platform LIC detected an error Work with the FRU list in the serviceable event view if there is one, otherwise use the FRU list documented here to determine the parts to exchange. The platform LIC detected an internal problem. Collect all the SRC words and the platform system dump, and then contact your next level of support.	"NEXTLVL" on page 899

(BA*xxxxxx*) Partition firmware reference (attention) codes

This section describes (BA*xxxxxx*) partition firmware reference (attention) codes.

For use by authorized service providers.

Partition firmware posts BA*xxxxxx* system reference codes (SRCs), which offer information about the next target state for the platform firmware. These codes might also indicate that you need to perform an action, like opening a firmware console or checking serial connections.

The BA*xxxxxx* table uses the following format:

- The first column, Reference Code, contains numbers that identify a particular action your server performs during initialization of firmware.
- The second column, Description/Action, offers a brief description about this SRC. It might also contain instructions for continuing the problem analysis.
- The third column, Failing Item, offers a link to instructions service actions for recovering from a hang on an attention code. Click the failing item code only when you experience a hang condition on an attention code. For example, a hang condition occurs when your server performs a requested action but the SRC in the control panel display does not change for several minutes and the partition firmware appears to be hung.

The partition firmware detected a failure. The first eight characters in the display represent the SRC. Any additional characters represent the associated location code. Record the location code as well as the reference code, and then find the SRC in the following table.

Table 504. (BAxxxxxx) Partition firmware reference (error) codes

SRC	Description/Action	Failing Item
BA000010	The device data structure is corrupted.	"FWFLASH" on page 397
BA000020	Incompatible firmware levels were found. Reflash the platform firmware.	
BA000030	An lpevent communication failure occurred.	"FWFLASH" on page 397
BA000032	The firmware failed to register the lpevent queues	"FWFLASH" on page 397
BA000034	The firmware failed to exchange capacity and allocate lpevents	"FWFLASH" on page 397
BA000038	The firmware failed to exchange virtual continuation events	"FWFLASH" on page 397
BA000040	The firmware was unable to obtain the RTAS code lid details.	"FWFLASH" on page 397
BA000050	The firmware was unable to load the RTAS code lid.	"FWFLASH" on page 397
BA000060	The firmware was unable to obtain the open firmware code lid details.	"FWFLASH" on page 397
BA000070	The firmware was unable to load the open firmware code lid.	"FWFLASH" on page 397
BA010000	There is insufficient information to boot the partition.	"FWIPIPL" on page 398

Table 504. (BAxxxxxx) Partition firmware reference (error) codes (continued)

SRC	Description/Action	Failing Item
BA010001	The client IP address is already in use by another network device.	"FWIPIPL" on page 398
BA010002	Cannot get gateway IP address Refer to partition firmware progress code CA00E174	"FWHOST" on page 398
BA010003	Cannot get server hardware address Refer to partition firmware progress code CA00E174.	"FWHOST" on page 398
BA010004	Boot failed.	
BA010005	File transmission (TFTP) failed. Refer to partition firmware progress code CA00E174.	"FWHOST" on page 398 "FWADIPL" on page 396
BA010006	The boot image is too large.	"FWADIPL" on page 396
BA020001	Partition firmware password entry error Reenter the password.	
BA020009	Invalid password entered - system locked A password was entered incorrectly three times. Deactivate the partition using the management console, and then reactivate it. When asked for the password, enter the correct password."	
BA030011	RTAS attempt to allocate memory failed	"FWFWPBL" on page 397
BA04000F	Self test failed on device; no error or location code information available. If there was a location code reported with the error, replace the device specified by the location code.	"NEXTLVL" on page 899
BA040010	Self test failed on device; cannot locate package	"NEXTLVL" on page 899
BA040020	The machine type and model are not recognized by the server firmware. Check for server firmware updates, and apply them, if available.	"NEXTLVL" on page 899
BA050001	Failed to reboot a partition in logical partition mode.	"FWFWPBL" on page 397
BA050004	Failed to locate service processor device tree node.	"FWFWPBL" on page 397
BA05000A	Failed to send boot failed message to the service processor.	"FWFWPBL" on page 397
BA060003	IP parameter requires 3 period characters "." Enter a valid IP parameter. Example: 000.000.000.000	
BA060004	Invalid IP parameter Enter a valid IP parameter. Example: 000.000.000.000	

Table 504. (BAxxxxxx) Partition firmware reference (error) codes (continued)

SRC	Description/Action	Failing Item
BA060005	Invalid IP parameter (>255) Enter a valid IP parameter. Example: 000.000.000.000	
BA060007	A keyboard was not found. 1. Make sure that a keyboard is attached to the USB port that is assigned to the partition. 2. Replace the USB card to which the keyboard is attached.	
BA060008	No configurable adapters found by the remote IPL menu in the SMS utilities. This error occurs when the remote IPL menu in the SMS utilities cannot locate any LAN adapters that are supported by the remote IPL function.	"FWRIPL" on page 404
BA06000B	The system was not able to find an operating system on the devices in the boot list. See "MAP4040 Isolating LPAR operating system boot problems" on page 654.	
BA06000C	A pointer to the operating system was found in non-volatile storage.	"FWPTR" on page 403
BA060020	The environment variable "boot-device" exceeded the allowed character limit.	"FWNIM" on page 399
BA060021	The environment variable "boot-device" contained more than five entries.	"FWNIM" on page 399
BA060022	The environment variable "boot-device" contained an entry that exceeded 255 characters in length.	"FWNIM" on page 399
BA060030	Logical partitioning with shared processors is enabled and the operating system does not support it. 1. Install or boot a level of the operating system that supports shared processors. 2. Disable logical partitioning with shared processors in the operating system.	
BA07*xxxx*	SCSI controller failure	"FWSCSI1" on page 404
BA080001	An IDE device remained busy for a longer period than the time out period.	"FWFWPBL" on page 397
BA080002	The IDE controller senses IDE devices but with errors. • Verify that the IDE devices are properly seated and cabled correctly. • Replace the IDE controller (model-dependent).	
BA080010	An IDE device is busy longer than specified time-out period. Retry the operation.	"FWIDE1" on page 397
BA080011	An IDE command timed out; command is exceeding the period allowed to complete. Retry the operation.	"FWIDE1" on page 397
BA080012	The ATA command failed.	"FWIDE2" on page 398

Table 504. (BAxxxxxx) Partition firmware reference (error) codes (continued)

SRC	Description/Action	Failing Item
BA080013	The media is not present in the tray. Retry the operation.	"FWIDE1" on page 397
BA080014	The media has been changed. Retry the operation.	"FWIDE1" on page 397
BA080015	The packet command failed; the media might not be readable. Retry the operation.	"FWIDE1" on page 397
BA09*xxxx*	SCSI controller failure This checkpoint might remain in the control panel for up to 15 minutes If the checkpoint persists longer than 15 minutes, do the following: 1. Power off the server and reboot from the permanent side. Reject the firmware image on the temporary side. 2. If the problem persists, before replacing any components, refer to the actions for BA090001.	
BA090001	SCSI DASD: test unit ready failed; hardware error.	"FWSCSI1" on page 404
BA090002	SCSI DASD: test unit ready failed; sense data available.	"FWSCSI2" on page 404
BA090003	SCSI DASD: send diagnostic failed; sense data available.	"FWSCSI3" on page 405
BA090004	SCSI DASD: send diagnostic failed: devofl command.	"FWSCSI3" on page 405
BA100001	SCSI tape: test unit ready failed; hardware error.	"FWSCSI1" on page 404
BA100002	SCSI tape: test unit ready failed; sense data available.	"FWSCSI4" on page 405
BA100003	SCSI tape: send diagnostic failed; sense data available.	"FWSCSI3" on page 405
BA100004	SCSI tape: send diagnostic failed: devofl cmd.	"FWSCSI3" on page 405
BA110001	SCSI changer: test unit ready failed; hardware error.	"FWSCSI1" on page 404
BA110002	SCSI changer: test unit ready failed; sense data available.	"FWSCSI4" on page 405
BA110003	SCSI changer: send diagnostic failed; sense data available.	"FWSCSI3" on page 405
BA110004	SCSI changer: send diagnostic failed: devofl command.	"FWSCSI3" on page 405
BA120001	On an undetermined SCSI device, test unit ready failed; hardware error.	"FWSCSI5" on page 405
BA120002	On an undetermined SCSI device, test unit ready failed; sense data available.	"FWSCSI4" on page 405
BA120003	On an undetermined SCSI device, send diagnostic failed; sense data available.	"FWSCSI4" on page 405

Table 504. (BAxxxxxx) Partition firmware reference (error) codes (continued)

SRC	Description/Action	Failing Item
BA120004	On an undetermined SCSI device, send diagnostic failed; devofl command.	"FWSCSI4" on page 405
BA130001	SCSI CD-ROM: test unit ready failed; hardware error.	"FWSCSI1" on page 404
BA130002	SCSI CD-ROM: test unit ready failed; sense data available.	"FWSCSI3" on page 405
BA130003	SCSI CD-ROM: send diagnostic failed; sense data available.	"FWSCSI3" on page 405
BA130004	SCSI CD-ROM: send diagnostic failed: devofl command.	"FWSCSI3" on page 405
BA130010	USB CD-ROM: device remained busy longer than the time-out period. Retry the operation.	"FWFWPBL" on page 397
BA130011	USB CD-ROM: execution of ATA/ATAPI command was not completed with the allowed time. Retry the operation.	"FWCD1" on page 396
BA130012	USB CD-ROM: execution of ATA/ATAPI command failed. 1. Verify that the power and signal cables going to the USB CD-ROM are properly connected and are not damaged. If any problems are found, correct them, and then retry the operation. 2. If the problem persists, the CD in the USB CD-ROM drive might not be readable. Remove the CD and insert another CD.	"NEXTLVL" on page 899
BA130013	USB CD-ROM: bootable media is missing from the drive. Insert a bootable CD-ROM in the USB CD-ROM drive, and then retry the operation.	"FWCD1" on page 396
BA130014	USB CD-ROM: the media in the USB CD-ROM drive has been changed. Retry the operation.	"FWCD2" on page 396
BA130015	USB CD-ROM: ATA/ATAPI packet command execution failed. If the problem persists, the CD in the USB CD-ROM drive might not be readable. Remove the CD and insert another CD.	"FWCD2" on page 396
BA140001	SCSI read/write optical: test unit ready failed; hardware error.	"FWSCSI1" on page 404
BA140002	SCSI read/write optical: test unit ready failed; sense data available.	"FWSCSI1" on page 404
BA140003	SCSI read/write optical: send diagnostic failed; sense data available.	"FWSCSI3" on page 405
BA140004	SCSI read/write optical: send diagnostic failed; devofl command.	"FWSCSI3" on page 405

Table 504. (BAxxxxxx) Partition firmware reference (error) codes (continued)

SRC	Description/Action	Failing Item
BA150001	PCI Ethernet BNC/RJ-45 or PCI Ethernet AUI/RJ-45 adapter: internal wrap test failure. Replace the adapter specified by the location code.	
BA151001	10/100 MBPS Ethernet PCI adapter: internal wrap test failure. Replace the adapter specified by the location code.	
BA151002	10/100 MBPS Ethernet card	
BA151002	10/100 MBPS Ethernet card	"FWENET" on page 397
BA153003	Gigabit Ethernet adapter failure 1. Check for adapter firmware updates; apply if available. 2. Remove other cards from the PHB in which the gigabit Ethernet adapter is plugged and retry the operation. If the operation is successful, plug the cards in again, one at a time, until the failing card is isolated. After you identify the failing card, replace it. 3. Replace the adapter.	
BA160001	PCI auto LANstreamer token ring adapter failed to complete hardware initialization. Replace the adapter specified by the location code.	
BA161001	PCI token ring adapter: failed to complete hardware initialization. Replace the adapter specified by the location code.	
BA170*xxx*	NVRAM problems	"FWNVR1" on page 399
BA170000	NVRAMRC initialization failed; device test failed	"FWNVR2" on page 400
BA170100	NVRAM data validation check failed. Turn off, and then turn on the system.	"FWNVR2" on page 400
BA170201	The firmware was unable to expand target partition - saving configuration variable,	"FWNVR1" on page 399
BA170202	The firmware was unable to expand target partition - writing error log entry.	"FWNVR1" on page 399
BA170203	The firmware was unable to expand target partition - writing VPD data.	"FWNVR1" on page 399
BA170210	Setenv/$Setenv parameter error - name contains a null character.	"FWNVR1" on page 399
BA170211	Setenv/$Setenv parameter error - value contains a null character	"FWNVR1" on page 399
BA170998	NVRAMRC script evaluation error - command line execution error.	"FWNVR3" on page 400
BA170999	NVRAMRC script evaluation error - stack unbalanced on completion. This is a firmware debug environment error. There is no user action or FRU replacement for this error.	"NEXTLVL" on page 899

Table 504. (BAxxxxxx) Partition firmware reference (error) codes (continued)

SRC	Description/Action	Failing Item
BA180008	PCI device code evaluation error.	"FWPCI1" on page 401
BA180009	The Fcode on a PCI adapter left a data stack imbalance You should load the new adapter Fcode before you use the adapter (specified by the location code associated with this error) for booting.	
BA180010	PCI probe error, bridge in freeze state.	"FWPCI2" on page 401
BA180011	PCI bridge probe error, bridge is not usable.	"FWPCI3" on page 401
BA180012	PCI device runtime error, bridge in freeze state.	"FWPCI3" on page 401
BA180013	A PCI adapter was found that this machine type and model does not support. Is the system an IBM Intellistation model? • Yes, complete the following steps. 1. Check for and apply any available server firmware updates. 2. Replace the adapter at the location code that was reported with the error. • No, remove the PCI adapter specified by the location code.	
BA180100	FDDI adapter Fcode driver is not supported on this system. This server does not support the Fcode driver of this adapter. IBM might produce a compatible driver in the future, but does not guarantee one. Service support might have additional information.	
BA180101	Stack underflow from fibre-channel adapter	"FWFWPBL" on page 397
BA188000	An unsupported adapter was found in a PCI slot Remove the unsupported adapter in the slot identified by the location code.	
BA188001	EEH recovered a failing I/O adapter Replace the adapter in the slot identified by the location code.	
BA188002	EEH could not recover the failed I/O adapter Replace the adapter in the slot identified by the location code.	
BA190001	Firmware function to get/set time-of-day reported an error.	"FWFWPBL" on page 397
BA191001	The server firmware function to turn on the speaker reported an error	"FWFWPBL" on page 397
BA201001	The serial interface dropped data packets	"FWFWPBL" on page 397

Table 504. (BAxxxxxx) Partition firmware reference (error) codes (continued)

SRC	Description/Action	Failing Item
BA201002	The serial interface failed to open	"FWFWPBL" on page 397
BA201003	The firmware failed to handshake properly with the serial interface	"FWFWPBL" on page 397
BA210000	Partition firmware reports a default catch.	"FWFWPBL" on page 397
BA210001	Partition firmware reports a stack underflow was caught.	"FWFWPBL" on page 397
BA210002	Partition firmware was ready before standout was ready.	"FWFWPBL" on page 397
BA210010	The transfer of control to the SLIC loader failed	"FWFWPBL" on page 397
BA210100	The partition firmware was unable to log an error with the server firmware. No reply was received from the server firmware to an error log that was sent previously	"NEXTLVL" on page 899
BA210101	The partition firmware error log queue is full	"NEXTLVL" on page 899
BA250010	dlpar error in open firmware.	"FWLPAR" on page 399
BA250020	dlpar error in open firmware due to an invalid dlpar entity. This error might have been caused by an errant or hung operating system process. 1. Check for operating system updates that resolve problems with dynamic logical partitioning (dlpar) and apply them, if available. 2. Check for server firmware updates and apply them, if available.	
BA250030	A hotplug operation in dynamic logical partitioning (dlpar) was terminated for concurrent firmware update. Retry the hotplug operation after the concurrent firmware update is complete.	
BA278001	Failed to flash firmware: invalid image file Obtain a valid firmware update (flash) image for this system.	
BA278002	Flash file is not designed for this eServer platform. Obtain a valid firmware update (flash) image for this system.	
BA278003	Unable to lock the firmware update lid manager. 1. Reboot the system. 2. Make sure that the operating system is authorized to update the firmware. If the system is running multiple partitions, verify that this partition has service authority.	
BA278004	An invalid firmware update lid was requested. Obtain a valid firmware update (flash) image for this system.	

Table 504. (BAxxxxxx) Partition firmware reference (error) codes (continued)

SRC	Description/Action	Failing Item
BA278005	Failed to flash a firmware update lid, Obtain a valid firmware update (flash) image for this system.	
BA278006	Unable to unlock the firmware update lid manager. Reboot the system.	
BA278007	Failed to reboot the system after a firmware flash update. Reboot the system.	
BA278008	A server firmware update was attempted from the operating system. You must perform the update by using the Hardware Management Console (HMC). Perform the server firmware update by using the HMC.	
BA278009	The server firmware update management tools for the version of Linux that you are running are incompatible with this system. Go to "Service and productivity tools for Linux on POWER™" and download the latest service aids and productivity tools for the version of Linux that you are running.	
BA280000	RTAS discovered an invalid operation that might cause a hardware error	"NEXTLVL" on page 899
BA290000	RTAS discovered an internal stack overflow	"FWFWPBL" on page 397

BE*xxxxxx* System reference codes

This section lists the first four characters of the system reference codes and then links to information describing the last four characters.

Note for PE: There are BE5*xxxxx* and BE7*xxxxx* codes that are not actual SRCs. They are internal codes used to present status to the ESSNI GUI logical configuration options. They are not expected to appear in a Serviceable Event. A cross reference from the 8 character code to the message code and text as listed in the DS8000 Messages Reference document is available on the PE documentation database under **2107 Service Guides → Isolation MAPs and symbolic FRU procedures → BE5xxxxx and BE7xxxxx Logical Configuration Codes** (for PE Use only).

- "BE1*xxxxx*" on page 2037
- "BE3*xxxxx*" on page 2061
- "BE4*xxxxx*" on page 2092
- "BE5*xxxxx*" on page 2092
- "BE9*xxxxx*" on page 2093
- "BEB*xxxxx*" on page 2094
- "BED*xxxxx*" on page 2097
- "BEF*xxxxx*" on page 2101

BE1*xxxxx*

This section lists the BE1*xxxxx* system reference codes.

- BE10*xxxx*
- BE11*xxxx*
- BE12*xxxx*
- BE17*xxxx*
- BE18*xxxx*
- BE19*xxxx*
- BE1A*xxxx*
- BE1D*xxxx*
- BE1E*xxxx*

Table 505. BE10xxxx system reference codes

System reference code	Description
BE101109	NVC card diagnostics error, cpssmow0.
BE10110A	NVC card diagnostics error, cpssmow1.
BE10110B	NVC card FPGA update error, cpssmow0.
BE10110C	NVC card FPGA update error, cpssmow1.
BE102700	NVC card read data check.
BE102701	NVC card write data check.
BE102702	NVC card invalid track identifier check.
BE102703	NVC card battery diagnostic failure.
BE102704	NVC card diagnostic failure.
BE102705	NVC card compact flash failure.
BE102706	NVC card SDRAM failure.
BE102707	NVC card timeout.
BE102708	NVC card configuration failure.
BE102709	NVC card caused fabric error.
BE10270A	NVC card thresholded fabric error.
BE10270B	NVC card EIR failure.
BE10270C	NVC card communication timeout.
BE10270D	NVC card heartbeat failure.

Table 506. BE11xxxx system reference codes

System reference code	Description
BE110000	Boot DDM error, hdisk0.
BE110001	Boot DDM error, hdisk1.
BE111002	FHD DDM error, hdisk0.
BE111003	FHD DDM error, hdisk1.
BE111032	The server partition Ethernet is not configured properly.
BE111050	The server partition hard disk drives are not mirrored.
BE111051	The server partition dual hard disk drive has failed.
BE111052	The server partition dual hard disk drive mirrored operation failed.

Table 506. BE11xxxx system reference codes (continued)

System reference code	Description
BE111053	The server partition dual hard disk drive unmirrored operation failed.
BE111057	The replacement hard disk drive capacity is small.
BE111058	The server partition dual hard disk drive mirroring cleanup operation failed.
BE111059	The server partition's file systems are full.
BE11105A	An illegal server partition dual hard disk drive operation was attempted.
BE11105B	The server partition dual hard disk drive command failed.
BE11105C	The mirrored server partition hard disk drives cannot be synchronized.
BE11105D	The server partition dual hard disk drive bosboot command failed.
BE11105F	One server partition dual hard disk drive is failing. The other is not mirrored, so cannot be used.
BE111060	The server partition IMLs from the second hard disk drive from the bootlist.
BE11106F	The server partition FHD is missing.
BE11D000	Unrecoverable FHD disk error.
BE11D001	FHD disk missing.
BE11D002	FHD image header missing.
BE11D004	FHD fhdp code detected discrepancy.
BE11D005	FHD heartbeat failure.
BE11D007	FHD - OS unable to register for EPOW3.
BE11D00B	FHD - image invalidation successful.
BE11D017	FHD write error, I/O error.
BE11D018	FHD write error, write operation was interrupted.
BE11D019	FHD write error, hang-up occurred or nonexistent devices.
BE11D01A	FHD write error, user or group quota of disk blocks exhausted.
BE11D01B	FHD write error, file descriptor parameter does not specify valid file descriptor open for writing.
BE11D01C	FHD write error, invalid parameter value.
BE11D01D	FHD write error, O_NONBLOCK is set and process would be delayed in write operation.
BE11D01E	FHD write error, memory pointer is out of allocated address space.
BE11D01F	FHD write error, no free space left on file system.
BE11D020	FHD write error, offset greater than MAX_FILESIZE was requested.
BE11D021	FHD write error, attempt to write made to unopened file, pipe, or FIFO or an unconnected socket.

Table 506. BE11xxxx system reference codes (continued)

System reference code	Description
BE11D022	FHD write error, file descriptor is associated with a pipe or FIFO.
BE11D023	FHD write error, transfer request size outside range supported by the STREAMS file.
BE11D024	FHD read error, I/O error.
BE11D025	FHD read error, read was interrupted before any data received.
BE11D026	FHD read error, request to nonexistent device or outside capabilities of device.
BE11D027	FHD read error, message contains control port.
BE11D028	FHD read error, bad file descriptor parameter.
BE11D029	FHD read error, invalid parameter value.
BE11D02A	FHD read error, no data ready to be read.
BE11D02B	FHD read error, memory pointer is out of address space.
BE11D02C	FHD read error, calling process slept while read region lockec.
BE11D02D	FHD read error, offset greater than MAX_FILESIZE.
BE11D02E	FHD read error, analysis overflow.
BE11D02F	FHD read error, file descriptor is associated with a pipe or FIFO.
BE11D030	FHD lseek error, bad file descriptor parameter.
BE11D031	FHD lseek error, file descriptor is associated with a pipe or FIFO.
BE11D032	FHD lseek error, invalid parameter value.
BE11D033	FHD lseek error, offset overflow.
BE11D034	FHD open error, I/O error.
BE11D035	FHD open error, open was interrupted.
BE11D036	FHD open error, request to nonexistent device or outside capabilities of device.
BE11D037	FHD open error, user or group quota of disk blocks has been exhausted.
BE11D038	FHD open error, named file exists.
BE11D039	FHD open error, invalid parameter value.
BE11D03A	FHD open error, file is locked.
BE11D03B	FHD open error, path parameter points outside allocated memory space.
BE11D03C	FHD open error, directory cannot be extended.
BE11D03D	FHD open error, file exceeds max file size.
BE11D03E	FHD open error, overflow of max file size.
BE11D03F	FHD open error, access denied.
BE11D040	FHD open error, file is directory and write access if required.

Table 506. BE11xxxx system reference codes (continued)

System reference code	Description
BE11D041	FHD open error, system limit for open file descriptors per process reached.
BE11D042	FHD open error, path parameter exceeds system limit.
BE11D043	FHD open error, system file table is full.
BE11D044	FHD open error, invalid parameter value.
BE11D045	FHD open error, system unable to allocate resources.
BE11D046	FHD open error, system cannot allocate STREAM.
BE11D047	FHD open error, component of path is not a directory.
BE11D048	FHD open error, file is on read-only system, need write access.
BE11D049	FHD open error, file is busy.
BE11D04A	FHD open error, too many symbolic links encountered in path.
BE11D054	FHD - server to be fenced due to lack of FHD disks to have FHD ability.
BE11D055	FHD image header error.
BE11D056	FHD - server to be fenced due to image invalidation error.
BE11D05A	FHD - fhdp code detected discrepancy or heartbeat failure while in single cluster.

Table 507. BE12xxxx system reference codes

System reference code	Description
BE120010	IBM.essLPARServicesRM detected missing CEC Ethernet adapter resource during harvest.
BE120011	IBM.essLPARServicesRM detected missing CEC Ethernet network port resource during harvest.

Table 508. BE17xxxx system reference codes

System reference code	Description
BE171000	LPAR statesave.
BE172000	LPAR crash save.
BE173000	LPAR config data.
BE175000	PDISK statesave.
BE176000	Enclosure statesave.

Table 509. BE18xxxx system reference codes

System reference code	Description
BE18xxxx	See “MAP2210 Power failure not isolated” on page 595.

Table 510. BE19xxxx system reference codes

System reference code	Description
BE190001	RPC1 standby 3.3V limiter failure for processor complex 1.
BE190002	RPC2 standby 3.3V limiter failure for processor complex 1.
BE190003	RPC1 standby 3.3V limiter failure for processor complex 2.
BE190004	RPC2 standby 3.3V limiter failure for processor complex 2.
BE190005	RPC1 is held fenced by RPC2.
BE190006	RPC1 to RPC2 communication failure.
BE190007	RPC2 is held fenced by RPC1.
BE190008	RPC2 to RPC1 communication failure.
BE190009	RPC1 to processor complex 1 communication failure.
BE19000A	RPC1 to processor complex 2 communication failure.
BE19000B	RPC2 to processor complex 1 communication failure.
BE19000C	RPC2 to processor complex 2 communication failure.
BE190010	Processor complex 1 failed to communicate with RPC1 and RPC2.
BE190011	Processor complex 2 failed to communicate with RPC1 and RPC2.
BE190012	Processor complex 1 and 2 failed to communicate with RPC1.
BE190013	Processor complex 1 and 2 failed to communicate with RPC2.
BE190014	Processor complex 1 failed to communicate with RPC1.
BE190015	Processor complex 2 failed to communicate with RPC1.
BE190016	Processor complex 1 failed to communicate with RPC2.
BE190017	Processor complex 2 failed to communicate with RPC2.
BE190020	RPC1 interrupt state incorrect.
BE190021	RPC2 interrupt state incorrect.
BE190030	RPC1 to RPC2 communication failure.
BE190031	RPC1 and RPC2 failed to communicate with the rack ID logic card.
BE190032	RPC1 failed to communicate with the rack ID logic card.
BE190033	RPC2 failed to communicate with the rack ID logic card.
BE190034	RPC1 and RPC2, rack ID data CRC check.
BE190035	RPC2, rack ID data CRC check.
BE190036	RPC1, rack ID data CRC check.
BE190037	RPC1, pack data parity error in flash.
BE190038	RPC2, pack data parity error in flash.
BE190039	Remote force power-off switch is only active on RPC1.
BE19003A	Remote force power-off switch is only active on RPC2.
BE19003B	RPC1, PPS1 interrupt source register failure.

Table 510. BE19xxxx system reference codes (continued)

System reference code	Description
BE19003C	RPC1, PPS2 interrupt source register failure.
BE19003D	RPC2, PPS1 interrupt source register failure.
BE19003E	RPC2, PPS2 interrupt source register failure.
BE19003F	RPC1 indicates that RPC2 is failing.
BE190040	RPC2 indicates that RPC1 is failing.
BE190041	RPC1 failure caused processor complex 1 communication failure.
BE190042	RPC1 failure caused processor complex 2 communication failure.
BE190043	RPC2 failure caused processor complex 1 communication failure.
BE190044	RPC2 failure caused processor complex 2 communication failure.
BE190045	Processor complex 1 standby 3.3V source failure.
BE190046	Processor complex 2 standby 3.3V source failure.
BE190047	RPC1 remote force power-off switch source has failed.
BE190048	RPC2 remote force power-off switch source has failed.
BE190049	RPC1, microcode interrupt is active unexpectedly.
BE19004A	RPC2, microcode interrupt is active unexpectedly.
BE19011x	RPC1 and RPC2 to PPS1, rack x communication failure.
BE19012x	RPC1 and RPC2 to PPS2, rack x communication failure.
BE19013x	RPC1 to PPS1, rack x communication failure.
BE19014x	RPC1 to PPS2, rack x communication failure.
BE19015x	RPC2 to PPS1, rack x communication failure.
BE19016x	RPC2 to PPS2, rack x communication failure.
BE19017x	RPC1 to PPS1 and PPS2, rack x communication failure.
BE19018x	RPC2 to PPS1 and PPS2, rack x communication failure.
BE19030A	RPC1 local power control mode conflict.
BE19030B	RPC1 remote power control mode conflict.
BE19030C	RPC2 local power control mode conflict.
BE19030D	RPC2 remote power control mode conflict.
BE19100x	Rack x, loss of line cord ac.
BE19101x	PPS1 to PPS2, rack x communication failure.
BE19104x	PPS1 and PPS2, rack x over current at DDM +5 volt boundary A.
BE19105x	PPS1 and PPS2, rack x over current at DDM +12 volt boundary A.
BE19106x	PPS1 and PPS2, rack x over current at DDM +5 volt boundary B.
BE19107x	PPS1 and PPS2, rack x over current at DDM +12 volt boundary B.
BE19108x	PPS1 and PPS2, rack x over current at optional DDM +5 volt boundary A.

Table 510. BE19xxxx system reference codes (continued)

System reference code	Description
BE19109x	PPS1 and PPS2, rack x over current at optional DDM +12 volt boundary A.
BE1910Ax	PPS1 and PPS2, rack x over current at optional DDM +5 volt boundary B.
BE1910Bx	PPS1 and PPS2, rack x over current at optional DDM +12 volt boundary B.
BE1910Cx	PPS1 and PPS2, rack x standby converter off.
BE1910Dx	PPS1 and PPS2, rack x protected 0 +208 VDC is off.
BE1910Ex	PPS1 and PPS2, rack x protected 1 +208 VDC is off.
BE1910Fx	PPS1 and PPS2, rack x rack ID card communication failure.
BE19110x	PPS1, rack x loss of line cord ac.
BE19111x	PPS2, rack x loss of line cord ac.
BE19112x	PPS1, rack x line cord ac is single phase.
BE19113x	PPS2, rack x line cord ac is single phase.
BE19114x	PPS1, rack x input circuit breaker is off.
BE19115x	PPS2, rack x input circuit breaker is off.
BE19116x	PPS1, rack x UEPO switch is active.
BE19117x	PPS2, rack x UEPO switch is active.
BE19118x	PPS1, rack x UEPO converter failure.
BE19119x	PPS2, rack x UEPO converter failure.
BE1911Ax	PPS1, rack x PFC converter failure.
BE1911Bx	PPS2, rack x PFC converter failure.
BE1911Cx	PPS1, rack x internal failure.
BE1911Dx	PPS2, rack x internal failure.
BE1911Ex	PPS1, rack x power-on self-test failed.
BE1911Fx	PPS2, rack x power-on self-test failed.
BE19120x	PPS1, rack x standby converter failure.
BE19121x	PPS2, rack x standby converter failure.
BE19122x	PPS1, rack x sequencer EEPROM failure.
BE19123x	PPS2, rack x sequencer EEPROM failure.
BE19124x	PPS1, rack x sequencer heartbeat failure.
BE19125x	PPS2, rack x sequencer heartbeat failure.
BE19126x	PPS1, rack x age of BBUs differ by more than 2 years.
BE19127x	PPS2, rack x age of BBUs differ by more than 2 years.
BE19128x	PPS1, rack x fan 1 failure.
BE19129x	PPS2, rack x fan 1 failure.
BE1912Ax	PPS1, rack x fan 2 failure.
BE1912Bx	PPS2, rack x fan 2 failure.
BE1912Cx	PPS1, rack x fan 3 failure.
BE1912Dx	PPS2, rack x fan 3 failure.

Table 510. BE19xxxx system reference codes (continued)

System reference code	Description
BE1912Ex	PPS1, rack x over temperature at main 208V.
BE1912Fx	PPS2, rack x over temperature at main 208V.
BE19130x	PPS1, rack x over temperature at PFC.
BE19131x	PPS2, rack x over temperature at PFC.
BE19132x	PPS1, rack x over temperature at main DDM module, bus A.
BE19133x	PPS2, rack x over temperature at main DDM module, bus A.
BE19134x	PPS1, rack x over temperature at main DDM module, bus B.
BE19135x	PPS2, rack x over temperature at main DDM module, bus B.
BE19136x	PPS1, rack x over temperature at optional +208 VDC module.
BE19137x	PPS2, rack x over temperature at optional +208 VDC module.
BE19138x	PPS1, rack x over temperature at booster module.
BE19139x	PPS2, rack x over temperature at booster module.
BE1913Ax	PPS1, rack x over temperature at optional DDM module bus A.
BE1913Bx	PPS2, rack x over temperature at optional DDM module bus A.
BE1913Cx	PPS1, rack x over temperature at optional DDM module bus B.
BE1913Dx	PPS2, rack x over temperature at optional DDM module bus B.
BE1913Ex	PPS1, rack x main +208 VDC over or under voltage.
BE19141x	PPS2, rack x main +208 VDC over or under voltage.
BE19142x	PPS1, rack x main +5 VDC boundary A over or under voltage.
BE19143x	PPS2, rack x main +5 VDC boundary A over or under voltage.
BE19144x	PPS1, rack x main +12 VDC boundary A over or under voltage.
BE19145x	PPS2, rack x main +12 VDC boundary A over or under voltage.
BE19146x	PPS1, rack x main +5 VDC boundary B over or under voltage.
BE19147x	PPS2, rack x main +5 VDC boundary B over or under voltage.
BE19148x	PPS1, rack x main +12 VDC boundary B over or under voltage.
BE19149x	PPS2, rack x main +12 VDC boundary B over or under voltage.
BE1914Ax	PPS1, rack x optional +5 VDC boundary A over or under voltage

Table 510. BE19xxxx system reference codes (continued)

System reference code	Description
BE1914Bx	PPS2, rack x optional +5 VDC boundary A over or under voltage.
BE1914Cx	PPS1, rack x optional +12 VDC boundary A over or under voltage.
BE1914Dx	PPS2, rack x optional +12 VDC boundary A over or under voltage.
BE1914Ex	PPS1, rack x optional +5 VDC boundary B over or under voltage.
BE1914Fx	PPS2, rack x optional +5 VDC boundary B over or under voltage.
BE19150x	PPS1, rack x optional +12 VDC boundary B over or under voltage.
BE19151x	PPS2, rack x optional +12 VDC boundary B over or under voltage.
BE19152x	PPS1, rack x optional +208 VDC over or under voltage.
BE19153x	PPS2, rack x optional +208 VDC over or under voltage.
BE19154x	PPS1, rack x optional booster module test failed.
BE19155x	PPS2, rack x optional booster module test failed.
BE19156x	PPS1, rack x main DDM +5 VDC A current sharing fault not isolated.
BE19157x	PPS2, rack x main DDM +5 VDC A current sharing fault not isolated.
BE19158x	PPS1, rack x main DDM +5 VDC B current sharing fault not isolated.
BE19159x	PPS2, rack x main DDM +5 VDC B current sharing fault not isolated.
BE1915Ax	PPS1, rack x main DDM +12 VDC A current sharing fault not isolated.
BE1915Bx	PPS2, rack x main DDM +12 VDC A current sharing fault not isolated.
BE1915Cx	PPS1, rack x main DDM +12 VDC B current sharing fault not isolated.
BE1915Dx	PPS2, rack x main DDM +12 VDC B current sharing fault not isolated.
BE1915Ex	PPS1, rack x to front fan sense card communication failure.
BE1915Fx	PPS2, rack x to rear fan sense card communication failure.
BE19160x	PPS1, rack x to front fan sense card data compare failure.
BE19161x	PPS2, rack x to rear fan sense card data compare failure.
BE19162x	Rack ID card, rack x Rack_ID CRC failure.
BE19163x	Rack ID card, rack x Rack_ID CRC failure.
BE19168x	PPS1, rack x internal I2C interface failure.
BE19169x	PPS2, rack x internal I2C interface failure.
BE1916Ax	PPS1, rack x internal I2C interface failure at PFC.

Table 510. BE19xxxx system reference codes (continued)

System reference code	Description
BE1916Bx	PPS2, rack x internal I2C interface failure at PFC.
BE1916Cx	PPS1, rack x internal I2C interface failure at +208 VDC.
BE1916Dx	PPS2, rack x internal I2C interface failure at +208 VDC.
BE1916Ex	PPS1, rack x internal I2C interface failure at main DDM.
BE1916Fx	PPS2, rack x internal I2C interface failure at main DDM.
BE19170x	PPS1, rack x internal I2C interface failure at booster module.
BE19171x	PPS2, rack x internal I2C interface failure at booster module.
BE19172x	PPS1, rack x internal I2C interface failure at optional module.
BE19173x	PPS2, rack x internal I2C interface failure at optional module.
BE19174x	PPS1, rack x over current at DDM +5 VDC boundary A.
BE19175x	PPS2, rack x over current at DDM +5 VDC boundary A.
BE19176x	PPS1, rack x over current at DDM +12 VDC boundary A.
BE19177x	PPS2, rack x over current at DDM +12 VDC boundary A.
BE19178x	PPS1, rack x over current at DDM +5 VDC boundary B.
BE19179x	PPS2, rack x over current at DDM +5 VDC boundary B.
BE1917Ax	PPS1, rack x over current at DDM +12 VDC boundary B.
BE1917Bx	PPS2, rack x over current at DDM +12 VDC boundary B.
BE1917Cx	PPS1, rack x over current at optional DDM +5 VDC boundary A.
BE1917Dx	PPS2, rack x over current at optional DDM +5 VDC boundary A.
BE1917Ex	PPS1, rack x over current at optional DDM +12 VDC boundary A.
BE1917Fx	PPS2, rack x over current at optional DDM +12 VDC boundary A.
BE19180x	PPS1, rack x over current at optional DDM +5 VDC boundary B.
BE19181x	PPS2, rack x over current at optional DDM +5 VDC boundary B.
BE19182x	PPS1, rack x over current at optional DDM +12 VDC boundary B.
BE19183x	PPS2, rack x over current at optional DDM +12 VDC boundary B.
BE19184x	PPS1, rack x over current at main and optional +208 VDC.
BE19185x	PPS2, rack x over current at main and optional +208 VDC.
BE19186x	PPS1, rack x over current at main +208 VDC with opt. +208 VDC installed.
BE19187x	PPS2, rack x over current at main +208 VDC with opt. +208 VDC installed.

Table 510. BE19xxxx system reference codes (continued)

System reference code	Description
BE19188x	PPS1, rack x over current at optional +208 VDC.
BE19189x	PPS2, rack x over current at optional +208 VDC.
BE1918Ax	PPS1, rack x over current at main +208 VDC.
BE1918Bx	PPS2, rack x over current at main +208 VDC.
BE1918Cx	PPS1, rack x main DDM power boundary A is off.
BE1918Dx	PPS2, rack x main DDM power boundary A is off.
BE1918Ex	PPS1, rack x main DDM +5 VDC power boundary A is off.
BE1918Fx	PPS2, rack x main DDM +5 VDC power boundary A is off.
BE19190x	PPS1, rack x main DDM +12 VDC power boundary A is off.
BE19191x	PPS2, rack x main DDM +12 VDC power boundary A is off.
BE19192x	PPS1, rack x main DDM power boundary B is off.
BE19193x	PPS2, rack x main DDM power boundary B is off.
BE19194x	PPS1, rack x main DDM +5 VDC power boundary B is off.
BE19195x	PPS2, rack x main DDM +5 VDC power boundary B is off.
BE19196x	PPS1, rack x main DDM +12 VDC power boundary B is off.
BE19197x	PPS2, rack x main DDM +12 VDC power boundary B is off.
BE19198x	PPS1, rack x main +208 VDC is off.
BE19199x	PPS2, rack x main +208 VDC is off.
BE1919Ax	PPS1, rack x protected 0 +208 VDC is off.
BE1919Bx	PPS2, rack x protected 0 +208 VDC is off.
BE1919Cx	PPS1, rack x protected 1 +208 VDC is off.
BE1919Dx	PPS2, rack x protected 1 +208 VDC is off.
BE1919Ex	PPS1, rack x optional DDM power boundary A is off.
BE1919Fx	PPS2, rack x optional DDM power boundary A is off.
BE191A0x	PPS1, rack x optional DDM +5 VDC power boundary A is off.
BE191A1x	PPS2, rack x optional DDM +5 VDC power boundary A is off.
BE191A2x	PPS1, rack x optional DDM +12 VDC power boundary A is off.
BE191A3x	PPS2, rack x optional DDM +12 VDC power boundary A is off.
BE191A4x	PPS1, rack x optional DDM power boundary B is off.
BE191A5x	PPS2, rack x optional DDM power boundary B is off.
BE191A6x	PPS1, rack x optional DDM +5 VDC power boundary B is off.

Table 510. BE19xxxx system reference codes (continued)

System reference code	Description
BE191A7x	PPS2, rack x optional DDM +5 VDC power boundary B is off.
BE191A8x	PPS1, rack x optional DDM +12 VDC power boundary B is off.
BE191A9x	PPS2, rack x optional DDM +12 VDC power boundary B is off.
BE191AAx	PPS1, rack x optional +208 VDC is off.
BE191ABx	PPS2, rack x optional +208 VDC is off.
BE191ACx	PPS1, rack x all fans failing.
BE191ADx	PPS2, rack x all fans failing.
BE191AEx	PPS1, rack x fans 1 and 2 failure.
BE191AFx	PPS2, rack x fans 1 and 2 failure.
BE191B0x	PPS1, rack x fans 1 and 3 failure.
BE191B1x	PPS2, rack x fans 1 and 3 failure.
BE191B2x	PPS1, rack x fans 2 and 3 failure.
BE191B3x	PPS2, rack x fans 2 and 3 failure.
BE191B4x	PPS1, rack x rack ID card communication failure.
BE191B5x	PPS2, rack x rack ID card communication failure.
BE191B6x	Rack x, front/back mismatch between PPS1 and RPC1.
BE191B7x	Rack x, front/back mismatch between PPS2 and RPC1.
BE191B8x	PPS1, rack x main DDM +5 VDC A current sharing fault.
BE191B9x	PPS2, rack x main DDM +5 VDC A current sharing fault.
BE191BAx	PPS1, rack x main DDM +5 VDC B current sharing fault.
BE191BBx	PPS2, rack x main DDM +5 VDC B current sharing fault.
BE191BCx	PPS1, rack x main DDM +12 VDC A current sharing fault.
BE191BDx	PPS2, rack x main DDM +12 VDC A current sharing fault.
BE191BEx	PPS1, rack x main DDM +12 VDC B current sharing fault.
BE191BFx	PPS2, rack x main DDM +12 VDC B current sharing fault.
BE191C0x	PPS1, rack x optional DDM +5 VDC A current sharing fault.
BE191C1x	PPS2, rack x optional DDM +5 VDC A current sharing fault.
BE191C2x	PPS1, rack x optional DDM +5 VDC B current sharing fault.
BE191C3x	PPS2, rack x optional DDM +5 VDC B current sharing fault.
BE191C4x	PPS1, rack x optional DDM +12 VDC A current sharing fault.
BE191C5x	PPS2, rack x optional DDM +12 VDC A current sharing fault.

Table 510. BE19xxxx system reference codes (continued)

System reference code	Description
BE191C6x	PPS1, rack x optional DDM +12 VDC B current sharing fault.
BE191C7x	PPS2, rack x optional DDM +12 VDC B current sharing fault.
BE191C8x	PPS1, rack x main +208 VDC current sharing fault, opt. +208 installed.
BE191C9x	PPS2, rack x main +208 VDC current sharing fault, opt. +208 installed.
BE191CAx	PPS1, rack x main +208 VDC current sharing fault not isolated.
BE191CBx	PPS2, rack x main +208 VDC current sharing fault not isolated.
BE191CCx	PPS1, rack x optional +208 VDC module current sharing fault.
BE191CDx	PPS2, rack x optional +208 VDC module current sharing fault.
BE191CEx	Rack x, front/back mismatch between PPS1 and RPC2.
BE191CFx	Rack x, front/back mismatch between PPS2 and RPC2.
BE191D1x	Rack x shows on battery with line cord ac still present.
BE191D2x	Rack x shows on battery with line cord ac still present.
BE191D4x	RPC1, True and Not True interrupt state set for PPS1.
BE191D5x	RPC2, True and Not True interrupt state set for PPS1.
BE191D6x	RPC1, True and Not True interrupt state set for PPS2.
BE191D7x	RPC2, True and Not True interrupt state set for PPS2.
BE191DAx	PPS1, rack x optional booster module is off.
BE191DBx	PPS2, rack x optional booster module is off.
BE191DCx	PPS1 and PPS2, rack x RPC1 data, pack data parity error.
BE191DDx	PPS1 and PPS2, rack x RPC2 data, pack data parity error.
BE191DEx	PPS1, rack x RPC1 pack data parity error.
BE191DFx	PPS1, rack x RPC2 pack data parity error.
BE191E0x	PPS2, rack x RPC1 pack data parity error.
BE191E1x	PPS2, rack x RPC2 pack data parity error.
BE191E2x	PPS1, frame x indicating battery low.
BE191E3x	PPS2, frame x indicating battery low.
BE191E4x	PPS1 and PPS2, rack x indicating battery low.
BE191E5x	PPS1, rack x input circuit breaker is tripped.
BE191E6x	PPS2, rack x input circuit breaker is tripped.
BE191E7x	PPS1, rack x booster module failure during battery test.
BE191E8x	PPS2, rack x booster module failure during battery test.
BE191E9x	PPS1, rack x booster module failure during battery backup.
BE191EAx	PPS2, rack x booster module failure during battery backup.

Table 510. BE19xxxx system reference codes (continued)

System reference code	Description
BE191EBx	PPS1, rack x booster module failure while in hot standby.
BE191ECx	PPS2, rack x booster module failure while in hot standby.
BE191EDx	PPS1, rack x reported control registers are incorrect from RPC1.
BE191EEx	PPS2, rack x reported control registers are incorrect from RPC1.
BE191EFx	PPS1, rack x reported control registers are incorrect from RPC2.
BE191F0x	PPS2, rack x reported control registers are incorrect from RPC2.
BE191F5x	PPS1, rack x (x is last digit of reference code) restore of line cord AC
BE191F6x	PPS2, rack x (x is last digit of reference code) restore of line cord AC
BE191F7x	PPS1, rack x (x is last digit of reference code) restore of 3-phase line cord AC
BE191F8x	PPS2, rack x (x is last digit of reference code) restore of 3-phase line cord AC
BE192001	One or more power system batteries are approaching end of life.
BE19201x	Rack x, PPS1 and PPS2 to BBU1 communication failure.
BE19202x	Rack x, PPS1 and PPS2 to BBU2 communication failure.
BE19203x	Rack x, PPS1 and PPS2 to BBU3 communication failure.
BE19204x	Rack x, PPS1 to BBU1, BBU2 and BBU3 comm. failure.
BE19205x	Rack x, PPS2 to BBU1, BBU2 and BBU3 comm. failure.
BE192069	Power system batteries are approaching end of life.
BE19206A	Power system batteries are approaching end of life, group 1.
BE19206B	Power system batteries are approaching end of life, group 2.
BE19206C	Power system batteries are approaching end of life, group 3.
BE19206x	Rack x, PPS1 to BBU1 communication failure.
BE19207x	Rack x, PPS1 to BBU2 communication failure.
BE19208x	Rack x, PPS1 to BBU3 communication failure.
BE19209x	Rack x, PPS2 to BBU1 communication failure.
BE1920Ax	Rack x, PPS2 to BBU2 communication failure.
BE1920Bx	Rack x, PPS2 to BBU3 communication failure.
BE1920Cx	Rack x, PPS1 and PPS2 to BBU1 charging failure.
BE1920Dx	Rack x, PPS1 and PPS2 to BBU2 charging failure.
BE1920Ex	Rack x, PPS1 and PPS2 to BBU3 charging failure.
BE1920Fx	Rack x, PPS1 to BBU1, BBU2 and BBU3 charging failure.
BE19210x	Rack x, PPS2 to BBU1, BBU2 and BBU3 charging failure.

Table 510. BE19xxxx system reference codes (continued)

System reference code	Description
BE19211x	Rack x, PPS1 to BBU1 charging failure.
BE19212x	Rack x, PPS1 to BBU2 charging failure.
BE19213x	Rack x, PPS1 to BBU3 charging failure.
BE19214x	Rack x, PPS2 to BBU1 charging failure.
BE19215x	Rack x, PPS2 to BBU2 charging failure.
BE19216x	Rack x, PPS2 to BBU3 charging failure.
BE19217x	Rack x, BBU1 battery voltage not present at output.
BE19218x	Rack x, BBU2 battery voltage not present at output.
BE19219x	Rack x, BBU3 battery voltage not present at output.
BE1921Ax	Rack x, BBU1 fan failure.
BE1921Bx	Rack x, BBU2 fan failure.
BE1921Cx	Rack x, BBU3 fan failure.
BE1921Dx	Rack x, BBU1 temperature sensor failure.
BE1921Ex	Rack x, BBU2 temperature sensor failure.
BE1921Fx	Rack x, BBU3 temperature sensor failure.
BE19220x	Rack x, BBU1 under voltage.
BE19221x	Rack x, BBU2 under voltage.
BE19222x	Rack x, BBU3 under voltage.
BE19223x	Rack x, BBU1 charger voltage check.
BE19224x	Rack x, BBU2 charger voltage check.
BE19225x	Rack x, BBU3 charger voltage check.
BE19226x	Rack x, BBU1 not connected to +208 VDC bus A.
BE19227x	Rack x, BBU2 not connected to +208 VDC bus A.
BE19228x	Rack x, BBU3 not connected to +208 VDC bus A.
BE19229x	Rack x, BBU1 not connected to +208 VDC bus B.
BE1922Ax	Rack x, BBU2 not connected to +208 VDC bus B.
BE1922Bx	Rack x, BBU3 not connected to +208 VDC bus B.
BE1922Cx	Rack x, BBU1 discharge current check.
BE1922Dx	Rack x, BBU2 discharge current check.
BE1922Ex	Rack x, BBU3 discharge current check.
BE1922Fx	Rack x, BBU1 cannot be charged.
BE19230x	Rack x, BBU2 cannot be charged.
BE19231x	Rack x, BBU3 cannot be charged.
BE19232x	Rack x, BBU1 EEPROM failure.
BE19233x	Rack x, BBU2 EEPROM failure.
BE19234x	Rack x, BBU3 EEPROM failure.
BE19235x	Rack x, BBU1 BSM EEPROM failure.
BE19236x	Rack x, BBU2 BSM EEPROM failure.
BE19237x	Rack x, BBU3 BSM EEPROM failure.
BE19238x	Rack x, BBU1 more than 8 months since last charge.

Table 510. BE19xxxx system reference codes (continued)

System reference code	Description
BE19239x	Rack x, BBU2 more than 8 months since last charge.
BE1923Ax	Rack x, BBU3 more than 8 months since last charge.
BE1923Bx	Rack x, BBU1 voltage sensor failure.
BE1923Cx	Rack x, BBU2 voltage sensor failure.
BE1923Dx	Rack x, BBU3 voltage sensor failure.
BE1923Ex	Rack x, PPS1 and PPS2 to BBU2 communication failure.
BE1923Fx	Rack x, PPS1 and PPS2 to BBU3 communication failure.
BE19240x	Rack x, PPS1 to BBU2 and BBU3 communication failure.
BE19241x	Rack x, PPS2 to BBU2 and BBU3 communication failure.
BE19243x	Rack x, PPS1 voltage sensor failure.
BE19244x	Rack x, PPS2 voltage sensor failure.
BE19248x	Rack x, PPS1 to BBU2 and BBU3 charging failure.
BE19249x	Rack x, PPS2 to BBU2 and BBU3 charging failure.
BE192500	RPC fault not isolated, but RPC in fenced state.
BE19251x	Rack x, PPS fault not isolated, but PPS in fenced state.
BE19252x	Rack x, BBU fault not isolated, but BBU in fenced state.
BE193000	HMC power controlling firmware MLE. Call next level of support!
BE193001	Rack 1, HMC to RPC connection failure. Check all cables, reboot HMC, and retry.
BE193002	HMC power controlling firmware MLE. Missing/bad pack ID files on HMC.
BE193003	The power firmware file is missing or power update MLE on the HMC.
BE193080	FSP power controlling firmware MLE. Call next level of support!
BE1930F0	The number of batteries found does not match what is expected. Check configuration.
BE1930F1	Rack x, expected rack MTMS does not match content in primary PPS-1. Check configuration.
BE193100	Rack 1, RPC-1 not communicating with either FSP. Check RPC to FSP connection.
BE193101	Rack x, RPC-1 not communicating with either PPS. Check RPC-1 connection to both PPS's.
BE193102	Rack 1, expected z series setting in RPC-1 is not correct. Check RPC configuration switches.
BE193103	The firmware update to RPC-1 failed. Call for service.
BE193104	The power state in RPC-2 is off and will cause power down. Call for service.
BE193105	RPC-2 failed to power on. Call for service.
BE193106	RPC-1 failed to change power mode. Call for service.
BE193110	RPC1 remote power and RPC2 local power mode conflict.

Table 510. BE19xxxx system reference codes (continued)

System reference code	Description
BE193111	RPC1 local power and RPC2 remote power mode conflict.
BE193150	Rack x, the RPC-1 and RPC-2 communication cables are swapped in PPS.
BE193300	Rack x, both RPCs not communicating with either PPS. Check both RPC-to-PPS connections.
BE193301	Rack x, RPC-1 not communicating with either PPS. Check RPC-1 connection to both PPS's.
BE193302	Rack 1, expected z series setting in RPC-2 is not correct. Check RPC configuration switches.
BE193303	The firmware update to RPC-2 failed. Call for service.
BE193306	RPC-2 failed to change power mode. Call for service.
BE19350x	Rack x, unable to read/write the rack MTMS to primary PPS-1.
BE19351x	Rack x, RPC-1 unable to talk to primary PPS-1. Check RPC-to-PPS cable.
BE19352x	Rack x, RPC-2 unable to talk to primary PPS-1. Check RPC-to-PPS cable.
BE19353x	Rack x PPS-1 unable to talk to either RPC. Check RPC-to-PPS cable.
BE19354x	Rack x PPS's module count are not equal; the module count in PPS-1 does not match PPS-2.
BE19355x	Rack x PPS-1 is unable to get battery VPD data. Check cabling and configuration.
BE19356x	Rack x PPS's contain the PLD module, while the base rack PPS's do not.
BE19357x	Rack x PPS's do not contain the PLD module. while the base rack PPS's do.
BE19358x	PPS1, rack x main +208 VDC is off
BE19359x	PPS2, rack x main +208 VDC is off
BE193600	The firmware update to PPS-1 failed. Call for service.
BE193601	PPS firmware update failed; RPC-1 did not clear PBCM download registers. Call for service.
BE193602	PPS-1 failed to go into firmware download mode. Call for service.
BE193603	The firmware S-record data transfer to PPS-1 failed. Call for service.
BE19370x	Rack x, unable to write the rack MTMS to primary PPS-2.
BE19371x	Rack x, RPC-1 unable to talk to primary PPS-2. Check RPC-to-PPS cable.
BE19372x	Rack x, RPC-2 unable to talk to primary PPS-2. Check RPC-to-PPS cable.
BE19373x	Rack x PPS-2 unable to talk to either RPC. Check RPC-to-PPS cable.
BE193800	The firmware update to PPS-2 failed. Call for service.

Table 510. BE19xxxx system reference codes (continued)

System reference code	Description
BE193802	PPS-2 failed to go into firmware download mode. Call for service.
BE193803	The firmware S-record data transfer to PPS-2 failed. Call for service.
BE193804	Loss of input power to multiple CECs and/or I/O enclosures -> possibly bus bar loose cables or failure.
BE193805	Loss of input power to multiple CECs and/or I/O enclosures -> possibly bus bar 1 loose cable(s) or failure.
BE193806	Loss of input power to multiple CECs and/or I/O enclosures -> possibly bus bar 2 loose cable(s) or failure.
BE193900	A power resource failed to reset service mode and is unavailable. See MAP2600.
BE19390x	Rack x battery or batteries is/are being reported as disconnected.
BE19391x	Rack x PPS is reporting missing Line cord AC tripped CB, or no 3 phase power.
BE19400x	PPS1, rack x DDM signal failure at both fan sense cards.
BE19401x	PPS2, rack x DDM signal failure at both fan sense cards.
BE19402x	PPS1, rack x DDM signal failure at front fan sense card.
BE19403x	PPS1, rack x DDM signal failure at rear fan sense card.
BE19404x	PPS2, rack x DDM signal failure at rear fan sense card.
BE19405x	PPS2, rack x DDM signal failure at front fan sense card.
BE19406x	PPS1 and PPS2, rack x temperature alert.
BE19407x	PPS2, rack x invalid high fan speed setting from PPS1.
BE19408x	PPS1, rack x invalid high fan speed setting from PPS2.
BE19409x	PPS2, rack x invalid low fan speed setting from PPS1.
BE1940Ax	PPS1, rack x invalid low fan speed setting from PPS2.
BE1940Cx	PPS1, rack x DASD fan tray assembly 2 I2C interface failure.
BE1940Dx	PPS2, rack x DASD fan tray assembly 3 I2C interface failure.
BE1940Ex	PPS1, rack x DASD fan tray assembly 1 I2C interface failure.
BE19410x	PPS1, rack x fan failure in DASD fan tray assembly 2.
BE19411x	PPS2, rack x fan failure in DASD fan tray assembly 3.
BE19412x	PPS1, rack x fan failure in DASD fan tray assembly 1.
BE19414x	PPS1, rack x invalid fan speed setting from rear fan sense card.
BE19415x	PPS2, rack x invalid fan speed setting from front fan sense card.
BE19416x	PPS1, rack x temperature alert.
BE19417x	PPS2, rack x temperature alert.
BE19418x	PPS1, rack x front fan sense card EEPROM failure.
BE19419x	PPS1, rack x rear fan sense card EEPROM failure.

Table 510. BE19xxxx system reference codes (continued)

System reference code	Description
BE19500x	PPS1, rack x main +208 VDC voltage sensor failure.
BE19501x	PPS2, rack x main +208 VDC voltage sensor failure.
BE19502x	PPS1, rack x main +208 VDC current sensor failure.
BE19503x	PPS2, rack x main +208 VDC current sensor failure.
BE19504x	PPS1, rack x optional +208 VDC voltage sensor failure.
BE19505x	PPS2, rack x optional +208 VDC voltage sensor failure.
BE19506x	PPS1, rack x optional +208 VDC voltage current failure.
BE19507x	PPS2, rack x optional +208 VDC voltage current failure.
BE19508x	PPS1, rack x main +5 VDC boundary A voltage sensor failure.
BE19509x	PPS2, rack x main +5 VDC boundary A voltage sensor failure.
BE1950Ax	PPS1, rack x main +5 VDC boundary A current sensor failure.
BE1950Bx	PPS2, rack x main +5 VDC boundary A current sensor failure.
BE1950Cx	PPS1, rack x main +5 VDC boundary B voltage sensor failure.
BE1950Dx	PPS2, rack x main +5 VDC boundary B voltage sensor failure.
BE1950Ex	PPS1, rack x main +5 VDC boundary B current sensor failure.
BE1950Fx	PPS2, rack x main +5 VDC boundary B current sensor failure.
BE19510x	PPS1, rack x optional +5 VDC boundary A voltage sensor failure.
BE19511x	PPS2, rack x optional +5 VDC boundary A voltage sensor failure.
BE19512x	PPS1, rack x optional +5 VDC boundary A current sensor failure.
BE19513x	PPS1, rack x optional +5 VDC boundary A current sensor failure.
BE19514x	PPS1, rack x optional +5 VDC boundary B voltage sensor failure.
BE19515x	PPS2, rack x optional +5 VDC boundary B voltage sensor failure.
BE19516x	PPS1, rack x optional +5 VDC boundary B current sensor failure.
BE19517x	PPS2, rack x optional +5 VDC boundary B current sensor failure.
BE19518x	PPS1, rack x main +12 VDC boundary A voltage sensor failure.
BE19519x	PPS2, rack x main +12 VDC boundary A voltage sensor failure.
BE1951Ax	PPS1, rack x main +12 VDC boundary A current sensor failure.

Table 510. BE19xxxx system reference codes (continued)

System reference code	Description
BE1951Bx	PPS2, rack x main +12 VDC boundary A current sensor failure.
BE1951Cx	PPS1, rack x main +12 VDC boundary B voltage sensor failure.
BE1951Dx	PPS2, rack x main +12 VDC boundary B voltage sensor failure.
BE1951Ex	PPS1, rack x main +12 VDC boundary B current sensor failure.
BE1951Fx	PPS2, rack x main +12 VDC boundary B current sensor failure.
BE19520x	PPS1, rack x optional +12 VDC boundary A voltage sensor failure.
BE19521x	PPS2, rack x optional +12 VDC boundary A voltage sensor failure.
BE19522x	PPS1, rack x optional +12 VDC boundary A current sensor failure.
BE19523x	PPS2, rack x optional DDM +12 VDC boundary A current sensor failure.
BE19524x	PPS1, rack x optional +12 VDC boundary B voltage sensor failure.
BE19525x	PPS2, rack x optional +12 VDC boundary B voltage sensor failure.
BE19526x	PPS1, rack x optional +12 VDC boundary B current sensor failure.
BE19527x	PPS2, rack x optional +12 VDC boundary B current sensor failure.
BE19528x	PPS1, rack x booster module sensor failure.
BE19529x	PPS2, rack x booster module sensor failure.
BE1952Ax	Rack ID data cannot be read in rack x; Rack Identify LED is in use.

Table 511. BE1Axxxx system reference codes

System reference code	Description
BE1A0000	AIX code update failure.
BE1A0001	SFI code update failure.

Table 512. BE1D system reference codes

System reference code	Description
BE1D0090	LIC feature build key failed.
BE1D0091	Sequence number in LIC feature key invalid for machine.
BE1D0092	Creation of LIC feature file failed.
BE1D0093	Error decrypting LIC feature string or file.
BE1D0094	Error encrypting LIC feature string or file.
BE1D0095	LIC feature string validation failed.

Table 512. BE1D system reference codes (continued)

System reference code	Description
BE1D0096	Invalid LIC feature type.
BE1D0097	Error opening LIC feature file.
BE1D0098	Error writing to LIC feature file.
BE1D0099	LIC feature file validation failed.
BE1D009A	Error activating LIC feature file.
BE1D009B	Error displaying LIC feature information.
BE1D009C	Error querying LIC feature information.
BE1D009D	Error determining product information used for LIC features.
BE1D009E	LIC feature storage type is not correct.
BE1D009F	Invalid LIC feature key length.
BE1D00A0	Hardcoded LIC feature keys prevent LIC feature keys from being installed.
BE1D00A1	LIC feature cannot be installed due to max LSS for CKD.
BE1D00A2	Invalid capacity value for specified LIC feature type.
BE1D00A3	LIC feature cannot be installed because one of the storage image servers is not currently operational.
BE1D00A4	Remote Mirror and Copy LIC feature is not supported on this model.
BE1D00A5	Metro Mirror LIC feature is not supported on this model.
BE1D00A6	Global Mirror LIC feature is not supported on this model.
BE1D00A7	Configured capacity on Storage Facility Image exceeds the capacity of the storage scope specified in the LIC feature key

Table 513. BE1Exxxx system reference codes

System reference code	Description
BE1E2000	Log event server failover.
BE1E2016	CPU skew failure.
BE1E2017	Battery charge failure reported by RPCDD.
BE1E2020	Pinned data.
BE1E2021	Track ID mismatch due to invalid track number.
BE1E2022	Track ID out of range due to invalid track number.
BE1E2023	Pinned data from NV due to missing global data and config methods.
BE1E2026	LSS FC state.
BE1E2027	LSS detected error.
BE1E2029	Remote rank inaccessible.
BE1E2030	LSS mismatch detected during IML.
BE1E2033	Rank out of sync.
BE1E2034	LSS out of sync.

Table 513. BE1Exxxx system reference codes (continued)

System reference code	Description
BE1E2035	SPOF LSS dual IML standard assign.
BE1E2036	SPOF non-standard assign.
BE1E2040	Failback failure.
BE1E2041	Heartbeat failure.
BE1E2042	Communication failure.
BE1E2043	Mail data failure - cache detected LRC.
BE1E2044	NVS detected LRC.
BE1E2045	Message LRC.
BE1E2046	DMA data error.
BE1E2047	Local timeout.
BE1E2048	Local CSM timeout.
BE1E2049	Single server sync failure.
BE1E204A	Mail data failure - message processing failure.
BE1E204B	NVS phase timeout.
BE1E2050	Config error - NVS preserved area corrupted.
BE1E2051	Config error - NVS preserved area not maintained.
BE1E2052	Config error - NVS size mismatch.
BE1E2053	Config error - NVS server code mismatch.
BE1E2054	Config error - NVS invalid memory size.
BE1E2055	Config error - FHD is larger than NVS memory size.
BE1E2057	Config error - dual IML with unmodified NVS that is too small.
BE1E2058	Config error - global data inaccessible.
BE1E2100	Adapter service error.
BE1E2110	LIO feature instant image disabled.
BE1E2111	Instant image V2 disabled.
BE1E2112	PAV disabled.
BE1E2113	PPRC disabled.
BE1E2114	PPRC V2 disabled.
BE1E2115	Remote flash copy disabled.
BE1E2116	LPAR LIC feature miscompare between partner LPARs of an SFI.
BE1E2117	XRC disabled.
BE1E2118	Install failure.
BE1E2120	Concurrent code load failure.
BE1E2130	Adapter availability disagreement between partitions.
BE1E2500	Slot level fabric error has been detected.
BE1E2501	EADS global level fabric error has been detected.
BE1E2502	PHB level fabric error has been detected.
BE1E2503	Bridge level fabric error has been detected.

Table 513. BE1Exxxx system reference codes (continued)

System reference code	Description
BE1E2504	Hub level fabric error has been detected.
BE1E2508	RIO SAN connection has gone offline.
BE1E250B	PHYP forced slot into freeze during upstream fabric error recovery.
BE1E250C	No path through the fabric exists to this IOA.
BE1E250D	EEH event on this IOA slot has been detected.
BE1E250E	EEH event caused by IOA asserting SERR.
BE1E250F	EEH event caused by host MMIO RAM error.
BE1E2510	EEH event caused by EADSX detecting bad parity on PHB.
BE1E2511	EEH event caused by EADSX detecting bad parity on IOA bus.
BE1E2512	EEH event caused by EADSX master aborted by PHB.
BE1E2513	EEH event caused by EADSX master aborted by IOA.
BE1E2514	EEH event caused by EADSX target aborted by PHB.
BE1E2515	EEH event caused by EADSX target aborted by IOA.
BE1E2516	EEH event caused by EADSX destination bus was reset.
BE1E2517	EEH event caused by EADSX detecting bad write data parity on PHB bus.
BE1E2518	EEH event caused by EADSX detecting bad write data parity on IOA bus.
BE1E2519	EEH event caused by EADSX discarding delayed completion operation because IOA did not retry the operation in time.
BE1E251A	EEH event caused by EADSX discarding delayed completion operation because PHB did not retry the operation in time.
BE1E251B	EEH event caused by EADSX master bus timeout on IOA bus.
BE1E251C	EEH event caused by EADSX timeout waiting for PHB to return split.
BE1E251D	EEH event caused by EADSX timeout waiting for IOA to return split.
BE1E251E	EEH event caused by EADSX received split completion message from PHB.
BE1E251F	EEH event caused by EADSX received split completion message from IOA.
BE1E2520	EEH event caused by EADSX received master/target abort from PHB when it tried to return a split completion.
BE1E2521	EEH event caused by EADSX received master/target abort from IOA or IOA bus was reset when EADSX tried to return a split completion.
BE1E2522	EEH event caused by EADSX entering freeze state for an unknown reason.
BE1E2523	Fire hose dump performed because of an EPOW3 event.

Table 513. BE1Exxxx system reference codes (continued)

System reference code	Description
BE1E2524	ASQ status of H_Hardware event.
BE1E253B	An invalid EEH reset state has been detected.
BE1E2540	A timeout occurred trying to connect across one of the SMCA connections. At least one other SMCA was able to successfully connect.
BE1E2541	This server needs to reboot because it has reserved, uninitialized PHBs in its device tree.
BE1E2542	This server will switch to single IML because the remote server has reserved, unitialized PHBs in its device tree.
BE1E2543	This server has reserved tower slots in its device tree.
BE1E2544	Adapter discovery failure caused by not being able to enable EEH mode.
BE1E2545	Adapter discovery failure caused by slot entering an EEH reset state.
BE1E2546	Adapter discovery failure caused by invalid device/vendor ID in IOA in slot.
BE1E2547	Adapter discovery failure caused by not being able to create an ADS for the IOA.
BE1E2548	Adapter discovery failure caused by not being able to get a bus handle for the IOA.
BE1E2549	Adapter discovery failure caused by not being able to create a logical name for the IOA.
BE1E254A	Adapter discovery failure caused by not being able to setup the BARs for the IOA.
BE1E254B	Adapter discovery failure caused by not being able to enable the I/O event for the IOA.
BE1E254C	An attempt to take over a tower failed.
BE1E254F	The power cycle threshold for a tower has been reached.
BE1E2551	A CEC has failed in such a way that it requires a power cycle, but microcode is unable to do it automatically, so it requires a service action.
BE1E2552	After a power cycle of a CEC, a timeout occurred waiting for PHYP to reestablish cross-CEC communication.
BE1E2553	Received -1 return code on ibm,manage-storage-preservation RTAS call - unable to obtain preserved memory.
BE1E2554	RIO topology failure.
BE1E2555	Number of SMCAs in the device tree not valid for machine model type.
BE1E2559	The local server is missing one or more towers.
BE1E255A	Adapter discovery failure due to incorrect adapter plugged into slot, i.e host adapter card in device adapter slot or vice versa.
BE1E3002	Panic MLE.
BE1E3003	Panic failover.

Table 513. BE1Exxxx system reference codes (continued)

System reference code	Description
BE1E3006	One shot panic.
BE1E300F	Panic MLE threshold with server fence.
BE1EFC06	Cache has set FC-06 state (loss of access to data).
BE1EFC08	Cache has set FC-08 state (loss of access to data).

BE3*xxxxx*

This section lists the BE3*xxxxx* system reference codes.

- BE30*xxxx*
- BE31*xxxx*
- BE32*xxxx*
- BE33*xxxx*
- BE34*xxxx*
- BE35*xxxx*
- BE36*xxxx*

Table 514. BE30xxxx system reference codes

System reference code	Description
BE303200	Loop Empty: Loop restored after darsterror.
BE303201	Loop Empty: Loop restored after HOS reset.
BE303202	Loop Empty: Loop partially restored after HOS reset.
BE303203	Loop Empty: Loop restored after port disable/enable.
BE303204	Loop Empty: Loop partially restored after port disable/enable.
BE303205	Loop Empty: Loop restored after IC card reset.
BE303206	Loop Empty: Loop partially restored after IC card reset.
BE303207	Loop Empty: Bad FCIC.
BE303208	Loop Empty: Utility was not able to recover loop.
BE304000	The ISS adapter card has failed.
BE304010	No SDRAM module detected or POST is unable to determine the SDRAM size.
BE304012	A 256 MB SDRAM module has failed.
BE304060	FRU replacement can be deferred. If detected during a LIC update, FRU replacement should not occur during the LIC. Power-on self-test detected an error in an unused function.
BE304062	The flash memory card has reached the end of its useful life and needs to be replaced.
BE304063	The flash memory card is missing.

Table 514. BE30xxxx system reference codes (continued)

System reference code	Description
BE304088	Array is offline because there are insufficient drives in the array to maintain data availability.
BE30408C	An array member is missing and the opening adapter is not available.
BE304094	Part of the array data might have been lost.
BE3040A0	ISP failure.
BE3040A4	The ISS adapter has detected a loop configuration that is not valid.
BE3040A8	An array filter has detected a loop configuration that is not valid.
BE3040AC	Array is offline because some of its members are only connected to one adapter and some are connected to both adapters.
BE3040B0	A RAID-10 array is offline because the primary/secondary half of the array is not present.
BE3040B2	A RAID-10 array is offline because only one half of the array is present and that half contains an out-of-date copy of the data.
BE3040B4	All the primary or all the secondary disks of a RAID-10 array are present, but the adapter is unknown to the array.
BE3040BC	The Invalid-strip-table is full. Because of failures on multiple member disk drives of an array, at least 448 blocks of data are not accessible. Other data on the array might still be readable.
BE3040C0	Array not available - multiple device failures.
BE3040C4	A disk drive has caused an array building operation to fail.
BE3040C8	An array is in the degraded state because a disk drive is not available to the array and a write command has been sent to that array.
BE3040CC	An array is in the exposed state.
BE3040D0	A different adapter has been detected on each loop.
BE3040D4	Disused loop.
BE3040D8	Disused FC chip.
BE304100	No hot spare disk drives are available for an array that is configured for hot spare disk drives.
BE304440	There is one device that only has a single active port.
BE304442	There are multiple devices that only have a single active port.
BE304460	NVRAM failure.

Table 514. BE30xxxx system reference codes (continued)

System reference code	Description
BE304461	Correctable NVRAM error threshold exceeded.
BE304471	Control store single-bit error.
BE304472	Data store single-bit error.
BE305000	Unable to read or write to the PCI configuration space.
BE305004	An ISS adapter or device driver protocol error has occurred.
BE305008	The ISS adapter microcode has hung.
BE30500C	The ISS adapter card has failed.
BE305010	An attempt was made to log an error against a pdisk that is not available to the using system.
BE305020	Duplicate node number detected.
BE305D00	Dump available on disk.
BE305F00	The ISS adapter microcode has hung.
BE30600E	Disk drive is only visible on a single-active network and it is in use by another adapter.
BE306015	Lost data frame (incorrect transfer length).
BE306016	Lost non-data frame.
BE30CE79	FATA disk drive utilization exceeds specification. Array throughput is now limited. Informational only, no repair necessary.
BE30CE7A	FATA disk drive utilization now within specification. Array throughput no longer limited. Informational only, no repair necessary.
BE30CEB0	Physical volume hardware error.
BE30CEB1	Physical volume media error.
BE30CEB2	Physical volume recovered media error.
BE30CEB3	DASD detected software error.
BE30CEB4	Device adapter hardware error.
BE30CEB5	ISS software or firmware error.
BE30CEB6	Adapter detected device error.
BE30CEB7	Loop error.
BE30CEB8	ISS degraded condition.
BE30CEB9	ISS RAID array error.
BE30CEBA	ISS configuration error.
BE30CEBB	ISS flash memory error.
BE30CEBC	ISS event.
BE30CEBD	Unable to log an error against a pdisk.
BE30CEBE	Enclosure error.

Table 514. BE30xxxx system reference codes (continued)

System reference code	Description
BE30CEBF	Enclosure critical temperature.
BE30CEC0	Enclosure temperature warning.
BE30CEC1	Adapter detected device error event.
BE30CECE	Split network error detected.

Table 515. BE31xxxx system reference codes

System reference code	Description
BE310000	DDM Reported Error: No additional sense information.
BE310001	DDM format failed.
BE310002	DDM initsurf failed.
BE310003	DDM certify failed.
BE310004	DDM Reported Error: Beginning of partition/medium detected.
BE310005	DDM Reported Error: End of data detected.
BE310006	DDM Reported Error: I/O process terminated.
BE310011	DDM Reported Error: Audio play operation in progress.
BE310012	DDM Reported Error: Audio play operation paused.
BE310013	DDM Reported Error: Audio play operation successfully completed.
BE310014	DDM Reported Error: Audio play operation stopped due to error.
BE310015	DDM Reported Error: No current audio status to return.
BE310100	DDM Reported Error: No index/logical block signal.
BE310200	DDM Reported Error: No seek complete.
BE310300	DDM Reported Error: Peripheral device write fault.
BE310301	DDM Reported Error: No write current.
BE310302	DDM Reported Error: Excessive write errors.
BE310400	DDM Reported Error: Logical unit not ready - start motor failed.
BE310401	DDM Reported Error: Logical unit not ready - becoming ready.
BE310402	DDM Reported Error: Logical unit not ready - initializing command required.
BE310403	DDM Reported Error: Logical unit not ready - manual intervention required.
BE310404	DDM Reported Error: Logical unit not ready - format in progress.
BE310408	Component removed.

Table 515. BE31xxxx system reference codes (continued)

System reference code	Description
BE310409	DDM Reported Error: Self-test in progress.
BE31040B	Array member marked *Rejected*.
BE310411	Member slow on read.
BE310412	Member slow on write.
BE310500	DDM Reported Error: Logical unit does not respond to selection.
BE310600	DDM Reported Error: Reference position found.
BE310700	DDM Reported Error: Multiple peripheral devices selected.
BE310800	DDM Reported Error: Logical unit communication failure.
BE310801	DDM Reported Error: Logical unit communication time-out.
BE310802	DDM Reported Error: Logical unit communication parity error.
BE310900	DDM Reported Error: Track following error.
BE310901	DDM Reported Error: Servo fault.
BE310902	DDM Reported Error: Focus servo failure.
BE310903	DDM Reported Error: Spindle servo failure.
BE310904	DDM Reported Error: Head select fault.
BE310A00	DDM Reported Error: Error log overflow.
BE310B01	DDM Reported Error: Temperature warning error.
BE310C00	DDM Reported Error: Write error.
BE310C01	DDM Reported Error: Write error recovered with auto-reallocation.
BE310C02	DDM Reported Error: Write error auto-reallocation failed.
BE310C03	DDM Reported Error: Recovered write error - recommend reassign.
BE311000	DDM Reported Error: ID CRC or ECC error.
BE311100	DDM Reported Error: Unrecovered read error.
BE311101	DDM Reported Error: Read retries exhausted.
BE311102	DDM Reported Error: Error too long to correct.
BE311103	DDM Reported Error: Multiple read errors.
BE311104	DDM Reported Error: Unrecovered read error - auto-reallocation failed.
BE311105	DDM Reported Error: L-EC uncorrectable error.
BE311106	DDM Reported Error: CIRC unrecovered error.

Table 515. BE31xxxx system reference codes (continued)

System reference code	Description
BE311107	DDM Reported Error: Data resynchronization error.
BE311108	DDM Reported Error: Incomplete block read.
BE311109	DDM Reported Error: No gap found.
BE31110A	DDM Reported Error: Miscorrected error.
BE31110B	DDM Reported Error: Unrecovered read error - recommend reassignment.
BE31110C	DDM Reported Error: Unrecovered read error - recommend rewrite the data.
BE311200	DDM Reported Error: Address mark not found for ID field.
BE311201	DDM Reported Error: Recovered data without ECC using previous logical block ID.
BE311202	DDM Reported Error: Recovered data with ECC using previous logical block ID.
BE311300	DDM Reported Error: Address mark not found for data field.
BE311400	DDM Reported Error: Logical block not found.
BE311401	DDM Reported Error: Record not found.
BE311405	DDM Reported Error: Recovered record not found - recommend reassign.
BE311500	DDM Reported Error: Random positioning error.
BE311501	DDM Reported Error: Mechanical positioning error.
BE311502	DDM Reported Error: Positioning error detected by read of medium.
BE311600	DDM Reported Error: Data synchronization mark error.
BE311602	DDM Reported Error: Recovered write error, data sync error - recommend rewrite.
BE311604	DDM Reported Error: Recovered write error, data sync error - recommend reassign.
BE311700	DDM Reported Error: Recovered data with no error correction applied.
BE311701	DDM Reported Error: Recovered data using retries.
BE311702	DDM Reported Error: Recovered data using positive offset.
BE311703	DDM Reported Error: Recovered data using negative offset.
BE311704	DDM Reported Error: Recovered data with retries and/or CIRC applied.

Table 515. BE31xxxx system reference codes (continued)

System reference code	Description
BE311705	DDM Reported Error: Recovered data using previous logical block ID.
BE311706	DDM Reported Error: Recovered data without ECC data auto-reallocated.
BE311707	DDM Reported Error: Recovered data without ECC - recommend reassignment.
BE311708	DDM Reported Error: Recovered data without ECC - recommend rewrite.
BE311800	DDM Reported Error: Recovered data with ECC.
BE311801	DDM Reported Error: Recovered data with ECC and retries applied.
BE311802	DDM Reported Error: Recovered data with ECC and/or retries - data auto-reallocated.
BE311803	DDM Reported Error: Recovered data with CIRC.
BE311804	DDM Reported Error: Recovered data with LEC.
BE311805	DDM Reported Error: Recovered read error with ECC - recommend reassign.
BE311806	DDM Reported Error: Recovered data using ECC and offsets.
BE311807	DDM Reported Error: Recovered data with ECC data rewritten.
BE311886	DDM Reported Error: Recovered read error with ECC (6 symbols).
BE311887	DDM Reported Error: Recovered read error with ECC (7 symbols).
BE311888	DDM Reported Error: Recovered read error with ECC (8 symbols).
BE311889	DDM Reported Error: Recovered read error with ECC (9 symbols).
BE31188A	DDM Reported Error: Recovered read error with ECC (10 symbols).
BE311900	DDM Reported Error: Defect list error.
BE311901	DDM Reported Error: Defect list not available.
BE311902	DDM Reported Error: Defect list error in primary list.
BE311903	DDM Reported Error: Defect list error in grown list.
BE311A00	DDM Reported Error: Parameter list length error.
BE311B00	DDM Reported Error: Synchronous data transfer error.
BE311C00	DDM Reported Error: Defect list not found.

Table 515. BE31xxxx system reference codes (continued)

System reference code	Description
BE311C01	DDM Reported Error: Primary defect list not found.
BE311C02	DDM Reported Error: Grown defect list not found.
BE311C83	DDM Reported Error: Unique diagnostic code.
BE311D00	DDM Reported Error: Miscompare during verify operation.
BE311E00	DDM Reported Error: Recovered ID with ECC.
BE311F00	DDM Reported Error: Partial defect list transferred.
BE312000	DDM Reported Error: Invalid command operation code.
BE312100	DDM Reported Error: Logical block address out of range.
BE312101	DDM Reported Error: Invalid element address.
BE312200	DDM Reported Error: Illegal function (should use 20 00, 24 00, or 26 00).
BE312345	DDM Reported Error: Code/Qualifier 23/45.
BE312400	DDM Reported Error: Invalid field in CDB.
BE312500	DDM Reported Error: Logical unit not supported.
BE312600	DDM Reported Error: Invalid field in parameter list.
BE312601	DDM Reported Error: Parameter not supported.
BE312602	DDM Reported Error: Parameter value invalid.
BE312603	DDM Reported Error: Invalid field parameter - threshold parameter.
BE312698	DDM Reported Error: Invalid field parameter - check sum.
BE312699	DDM Reported Error: Invalid field parameter - firmware tag.
BE312700	DDM Reported Error: Write protected.
BE312800	DDM Reported Error: Not ready to ready transition (medium might have changed).
BE312801	DDM Reported Error: Import or export element accessed.
BE312900	DDM Reported Error: Power on, reset, or bus device reset occurred.
BE312901	DDM Reported Error: Power-on reset occurred.
BE312902	DDM Reported Error: SCSI bus reset occurred.

Table 515. BE31xxxx system reference codes (continued)

System reference code	Description
BE312903	DDM Reported Error: Bus device reset function occurred.
BE312904	DDM Reported Error: Device internal reset occurred.
BE312905	DDM Reported Error: Transceiver mode changed to single-ended.
BE312906	DDM Reported Error: Transceiver mode changed to LVD.
BE312A01	DDM Reported Error: Mode parameters changed.
BE312A02	DDM Reported Error: Log parameters changed.
BE312A03	DDM Reported Error: Reservations preempted.
BE312B00	DDM Reported Error: Copy cannot execute, since host cannot disconnect.
BE312C00	DDM Reported Error: Command sequence error.
BE312C01	DDM Reported Error: Too many windows specified.
BE312C02	DDM Reported Error: Invalid combination of windows specified.
BE312D00	DDM Reported Error: Overwrite error on update in place.
BE312F00	DDM Reported Error: Tagged commands cleared by another initiator.
BE313000	DDM Reported Error: Incompatible medium installed.
BE313001	DDM Reported Error: Cannot read medium - unknown format.
BE313002	DDM Reported Error: Cannot read medium - incompatible format.
BE313003	DDM Reported Error: Cleaning cartridge installed.
BE313100	DDM Reported Error: Medium format corrupted.
BE313101	DDM Reported Error: Format failed.
BE313191	DDM Reported Error: Format corrupted - World Wide Name (WWN) is invalid.
BE313200	DDM Reported Error: No defect spare location available.
BE313201	DDM Reported Error: Defect list update error.
BE313202	DDM Reported Error: No spares available - too many defects on one track.
BE313502	DDM Reported Error: Enclosure services unavailable.

Table 515. BE31xxxx system reference codes (continued)

System reference code	Description
BE313700	DDM Reported Error: Parameter rounded.
BE313900	DDM Reported Error: Saving parameters not supported.
BE313910	DDM Reported Error: Code/Qualifier 39/10.
BE313D00	DDM Reported Error: Invalid bits in identify message.
BE313E00	DDM Reported Error: Logical unit has not self-configured yet.
BE313F00	DDM Reported Error: Target operating conditions have changed.
BE313F01	DDM Reported Error: Microcode changed.
BE313F02	DDM Reported Error: Changed operating definition.
BE313F03	DDM Reported Error: Inquiry data has changed.
BE313F0F	DDM Reported Error: Echo buffer overwritten.
BE313F90	DDM Reported Error: Invalid APM parameters.
BE313F91	DDM Reported Error: World Wide Name (WWN) mismatch.
BE314000	DDM Reported Error: RAM failure.
BE314001	DDM Reported Error: DRAM parity error.
BE314080	DDM Reported Error: Degraded mode - diagnostics failure.
BE314081	DDM Reported Error: Degraded mode - hardware error.
BE314082	DDM Reported Error: Diagnostics failure - inconsistent data.
BE314083	DDM Reported Error: Diagnostics failure - HDA diagnostics.
BE314084	DDM Reported Error: Diagnostics failure - PCB diagnostics.
BE314085	DDM Reported Error: Diagnostic failure - RAM microcode not loaded.
BE314090	DDM Reported Error: Seek test failure.
BE3140A0	DDM Reported Error: Read/write test failure.
BE3140B0	DDM Reported Error: Diagnostic failure - self-reset.
BE3140C5	DDM Reported Error: Diagnostic failure.
BE3140D0	DDM Reported Error: Component mismatch.
BE314100	DDM Reported Error: Data path failure.
BE314200	DDM Reported Error: Power-on or self-test failure.

Table 515. BE31xxxx system reference codes (continued)

System reference code	Description
BE314300	DDM Reported Error: Message reject error.
BE314400	DDM Reported Error: Internal Target Failure
BE3144B6	DDM Reported Error: Code/Qualifier 44/B6.
BE3144D7	DDM Reported Error: Code/Qualifier 44/D7.
BE3144DC	DDM Reported Error: Code/Qualifier 44/DC.
BE314500	DDM Reported Error: Selection/reselection failure.
BE314600	DDM Reported Error: Unsuccessful soft reset.
BE314700	DDM Reported Error: SCSI parity error.
BE314800	DDM Reported Error: Initiator detected error message received.
BE314900	DDM Reported Error: Invalid message error.
BE314A00	DDM Reported Error: Command phase error.
BE314B00	DDM Reported Error: Data phase error.
BE314C00	DDM Reported Error: Logical unit failed self-configuration.
BE314E00	DDM Reported Error: Overlapping commands attempted.
BE314F00	DDM Reported Error: Aborted command due to loop initialization.
BE315400	DDM Reported Error: SCSI to host system interface failure.
BE315500	DDM Reported Error: System resource failure.
BE315B00	DDM Reported Error: Log exception.
BE315B01	DDM Reported Error: Threshold condition met.
BE315B02	DDM Reported Error: Log counter at maximum.
BE315B03	DDM Reported Error: Log list codes exhausted.
BE315C00	DDM Reported Error: RPL status change.
BE315C01	DDM Reported Error: Spindles synchronized.
BE315C02	DDM Reported Error: Spindles not synchronized.
BE315D00	DDM Reported Error: Predictive failure analysis threshold exceeded.
BE315DFF	DDM Reported Error: Predictive failure analysis test warning.
BE316000	DDM Reported Error: Lamp failure.

Table 515. BE31xxxx system reference codes (continued)

System reference code	Description
BE316002	Disk drive asynchronous health check - replace disk.
BE316003	Transient LRC error in a single block.
BE316004	Drive has been reset due to invalid SCSI protocol.
BE316005	Disk drive reallocation exceeded (no space left).
BE316006	The disk drive has been reset by the adapter. The disk drive might be about to fail.
BE316007	I/O queued too long.
BE316008	A disk drive module has a *Failed* status.
BE316009	The adapter is unable to initialize a device.
BE31600B	Disk drive not initialized - capacity too small.
BE31600C	Disk drive not initialize - unsupported device.
BE316010	Disused device port.
BE316011	A device is present but it is not logged in through either of its ports.
BE316012	A device is present but port login was rejected on both ports.
BE316013	Permanent unrecoverable LRC errors in multiple blocks.
BE316014	Permanent unrecoverable LRC error in a single block.
BE316017	Disk drive failed initialization.
BE316018	Slow disk threshold exceeded.
BE316200	DDM Reported Error: Scan head positioning error.
BE316300	DDM Reported Error: End of user area encountered on this track.
BE316400	DDM Reported Error: Illegal mode for this track.
BE316500	DDM Reported Error: Voltage fault.
BE318000	DDM Reported Error: General firmware error qualifier.
BE31808A	DDM Reported Error: Code/Qualifier 80/8A.
BE31808B	DDM Reported Error: Code/Qualifier 80/8B.
BE31808C	DDM Reported Error: Code/Qualifier 80/8C.
BE318100	DDM Reported Error: Internal logic error.
BE31F001	DDM Reported Error: Filemark detected.
BE31F002	DDM Reported Error: End-of-partition/ medium detected.

Table 515. BE31xxxx system reference codes (continued)

System reference code	Description
BE31F003	DDM Reported Error: Setmark detected.

Table 516. BE32xxxx system reference codes

System reference code	Description
BE320010	Invalid storage enclosure CuDv or CuAt ODM object.
BE321100	I2C timeout: Remote SSC200 (processor).
BE321101	I2C timeout: DS1721 (temperature sensor).
BE321102	I2C timeout: PCA9552-0 (I/O expander).
BE321103	I2C timeout: PCA9552-1 (I/O expander).
BE321104	I2C timeout: PCA9552-2 (I/O expander).
BE321105	I2C timeout: SOC320 (FC loop switch).
BE32110B	I2C timeout: PCA9555-2 (I/O expander on sense card, pass-3).
BE321116	I2C timeout: DS1855 (Digipot).
BE321200	GPIO Miscompare: Slot 0 fault LED.
BE321201	GPIO Miscompare: Slot 1 fault LED.
BE321202	GPIO Miscompare: Slot 2 fault LED.
BE321203	GPIO Miscompare: Slot 3 fault LED.
BE321204	GPIO Miscompare: Slot 4 fault LED.
BE321205	GPIO Miscompare: Slot 5 fault LED.
BE321206	GPIO Miscompare: Slot 6 fault LED.
BE321207	GPIO Miscompare: Slot 7 fault LED.
BE321208	GPIO Miscompare: Slot 8 fault LED.
BE321209	GPIO Miscompare: Slot 9 fault LED.
BE32120A	GPIO Miscompare: Slot 10 fault LED.
BE32120B	GPIO Miscompare: Slot 11 fault LED.
BE32120C	GPIO Miscompare: Slot 12 fault LED.
BE32120D	GPIO Miscompare: Slot 13 fault LED.
BE32120E	GPIO Miscompare: Slot 14 fault LED.
BE32120F	GPIO Miscompare: Slot 15 fault LED.
BE321210	GPIO Miscompare: Pack fault LED.
BE321211	GPIO Miscompare: Partner card fault LED.
BE321212	GPIO Miscompare: SOC320 reset A.
BE321213	GPIO Miscompare: Sense card I2C reset.
BE321214	GPIO Miscompare: Sense card identity.
BE321215	GPIO Miscompare: Local card fault LED.
BE321216	GPIO Miscompare: Connector 3 LED.
BE321217	GPIO Miscompare: Connector 2 LED.
BE321218	GPIO Miscompare: Connector 1 LED.
BE321219	GPIO Miscompare: Connector 0 LED.

Table 516. BE32xxxx system reference codes (continued)

System reference code	Description
BE32121A	GPIO Miscompare: Drive address buffer enable.
BE32121B	GPIO Miscompare: Expander I2C reset.
BE32121C	GPIO Miscompare: SOC320 reset B.
BE32121D	GPIO Miscompare: Watchdog timer reset.
BE321302	GPIO Miscompare: Sense card LED.
BE321305	GPIO Miscompare: Sense card over temp notify.
BE321310	Flash memory write failure.
BE321311	Flash memory erase failure.
BE321312	VPD write failure Ras.
BE321313	VPD erase failure.
BE321319	EPOW signal from PPS1.
BE32131A	EPOW signal from PPS2.
BE32131B	12V under.
BE32131C	12V over.
BE32131D	5V under.
BE32131E	5V over.
BE322001	PTBI error.
BE322002	Fibre Channel cable failure.
BE322003	Fibre Channel cable failure.
BE32CEA0	Unexpected storage enclosure error code detected.

Table 517. BE33xxxx system reference codes

System reference code	Description
BE330000	Unknown exception symptom code.
BE33CE00	DA Hardware Error: Adapter error - insane trap.
BE33CE01	DA Hardware Error: An impossible interrupt occurred or the host issued a second initialize command.
BE33CE02	DA Hardware Error: Host error in initialize command parameters.
BE33CE03	DA Hardware Error: Host error - unknown command.
BE33CE04	DA Hardware Error: Host error - parameters not in line.
BE33CE05	DA Hardware Error: Host error - too many simultaneous requests.
BE33CE06	DA Hardware Error: The watchdog timer has fired.
BE33CE07	DA Hardware Error: Firmware not implemented.

Table 517. BE33xxxx system reference codes (continued)

System reference code	Description
BE33CE08	DA Hardware Error: Kernel detected error.
BE33CE09	DA Hardware Error: Parameter DDR should be DT_PCI or DT_Null.
BE33CE0A	DA Hardware Error: An assert has been hit.
BE33CE0B	DA Hardware Error: Showstop due to debug service.
BE33CE0C	DA Hardware Error: Host error - Salve Op Reply Handle does not match an active GTCB.
BE33CE0D	DA Hardware Error: Host error - GTCB sent before initialize command.
BE33CE0E	DA Hardware Error: Invalid GTCB sequence number.
BE33CE0F	DA Hardware Error: Host error - undefined bit set in doorbell in register.
BE33CE10	DA Hardware Error: POST error - analyze post error code.
BE33CE11	DA Hardware Error: A GTCB has been active in the adapter for too long.
BE33CE12	DA Hardware Error: The adapter detected an internal error.
BE33CE13	DA Hardware Error: An LIP reset was received from another adapter.
BE33CE14	DA Hardware Error: Fibre Channel loop configuration has failed.
BE33CE15	DA Hardware Error: A heartbeat reply was delayed too long.
BE33CE16	DA Hardware Error: An IPN fibre kept control too long.
BE33CE17	DA Hardware Error: A showstop message was received from another adapter.
BE33CE18	DA Hardware Error: Adapter caused an LRC error.
BE33CE19	DA Hardware Error: The host software requested a showstop.
BE33CE1A	DA Hardware Error: The FCAL network is not stable enough for RAID to progress.
BE33CE1B	DA Hardware Error: Internal error in the ARC firmware.
BE33CE1C	DA Hardware Error: Bad SY_Code.
BE33CE1D	DA Hardware Error: DPB_Number too high.
BE33CE1E	DA Hardware Error: Illegal DP_Pending.
BE33CE1F	DA Hardware Error: Directive returned - DP_aborting.
BE33CE20	DA Hardware Error: Knl_CompleteDirective instead of Knl_CompleteMcbDirective.

Table 517. BE33xxxx system reference codes (continued)

System reference code	Description
BE33CE21	DA Hardware Error: DPB has wrong safety value in Knl_CompleteDirective.
BE33CE22	DA Hardware Error: Idsb != DP_Pending to DP_Aborting in Knl_CompleteDirective.
BE33CE23	DA Hardware Error: Den_default called.
BE33CE24	DA Hardware Error: Dab_default called.
BE33CE25	DA Hardware Error: Bad period in Den_NoOperation.
BE33CE26	DA Hardware Error: Bad flag value in Dab_NoOperation.
BE33CE27	DA Hardware Error: DP_Pending in Den_AbortDirective2.
BE33CE28	DA Hardware Error: DP_Aborting returned from abort routine.
BE33CE29	DA Hardware Error: DefaultIsr called.
BE33CE2A	DA Hardware Error: Number too large in Knl_ProcessInterupt.
BE33CE2B	DA Hardware Error: Zero time in clock block.
BE33CE2C	DA Hardware Error: Thread routine called with CTask == 0.
BE33CE2D	DA Hardware Error: Knl_RoundRobin called with F/G task.
BE33CE2E	DA Hardware Error: DC_ExitThread without SY_None.
BE33CE2F	DA Hardware Error: Thread routine called without thread support.
BE33CE30	DA Hardware Error: Den_AllowcateBytes > D__MAXMALLOC.
BE33CE31	DA Hardware Error: Malloc failure.
BE33CE32	DA Hardware Error: Corrupt MCB_DestinationNode in Dab_startTranssaction.
BE33CE33	DA Hardware Error: Knl_CompleteMcbDirective not called with MCB.
BE33CE34	DA Hardware Error: sop->SOP_Tcb == 0 in DC_SlavdOperation.
BE33CE35	DA Hardware Error: TCB_SlaveOperationEntryPoint == 0 in Den_SlaveOperation.
BE33CE36	DA Hardware Error: No default service.
BE33CE37	DA Hardware Error: Strange error from DC_Allocate bytes.
BE33CE38	DA Hardware Error: Strange error from DC_Free bytes.
BE33CE39	DA Hardware Error: Directive failure.

Table 517. BE33xxxx system reference codes (continued)

System reference code	Description
BE33CE3A	DA Hardware Error: Lst function: qh == 0.
BE33CE3B	DA Hardware Error: Lst function: ve == 0.
BE33CE3C	DA Hardware Error: Que function: qh == 0.
BE33CE3D	DA Hardware Error: Que function: ve == 0.
BE33CE3E	DA Hardware Error: No background thread support.
BE33CE3F	DA Hardware Error: TCB not active in ipng00.
BE33CE40	DA Hardware Error: Bad OT_code in ipng00.
BE33CE41	DA Hardware Error: Invalid DDR for Ddr_VirtualAddress.
BE33CE42	DA Hardware Error: Length truncated in slave operation.
BE33CE43	DA Hardware Error: Interrupts were disabled in Knl_QueueFiber.
BE33CE44	DA Hardware Error: Interrupts were disabled in Knl_QueueFiberIsr.
BE33CE45	DA Hardware Error: Xpn_EnterFromUserMode with Intct != -1.
BE33CE46	DA Hardware Error: Xpn_ExitToUserMode with Intct != 0.
BE33CE47	DA Hardware Error: Bad Knl_CopyDdrToDdr result.
BE33CE48	DA Hardware Error: 0xad queuing fibre again.
BE33CE49	DA Hardware Error: Interrupts on when should be off.
BE33CE4A	DA Hardware Error: Interrupts off when should be on.
BE33CE4B	DA Hardware Error: Bad synchro.
BE33CE4C	DA Hardware Error: Item put in list twice.
BE33CE4D	DA Hardware Error: Cannot unreserve memory - not reserved.
BE33CE4E	DA Hardware Error: Unexpected CC_Add - resource already known.
BE33CE4F	DA Hardware Error: Unexpected CC_SetOnline - resource unknown.
BE33CE50	DA Hardware Error: Unexpected CC_SetOnline - resource not offline.
BE33CE51	DA Hardware Error: Unexpected CC_SetOffline - resource unknown.
BE33CE52	DA Hardware Error: Unexpected CC_SetOffline - resource not online.
BE33CE53	DA Hardware Error: Unexpected CC_Remove - resource unknown.

Table 517. BE33xxxx system reference codes (continued)

System reference code	Description
BE33CE54	DA Hardware Error: Unexpected CC_Remove - resource not offline.
BE33CE55	DA Hardware Error: Bad free.
BE33CE56	DA Hardware Error: Memory corrupt.
BE33CE57	DA Hardware Error: User defined.
BE33CE58	DA Hardware Error: Hardware diagnostics failed.
BE33CE59	DA Hardware Error: General hardware error.
BE33CE60	DA gateway disconnect occurred.
BE33CE61	DA failover/failback occurred.
BE33CE62	DA requested reset.
BE33CE63	DA informational error.
BE33CE64	DA no data in EIR.
BE33CE65	DA unknown error.
BE33CE70	DA rank failover/failback occurred.
BE33CE71	DA rank layout error.
BE33CE72	Unknown rank error.
BE33CE73	DDM reconstruct read occurred.
BE33CE76	Logical disk failure.

Table 518. BE34xxxx system reference codes

System reference code	Description
BE340000	Adapter spares or members do not match program expectation.
BE340001	Device adapter cabling error.
BE340002	Fan tray installed but encountered problems or is not installed.
BE340003	Storage enclosure cabling error.
BE340004	Storage Enclosure: at least one DDM missing in slots 1-8.
BE340005	Storage Enclosure: at least one slot is empty (no DDMs or baffles) in slots 9-16.
BE340006	FCAL Cable: Cabling error detected.
BE340007	Fan sense card in unknown state.
BE340008	FCAL cable not connected on the target loop.
BE34000B	Actual RPM less than required RPM and actual capacity less than required capacity.
BE34000C	Duplicate IBM.EssStorageEnclosure objects found.
BE34000D	Current harvest for storage enclosure attributes does not coincide with attributes on existing IBM.EssStorageEnclosure object.

Table 518. BE34xxxx system reference codes (continued)

System reference code	Description
BE34000E	Logical configuration error.
BE34000F	Adapter reset during format cycle of DDM.
BE340010	Device Area Resource Manager detected objects harvested by the Group Leader Node but not the Peer Node or attribute mismatch between Group Leader and Peer harvested attributes.
BE340011	Device Area Resource Manager detected objects harvested by the Peer Node but not the Group Leader Node.
BE340012	Device Area Resource Manager detected objects missing in the current harvest.
BE340013	Rejected drive found during health check.
BE340014	Bypassed drive found during health check.
BE340015	An FCIC POST error was reported.
BE340016	DDM object mismatch detected.
BE340017	Device adapter invalid or corrupt VPD data detected.
BE340018	One or more bypassed drives detected in a storage enclosure.
BE340019	Failed to get device information from Resource Manager.
BE34001A	Device adapter cannot see SES disk(s).
BE34001B	DDM resume failure.
BE34001C	Call home for previously deferred service.
BE34001D	Duplicate physicalId (Rx-Syz) detected in ODM.
BE34001E	Invalid physicalId (Rx-Syz) detected in ODM.
BE34001F	DDM format complete but initsurf_valid bit not set.
BE340020	Invalid pdisk name detected.
BE340021	Device object mismatch detected in RM object(s).
BE340022	Health check detected a drive with an unknown use.
BE340023	Disk use is invalid.
BE340024	DDM migration failed.
BE340025	Failed drives found during health check.
BE340026	Health check attempted to fail a rejected, bypassed, or unknown DDM, but was unable to determine the locationCode. The DDM may not be fully installed or the DDM object may be missing.

Table 518. BE34xxxx system reference codes (continued)

System reference code	Description
BE340027	DDM system level verify install detected a bypassed or empty slot and was unable to un-bypass the slot.
BE340028	Empty slot found by device health check for installed drive not in service.
BE340029	Install or repair detected FCIC VPD incoherence in the storage enclosure serial number field.
BE34002A	Adapter is not available.
BE34002B	No sparing initiated - there are no available spares. Repair one or more failed spares (DDMs in state 9 or 10). After they become spares, retry a repair action on the original drive. If retry fails, call next level of support.
BE34002C	Sparing failed. Possible microcode-DA problem. The array is in a good state; there are available spares, but all available spares failed to exchange with target drive. Contact next level of support.
BE34002D	No sparing initiated - it's possible that the array is in a rebuilding/unknown state. If the array is rebuilding, wait for it to complete, then retry repair action against the target drive. If the array is in an unknown state, contact the next level of support.
BE34002E	Failed to update RM. This could result in RM mismatch, if attributes are not updated correctly. Contact next level of support.
BE34002F	Device object mismatch detected in RM. Clean up RM or contact next level of support. Retry repair action against target drive.
BE340030	Detected a powered-off slot in the I/O tower.
BE340031	Device adapter cannot be discovered. Verify that it is seated correctly. Also, verify that the adapter flash memory card is good or seated correctly, then try service action again. If service action fails again, the adapter may be defective and needs to be replaced.
BE340032	Failed to set device adapter service mode. Retry service action or call next level of support.
BE340033	Failed to reset device adapter service mode. Retry service action or call next level of support.
BE340034	Detected a cluster that has not IMLed. Please IML the cluster and try the service action again.
BE340035	DDM firmware update failed.

Table 518. BE34xxxx system reference codes (continued)

System reference code	Description
BE340036	Fatal error occurred while updating FCIC firmware. Replace FCIC.
BE340037	Device adapter flash memory has failed or reached end of life. Error codes: 4060, 4062, 4063. Replace adapter.
BE340038	Device adapter has a broken ISP. Error code: 40A0. Replace adapter.
BE340039	Device adapter detected illegal loop configuration. Error code: 40A4. Replace adapter.
BE34003A	Different adapters detected on each loop. Error code: 40D0. Replace adapter.
BE34003B	Device adapter detected a disused loop. Error code: 40D4. Replace adapter.
BE34003C	Device adapter detected disused FC chip. Error code: 40D8. Replace adapter.
BE34003D	Device adapter failed diagnostics. Replace adapter.
BE34003E	Device adapter is fenced or still in SERVICE_MODE. Retry repair action. If retry fails, call next level of support.
BE34003F	Health check found device adapter in service mode for >72 hours. Performance may be impacted. Run View SF State (end of call).
BE340040	Health check found fenced adapter.
BE340041	SES utility reported communication error.
BE340042	DA utility fcfgissr failed to discover newly installed enclosures: iss_loopstatesave has been invoked against the owning device adapter and may still be running.
BE340043	Dual loop imbalance detected.
BE340044	Missing rsRack ODM object(s). Refresh rsRack ODM or call next level support.
BE340045	All enclosures have duplicate physical Ids (Rx-Syz) and/or have PackID values greater than 5. Reinitialize or replace RPCs and refresh ODM on both clusters. If problem persists, call next level support.
BE340046	Duplicate physical Id (Rx-Syz) detected and at least one enclosure reports good PackID. I2C bus may be hung and sense card(s) may need to be rebooted. Otherwise, replace FRUs as necessary, placing high priority on fan sense cables (not included in the FRU list). Or call next level support.

Table 518. BE34xxxx system reference codes (continued)

System reference code	Description
BE340047	Duplicate physical Id (Rx-Syz) and/or bad PackID (greater than 5) detected. The most probable cause is an improperly seated or defective fan sense cable (not included in FRU list). Reseat/replace fan sense cable. If problem persists, replace other FRUs or call next level support.
BE340048	DA repair or install failed to configure the device adapter. Retry service action or replace adapter. Otherwise, call next level support.
BE340049	cpss0 is unavailable.
BE34004A	Error encountered while querying ODM. Try the action again or call next level of support.
BE34004B	SE install was unable to disable or enable at least one FCIC downstream trunk connector of the previously installed enclosure at the bottom of the loop (locationCode included in the FRU list). Try the service action again or call next level of support.
BE34004C	SE install detected a loop error. Call next level of support.
BE34004D	Service action detected an invalid DDM count. Call next level of support.
BE34004E	SE install detected at least one downstream trunk cabling error. Connector location code is included in the FRU list. Verify cabling and try again or call next level of support.
BE34004F	fcfgissr error occurred while configuring enclosures and pdisks. Call next level of support.
BE340050	Device RM or IBM.essSADevicesRM is inactive.
BE340051	System state inappropriate for code load. Contact next level of support.
BE340052	Failed to format or resume drive because diskCapacity and RPM are invalid.
BE340053	At least one enclosure with VPD incoherence detected during configuration. Included in the FRU list are the physical IDs (Rx-Syz) of the affected enclosures. These enclosures have FCIC cards with mismatched VPD. Call next level of support.
BE340054	Drive was marked for deferred sparing.
BE340055	Capacity and/or RPM intermix within an enclosure.

Table 519. BE35xxxx system reference codes

System reference code	Description
BE35250D	An EEH event on this IOA slot has been detected.
BE35250E	EEH event caused by IOA asserting SERR.
BE35250F	EEH event caused by host MMIO RAM error.
BE352510	EEH event caused by EadsX detecting bad parity on PHB.
BE352511	EEH event caused by EadsX detecting bad parity on IOA bus.
BE352512	EEH event caused by EadsX master aborted by PHB.
BE352513	EEH event caused by EadsX master aborted by IOA.
BE352514	EEH event caused by EadsX target aborted by PHB.
BE352515	EEH event caused by EadsX target aborted by IOA.
BE352516	EEH event caused by EadsX destination bus was reset.
BE352517	EEH event caused by EadsX detecting bad write data parity on PHB bus.
BE352518	EEH event caused by EadsX detecting bad write data parity on IOA bus.
BE352519	EEH event caused by EadsX discarding delayed completion operation because IOA did not retry the operation in time.
BE35251A	EEH event caused by EadsX discarding delayed completion operation because PHB did not retry the operation in time.
BE35251B	EEH event caused by an EadsX master bus timeout on IOA bus.
BE35251C	EEH event caused by an EadsX timeout waiting for PHB to return split completion operation.
BE35251D	EEH event caused by an EadsX timeout waiting for IOA to return split completion operation
BE35251E	EEH event caused by EadsX received split completion message from PHB.
BE35251F	EEH event caused by EadsX received split completion message from IOA.
BE352520	EEH event caused by EadsX received master/target abort from PHB when it tried to return a split completion.
BE352521	EEH event caused by EadsX received master/target abort from IOA, or IOA bus was reset when EadsX tried to return a split completion.

Table 519. BE35xxxx system reference codes (continued)

System reference code	Description
BE352522	EEH event caused by EadsX entering freeze state for an unknown reason.
BE352600	Host adapter error during service mode.
BE352601	Host adapter interrupt with NO DATA error.
BE352602	Host adapter EIR LRC check.
BE352603	Host adapter message LRC failure.
BE352604	Host adapter invalid message failure.
BE352605	Host adapter control message failure.
BE352606	Host adapter data CRC check.
BE352607	Host adapter data CRC check and cache check.
BE352608	Host adapter data LRC check.
BE352609	Host adapter data LRC check and cache check.
BE35260A	Host adapter SCSI SeqNum error first event.
BE35260B	Host adapter SCSI SeqNum error and cache LRC.
BE35260C	Second occurrence of customer data sequence number error.
BE35260D	Host adapter header LRC check.
BE35260E	Host adapter header LRC check and cache check.
BE35260F	Host adapter header PA bad CRC.
BE352610	Host adapter header PA bad CRC and cache check.
BE352611	Second occurrence of customer data physical address error.
BE352612	Host Adapter Error: Invalid record sector.
BE352613	Host Adapter Error: Invalid record sector and cache check.
BE352614	Host Adapter: SCSI abort task.
BE352615	Host Adapter: SCSI abort task set.
BE352616	Host Adapter: SCSI clear task set.
BE352617	Host Adapter: SCSI LUN reset.
BE352618	Host Adapter: SCSI target reset.
BE352619	Host Adapter: HA trace log.
BE35261A	Host Adapter: HA abort log reported.
BE35261B	Host Adapter: HA logical table mismatch.
BE35261C	Host Adapter Host Log: Abort task.
BE35261D	Host Adapter Host Log: Check condition.
BE35261E	Host Adapter: Host logging enabled.
BE35261F	Host Adapter: Host logging disabled.
BE352620	Host Adapter Host Log: Task timeout.

Table 519. BE35xxxx system reference codes (continued)

System reference code	Description
BE352621	Host Adapter: Fixed block MLE.
BE352622	Host Adapter Adapter Error: Panic.
BE352623	Host adapter ODM failure - cpss0 CuDv.
BE352624	Host adapter ODM failure - odmget CuDv parent.
BE352625	Host adapter ODM failure - CuDv bad state.
BE352626	Host adapter ODM failure - CuDv odmget.
BE352627	Host adapter ODM failure - no CuDv.
BE352628	Host adapter ODM failure - no CuDv parent.
BE352629	Host adapter ODM failure on odmget.
BE35262A	Host adapter ODM failure on odminit.
BE35262B	Host adapter ODM initialization failure.
BE35262C	Host adapter ODM options error.
BE35262D	Host adapter ODM failure on CuAt close.
BE35262E	Host adapter ODM failure on CuDv close.
BE35262F	Host adapter ODM failure on CuVPD close.
BE352630	Host adapter ODM failure on CuAt open.
BE352631	Host adapter ODM failure on CuDv open.
BE352632	Host adapter ODM failure on CuDv open.
BE352633	Host adapter ODM failure on CuVPD open.
BE352634	Host adapter ODM failure on CuAt remove.
BE352635	Host adapter ODM failure on CuDv remove.
BE352636	Host adapter ODM failure on CuVPD remove.
BE352637	Host adapter ODM failure on Storage Map Remove.
BE352638	Host adapter ODM failure on Bus Behavior Table.
BE352639	Host adapter ODM failure on Storage Map Get.
BE35263A	Host adapter ODM failure on Storage Map Get.
BE35263B	Host adapter ODM failure on code read.
BE35263C	Host adapter ODM failure on flash memory read.
BE35263D	Host adapter ODM failure on ODM update.
BE35263E	Host adapter ODM failure on ODM update.
BE35263F	Host adapter ODM failure - location already configured.
BE352640	Host adapter ODM failure - port CuDv not found.
BE352641	Host adapter ODM failure - no CuDv.

Table 519. BE35xxxx system reference codes (continued)

System reference code	Description
BE352642	Host adapter ODM failure - no cpss0 entry in CuDv.
BE352643	Host adapter ODM failure - no CuDv info.
BE352644	Host adapter ODM failure - no CuDv parent.
BE352645	Host adapter ODM failure - no logical name.
BE352646	Host adapter ODM failure - no PdDv.
BE352647	Host adapter ODM failure - storage map operation failure.
BE352648	Host adapter ODM failure - open cpssdd failure.
BE352649	Host adapter ODM failure - options failure.
BE35264A	Host adapter fence logical path.
BE35264B	Host adapter link incident - BER exceeded.
BE35264C	Host adapter link incident - LIR reported.
BE35264D	Host adapter link incident - no LIR reported.
BE35264E	Host adapter ECC correctable error detected.
BE35264F	Host adapter ECC uncorrectable error detected.
BE352650	Host adapter Timberwolf formatter error.
BE352651	Host adapter service cnfig/unconfig failure.
BE352652	Host Adapter Config Fail: ADS null.
BE352653	Host Adapter Config Fail: Boot failure.
BE352654	Host Adapter Config Fail: Flash memory miscompare.
BE352655	Host Adapter Config Fail: Burn flash memory failure.
BE352656	Host Adapter Config Fail: Config checksum.
BE352657	Host Adapter Config: CMNGS update timeout.
BE352658	Host adapter adapter configuration failure.
BE352659	Host Adapter Config Fail: Device ID incorrect.
BE35265A	Host Adapter Config Fail: Early IML complete.
BE35265B	Host Adapter Config Fail: POST failure.
BE35265C	Host Adapter Config Fail: Config ready fail.
BE35265D	Host Adapter Config Failure: CUB timeout.
BE35265E	Host adapter config CMNADPGS read failure.
BE35265F	Host adapter config SMPVISIBLE read failure.
BE352660	Host Adapter Config Fail: TCB allocate failed.

Table 519. BE35xxxx system reference codes (continued)

System reference code	Description
BE352661	Host Adapter Config Fail: SREC missing.
BE352662	Host adapter global CRC error.
BE352663	Host adapter SMP detected HW failure.
BE352664	Host adapter microcode detected HW failure.
BE352665	Fiber Channel Emulex IOCB response hardware failure.
BE352666	Fiber Channel Emulex mailbox response hardware failure.
BE352667	Fiber Channel Timberwolf: Adapter PCI error.
BE352668	Fiber Channel Timberwolf: Hang timer for adapter PCI.
BE352669	Fiber Channel Timberwolf: Adapter PCI SERR interrupt.
BE35266A	Fiber Channel Timberwolf: Interrupt controller reserved bit error.
BE35266B	Fiber Channel Timberwolf: Clock error.
BE35266C	Fiber Channel Timberwolf: DMA1 error.
BE35266D	Fiber Channel Timberwolf: DMA2 error.
BE35266E	Fiber Channel Timberwolf: ELA error.
BE35266F	Fiber Channel Emulex multiple port failure.
BE352670	Fiber Channel single port failure.
BE352671	Fiber Channel interrupt controller summary with invalid data.
BE352672	Fiber Channel interrupt controller summary active.
BE352673	Fiber Channel Timberwolf L3 cache check.
BE352674	Fiber Channel Timberwolf local PCI error.
BE352675	Fiber Channel local PCI error.
BE352676	Fiber Channel Timberwolf PBUS summary interrupt.
BE352677	Fiber Channel PowerPC exception.
BE352678	Fiber Channel Timberwolf SBM error.
BE352679	Fiber Channel adapter PCI error.
BE35267A	Fiber Channel adapter PCIA error interrupt.
BE35267B	Fiber Channel clock error.
BE35267C	Fiber Channel DMA1 error.
BE35267D	Fiber Channel ELA interrupt.
BE35267E	Fiber Channel HAMER error.
BE35267F	Fiber Channel Timberwolf hang timer interrupt.
BE352680	Fiber Channel L3 cache check.

Table 519. BE35xxxx system reference codes (continued)

System reference code	Description
BE352681	Fiber Channel local PCI SERR.
BE352682	Fiber Channel local PCIA error.
BE352683	Fiber Channel PBUS check.
BE352684	Fiber Channel reserved field failure.
BE352685	Fiber Channel SBM error interrupt.
BE352686	Host adapter PowerPC alignment error.
BE352687	Host adapter PowerPC breakpoint error.
BE352688	Host adapter PowerPC DSI.
BE352689	Host adapter PowerPC machine check.
BE35268A	Host adapter PowerPC program exception.
BE35268B	Host adapter PowerPC floating point exception.
BE35268C	Host adapter PowerPC hang timer exception.
BE35268D	Host adapter PowerPC instruction storage interrupt.
BE35268E	Host adapter PowerPC no data exception.
BE35268F	Host adapter PowerPC performance exception.
BE352690	Host adapter PowerPC system reset.
BE352691	Host adapter PowerPC system management interrupt.
BE352692	Host adapter PowerPC system call exception.
BE352693	Host adapter PowerPC thermal management interrupt.
BE352694	Host adapter PowerPC trace exception.
BE352695	Host adapter PowerPC machine check.
BE352696	Host adapter PowerPC other exception.
BE352697	Host adapter MPC107 error.
BE352698	Host adapter MPC107 PCI SERR.
BE352699	Host adapter MPC107 PCI target PERR.
BE35269A	Host adapter MPC107 memory read parity error.
BE35269B	Host adapter MPC107 flash ROM write error.
BE35269C	Host adapter MPC107 L2 copyback error.
BE35269D	Host adapter MPC107 unknown SRR1 error.
BE35269E	Host adapter MPC107 interrupt.
BE35269F	Host adapter interrupt controller no data.
BE3526A0	Host adapter interrupt controller hang timer.
BE3526A1	Host adapter interrupt controller reserved bit error.

Table 519. BE35xxxx system reference codes (continued)

System reference code	Description
BE3526A2	Host adapter interrupt controller HA PCI SERR.
BE3526A3	Host adapter interrupt controller arbiter error.
BE3526A4	Host adapter interrupt controller 60X bus address parity check.
BE3526A5	Host adapter interrupt controller 60X bus data parity check.
BE3526A6	Host adapter interrupt controller protected address write error.
BE3526A7	Host adapter interrupt controller PCIA error.
BE3526A8	Host adapter interrupt controller SBM interrupt.
BE3526A9	Host adapter interrupt controller formatter error.
BE3526AA	Host adapter interrupt controller 60X bus error.
BE3526AB	Host adapter MM4SC interrupt.
BE3526AC	Host adapter SBM write parity error (FC PCI).
BE3526AD	Host adapter SBM read parity error (FC PCI).
BE3526AE	Host adapter SBM read/write parity error (FC PCI).
BE3526AF	Host adapter SBM uncorrectable ECC error (FC PCI).
BE3526B0	Host adapter SBM multiple error (FC PCI).
BE3526B1	Host adapter SBM write parity error (FMT PCI).
BE3526B2	Host adapter SBM read parity error (FMT PCI).
BE3526B3	Host adapter SBM read/write parity error (FMT PCI).
BE3526B4	Host adapter SBM uncorrectable ECC error (FMT PCI).
BE3526B5	Host adapter SBM multiple error (FMT PCI).
BE3526B6	Host adapter SBM write parity error (LP PCI).
BE3526B7	Host adapter SBM read parity error (LP PCI).
BE3526B8	Host adapter SBM read/write parity error (LP PCI).
BE3526B9	Host adapter SBM uncorrectable ECC error (LP PCI).
BE3526BA	Host adapter SBM multiple error (LP PCI).
BE3526BB	Host adapter SBM address check.

Table 519. BE35xxxx system reference codes (continued)

System reference code	Description
BE3526BC	Host adapter SBM soft error threshold check.
BE3526BD	Host adapter SBM unimplemented memory error.
BE3526BE	Host adapter PCIA LP PMAC received target abort.
BE3526BF	Host adapter PCIA FC PMAC issued master abort.
BE3526C0	Host adapter PCIA LP memory region overlap error.
BE3526C1	Host adapter PCIA FC PMAC received target abort.
BE3526C2	Host adapter PCIA HA PMAC issued master abort.
BE3526C3	Host adapter PCIA FC memory region overlap error.
BE3526C4	Host adapter PCIA HA ICR read/write timeout.
BE3526C5	Host adapter PCIA HA PMAC received target abort.
BE3526C6	Host adapter PCIA LP PMAC issued master abort.
BE3526C7	Host adapter PCIA HA memory region overlap error.
BE3526C8	Host adapter PCIA LP ICR read/write timeout.
BE3526C9	First flash memory image boot failure.
BE3526CA	EADS interface read/write failure.
BE3526CB	BIST failure.
BE3526CC	Flash memory burn AB word miscompare.
BE3526CD	Bootstrap loader failure.
BE3526CE	Fiber Channel port wraptest failure.
BE3526CF	IOA slot freeze failure during config.
BE3526D0	DMA codeload failure.
BE3526D1	Fabric event blames IOA adapter.
BE3526D2	Adapter caused too many fabric faults.
BE3526D3	Interrupt seen but no EIR presented.
BE3526D4	Adapter communication timeout.
BE3526D5	Adapter missed a heartbeat.
BE3526D6	Host adapter HA trace log (DMA error primary).
BE3526D7	Host adapter HA trace log (DMA error secondary).
BE3526D8	Host adapter Timberwolf DMA timeout.

Table 519. BE35xxxx system reference codes (continued)

System reference code	Description
BE3526D9	Host adapter microcode detected HW failure.
BE3526DA	Fiber Channel Emulex IOCB status error.
BE3526DB	Fiber Channel Emulex mailbox error.
BE3526DC	Fiber Channel Emulex diagnostic failure.
BE3526DD	Fiber Channel Emulex illegal parameter error.
BE3526DE	Fiber Channel Emulex mailbox timeout.
BE3526DF	Fiber Channel Emulex IOCB not ready error.
BE3526E0	Fiber Channel Emulex IOCB timeout.
BE3526E1	Fiber Channel Emulex unexpected error.
BE3526E2	Host adapter interrupt uninstallation failure.
BE3526E3	Host adapter interrupt unregistration failure.
BE3526E4	Host adapter EADS-X related configuration failure.
BE3526E5	Host adapter Fiber Channel link log.
BE3526E6	Host adapter causing too many indeterminate PHYP fabric faults.
BE3526E7	Fiber Channel Emulex reset.
BE3526E8	Host adapter data loss event.
BE3526E9	Host Adapter Config Fail: Adapter failed to become available.
BE3526EA	Host Adapter Config Fail: Configuration failed to create PCI windows.
BE3526EB	Host adapter PCI write failure (config space).
BE3526EC	Host adapter PCI read failure (config space).
BE3526ED	Host adapter Fiber Channel ODM topology failure.
BE3526EE	Host adapter access of unconfigured LUN.

Table 520. BE36xxxx system reference codes

System reference code	Description
BE360010	IBM.EssSAHARM detected attribute values mismatched between Group Leader and Peer harvested attributes.
BE360012	IBM.EssSAHARM detected objects missing in the current harvest.
BE362600	Bit error rate test failure.
BE362601	Wrap test failure.
BE362602	Host adapter card type mismatch.
BE362603	Host adapter's owning PCI slot is powered off.

Table 520. BE36xxxx system reference codes (continued)

System reference code	Description
BE362604	Host adapter card could not be discovered/configured.
BE362605	Unable to query PCI slot's power status failed after one or more retries.
BE362606	Health check found host adapter in service mode for >72 hours. Performance may be impacted. Run View SF State (end of call).
BE362607	Health check found fenced host adapter.
BE362608	Health check found one or more fenced I/O ports.
BE362609	Health check found one or more offline I/O ports.

BE4*xxxxx*

This section lists the BE4*xxxxx* system reference codes.

- BE40*xxxx*

Table 521. BE40xxxx system reference codes

System reference code	Description
BE400000	RAS system registry table corrupted.

BE5*xxxxx*

This section lists the BE5*xxxxx* system reference codes.

These SRCs normally occur while the customer is using DSCLI to logically configure the storage. The SRCs listed in the table can be caused by hardware problems. Look for open related serviceable events to repair. If your BE5*xxxxx* SRC is not listed below, reference the PE database/website document titled "BE5*xxxxx* & BE7*xxxxx* Logical Configuration Error Codes".

- BE5*xxxxx*

Table 522. BE50xxxxx System Reference Codes

System Reference Code	Description
BE504905	Invalid data found in NVS
BE504910	Data check one sector medium error
BE504920	Data check multiple sectors medium error
BE504930	Data check one sector LRC
BE504940	Data check multiple sectors LRC
BE504960	Second occurrence of customer data sequence number error
BE504970	Second occurrence of customer data physical address
BE504980	Metadata check one sector medium error
BE504990	Metadata check multiple sectors medium error
BE5049A0	Metadata check one sector LRC

Table 522. BE50xxxxx System Reference Codes (continued)

System Reference Code	Description
BE5049B0	Metadata check multiple sectors LRC
BE5049E0	Data loss handling complete

BE7*xxxxx*

This section lists the BE7*xxxxx* system reference codes.

These SRCs normally occur while the customer is using DSCLI to logically configure the storage. The SRCs listed in the tables can be caused by hardware problems. Look for open related serviceable events to repair. If your BE7*xxxxx* SRC is not listed below, reference the PE database/website document titled "BE5*xxxxx* & BE7*xxxxx* Logical Configuration Error Codes".

- BE70*xxxx*
- BE71*xxxx*
- BE72*xxxx*

Table 523. BE70xxxx System Reference Codes

System Reference Code	Description
BE700001	This is an example of a reference code description.
BE700002	This is another example of a reference code description.

Table 524. BE71xxxx System Reference Codes

System Reference Code	Description
BE71xxxx	This is the description of the system reference code.
BE71xxxx	This is the description of the system reference code.

Table 525. BE72xxxx System Reference Codes

System Reference Code	Description
BE72xxxx	This is the description of the system reference code.
BE72xxxx	This is the description of the system reference code.

BE9*xxxxx*

This section lists the BE9*xxxxx* system reference codes.

- BE9A*xxxx*
- BE9C*xxxx*
- BE9D*xxxx*

Table 526. BE9Axxxx System Reference Codes

System Reference Code	Description
BE9A0001	Field Install SF, start pseudo event/problem injection.

Table 526. BE9Axxxx System Reference Codes (continued)

System Reference Code	Description
BE9A0002	Field Install SF, stop pseudo event/problem injection.
BE9A0003	Field Install SF was successful, call home with PMR.
BE9A0004	Field Install SF failed, call home with PMR.
BE9A0005	(Reserved).
BE9A0006	(Reserved).
BE9A0007	Hardware Verification failed.
BE9A0008	IML timeout during Field Install Storage Facility.

Table 527. BE9Cxxxx System Reference Codes

System Reference Code	Description
BE9Cxxxx	See "MAP1330 SRC BE9Cxxxx" on page 530.

Table 528. BE9Dxxxx System Reference Codes

System Reference Code	Description
BE9Dxxxx	Call the next level of support, these are microcode detected MLEs for the code update process.

BEB*xxxxx*

This section lists the BEB*xxxxx* system reference codes.

- BEB0*xxxx*
- BEB1*xxxx*
- BEB2*xxxx*
- BEB3*xxxx*

Table 529. BEB0xxxx System Reference Codes

System Reference Code	Description
BEB00010	On-Demand Data Collection (Full PE package)
BEB00011	Moved un-selected PE pkg files to Virtual Retain
BEB00012	Individual file offload(HMC/LPAR)
BEB00013	On-Demand Data Collection (PE Package by Area/Condition)
BEB00020	End-to-End Communication Test

Table 530. BEB1xxxx System Reference Codes

System Reference Code	Description
BEB10011	Network Surveillance NIC_FAILURE: Single HMC physical link unavailable on ethernet port - eth0 (172.16-BLACK network)[1]

Table 530. BEB1xxxx System Reference Codes (continued)

System Reference Code	Description
BEB10012	Network Surveillance NIC_FAILURE: Single HMC physical link unavailable on ethernet port - eth3 (172.17-GRAY network)[1]
BEB10021	Network Surveillance LINK_FSP_HMC: Single HMC lost link to single FSP over 172.16-BLACK network[1]
BEB10022	Network Surveillance LINK_FSP_HMC: Single HMC lost link to single FSP over 172.17-GRAY network[1]
BEB10030	Network Surveillance LINK_PART_HMC: Single HMC lost link to single partition on a system; both paths are not available.
BEB10041	Network Surveillance LINK_PART_HMC_REDUND: Single HMC lost link to single partition on a system, the path through the 172.16-BLACK network[1] is not available, the other network is ok
BEB10042	Network Surveillance LINK_PART_HMC_REDUND: Single HMC lost link to single partition on a system, the path through the 172.17-GRAY network[1] is not available, the other network is ok
BEB10050	Network Surveillance LINK_M_PART_HMC: Single HMC lost links to multiple partitions on single system; both paths are not available; FSP to HMC link is still working.
BEB10060	Network Surveillance LINK_A_PART_HMC: Single HMC lost links to all partitions on single system; both paths are not available; FSP to HMC link is still working.
BEB10070	Network Surveillance LINK_ALL_HMC: Single HMC lost links to single system (partition and FSP); both paths are not available;
BEB10080	Network Surveillance LINK_HMC_SYS: Single HMC lost links to all systems (FSP and partition); both paths are not available;
BEB10090	Network Surveillance LINK_HMC_M_SYS: Single HMC lost links to multiple systems (FSP and partition); both paths are not available
BEB10100	Network Surveillance LINK_HMC_HMC: Lost HMC to HMC links; both paths are not available
BEB10110	Network Surveillance LINK_HMC_HMC_REDUND
BEB10120	Network Surveillance LINK_HMC_M_HMC: Lost single HMC to HMC link; only one path is not available

Table 530. BEB1xxxx System Reference Codes (continued)

System Reference Code	Description
BEB10130	Network Surveillance LINK_HMC_ALL: Lost HMC link to multiple HMC's; both paths are not available (n/a for MM)
BEB10140	Network Surveillance M_LINK_HMC_SYS: Multiple HMCs lost all links to a single system (FSP and partition)
BEB10150	Network Surveillance M_LINK_HMC_M_SYS: Multiple HMCs lost all links to multiple systems (FSP and partition)
BEB10160	Network Surveillance M_LINK_HMC_ALL: Multiple HMCs lost all links to all systems (FSP and partition)
BEB10200	NIC PCI failed. Might need to replace card.
[1] - The default address range is shown, but the customer might have selected to use one of three optional address ranges. To find out which address range was selected, see "MAP7005 Determining which private network address range is selected" on page 867.	

Table 531. BEB2xxxx System Reference Codes

System Reference Code	Description
BEB20010	Call Home Test
BEB20020	Connection Established
BEB20030	VPN Call Back Failed
BEB21000	Backup critical data failed

Table 532. BEB3xxxx System Reference Codes

System Reference Code	Description
BEB30001	HealthCheck:HMC FileSystem size check failed
BEB30002	HealthCheck:ESSNI Server state check failed
BEB30003	HealthCheck:DS8000 Storage manager server state check failed
BEB30004	HealthCheck:PHYP SRC check failed
BEB30005	HealthCheck:Verification of RMC objects on HMC failed
BEB30006	HealthCheck:Check to verify if Large file transfer is enabled failed
BEB30007	HealthCheck:HMC management domain verification failed
BEB30008	HealthCheck:Check to verify LPARs running from HMC failed
BEB30009	HealthCheck:Verification of memeory configuration failed
BEB30010	HealthCheck:Verification of ResourceManagers on LPAR failed

Table 532. BEB3xxxx System Reference Codes (continued)

System Reference Code	Description
BEB30011	HealthCheck:Verification of RMC objects on LPAR failed
BEB30012	HealthCheck:Verification of storage facility power on/off option failed
BEB30013	HealthCheck:Verification of CPSS availability on LPARs failed
BEB30014	HealthCheck:Verification of power components failed
BEB30015	HealthCheck:Verification of DA load state failed
BEB30016	HealthCheck:Verification of pinned data on lpars failed
BEB30017	HealthCheck:No disk in HMC DVD drive or DVD write check failed
BEB30018	HealthCheck:logrotate.status file size is 0. Will cause PA failure

BED*xxxxx*

This section lists the BED*xxxxx* system reference codes.

- BED0*xxxx*
- BED1*xxxx*

Table 533. BED0xxxx System Reference Codes

System Reference Code	Description
BED00000	Mrpd failed. Expected resources were not found.
BED00001	Mrpd failed. RMC call resulted in a none zero return value.
BED00002	Mrpd failed. Microcode logic error.
BED00003	Mrpd failed. Subsystems is in bad state.
BED00004	Mrpd failed. Invalid managed system MTMS.
BED00005	Mrpd failed. Unknown error detected.
BED00006	Mrpd failed. Reserve1 error detected.
BED00007	Mrpd failed. Reserve2 error detected.
BED00008	Mrpd failed. Reserve3 error detected.
BED00009	Mrpd failed. Reserve4 error detected.
BED00010	Mrpd failed. Reserve5 error detected.
BED00100	Could be memory failure. Use “MAP4070 CEC memory problem” on page 663 to isolate the problem.
BED00101	Could be memory failure. Reserve1 error detected.
BED00102	Could be memory failure. Reserve2 error detected.

Table 533. BED0xxxx System Reference Codes (continued)

System Reference Code	Description
BED00103	Could be memory failure. Reserve3 error detected.
BED00104	Could be memory failure. Reserve4 error detected.
BED00105	Could be memory failure. Reserve5 error detected.
BED00106	Could be memory failure. Reserve6 error detected.
BED00107	Could be memory failure. Reserve7 error detected.
BED00108	Could be memory failure. Reserve8 error detected.
BED00109	Could be memory failure. Reserve9 error detected.
BED00110	Could be memory failure. Reserve10 error detected.

Table 534. BED1xxxx System Reference Codes

System Reference Code	Description
BED10110	Trailing port status failure has occurred on the power controlling CEC.
BED10120	Trailing port status failure has occurred on the local I/O Enclosure.
BED10130	Trailing port status failure has occurred on the remote CEC.
BED10140	Trailing port status failure has occurred on the remote I/O Enclosure.
BED10150	Invalid trailing port status returned by Phyp code to RAS code.
BED10210	Leading port status failure has occurred on the power controlling CEC.
BED10220	Leading port status failure has occurred on the local I/O Enclosure.
BED10230	Leading port status failure has occurred on the remote CEC.
BED10240	Leading port status failure has occurred on the remote I/O Enclosure.
BED10250	Invalid leading port status returned by Phyp code to RAS code.
BED10310	Leading port speed failure has occurred on the power controlling CEC.
BED10320	Leading port speed failure has occurred on the local I/O Enclosure.
BED10330	Leading port speed failure has occurred on the remote CEC.
BED10340	Leading port speed failure has occurred on the remote I/O Enclosure

Table 534. BED1xxxx System Reference Codes (continued)

System Reference Code	Description
BED10350	Invalid leading port speed returned by Phyp code to RAS code.
BED10410	Power controlling CEC enclosure SPCN MTMS VPD error due to incorrect cabling.
BED10411	Power controlling CEC enclosure read invalid SPCN MTMS VPD. 'UTMP' value found.
BED10412	Power controlling CEC enclosure cannot read SPCN MTMS VPD. 'null' value found.
BED10420	Local I/O enclosure SPCN MTMS VPD error due to incorrect cabling.
BED10421	Local I/O enclosure read invalid SPCN MTMS VPD.
BED10422	Local I/O cannot read SPCN MTMS VPD.
BED10430	Remote CEC enclosure SPCN MTMS VPD error due to incorrect cabling.
BED10431	Remote CEC enclosure read invalid SPCN MTMS VPD.
BED10432	Remote CEC enclosure cannot read SPCN MTMS VPD.
BED10440	Remote I/O enclosure SPCN MTMS VPD error due to incorrect cabling.
BED10441	Remote I/O enclosure read invalid SPCN MTMS VPD.
BED10422	Remote I/O enclosure cannot read SPCN MTMS VPD.
BED10450	Invalid SPCN MTMS VPD returned by Phyp code to RAS code.
BED10510	Leading port type failure has occurred on the power controlling CEC.
BED10520	Leading port type failure has occurred on the local I/O enclosure.
BED10530	Leading port type failure has occurred on the remote CEC.
BED10540	Leading port type failure has occurred on the remote I/O enclosure.
BED10550	Invalid leading port type returned by Phyp code to RAS code.
BED10610	Power controlling CEC enclosure RIO leading port VPD failure due to incorrect cabling.
BED10611	Power controlling CEC enclosure read invalid RIO leading port VPD. UTMP value found.
BED10612	Power controlling CEC enclosure cannot read RIO leading port VPD.
BED10620	Local I/O enclosure RIO leading port VPD failure due to incorrect cabling.

Table 534. BED1xxxx System Reference Codes (continued)

System Reference Code	Description
BED10621	Local I/O enclosure read invalid RIO leading port VPD. UTMP value found.
BED10622	Local I/O enclosure cannot read RIO leading port VPD.
BED10630	Remote CEC enclosure RIO leading port VPD failure due to incorrect cabling.
BED10631	Remote CEC enclosure read invalid RIO leading port VPD. UTMP value found.
BED10632	Remote CEC enclosure read invalid RIO leading port VPD. UTMP value found.
BED10640	Remote I/O enclosure RIO leading port VPD failure due to incorrect cabling.
BED10710	Power controlling CEC enclosure RIO trailing port VPD failure due to incorrect cabling.
BED10711	Power controlling CEC enclosure read invalid RIO trailing port VPD. UTMP value found.
BED10712	Power controlling CEC enclosure cannot read RIO trailing port VPD.
BED10720	Local I/O enclosure RIO trailing port VPD failure due to incorrect cabling.
BED10721	Local I/O enclosure read invalid RIO trailing port VPD.
BED10722	Local I/O enclosure cannot read RIO trailing port VPD.
BED10730	Remote CEC enclosure RIO trailing port VPD failure due to incorrect cabling.
BED10731	Remote CEC enclosure read invalid RIO trailing port VPD.
BED10732	Remote CEC enclosure cannot read RIO trailing port VPD.
BED10740	Remote I/O enclosure RIO trailing port VPD failure due to incorrect cabling.
BED10741	Remote I/O enclosure read invalid RIO trailing port VPD.
BED10742	Remote I/O enclosure cannot read RIO trailing port VPD.
BED10810	Power controlling CEC enclosure read RIO VPD but it is out of order due to incorrect cabling.
BED10811	Power controlling CEC enclosure read invalid RIO VPD. UTMP value found.
BED10812	Unable to read the power controlling CEC RIO VPD.
BED10820	Local I/O enclosure read RIO VPD but it is out of order due to incorrect cabling.
BED10821	Local I/O enclosure read invalid RIO VPD.

Table 534. BED1xxxx System Reference Codes (continued)

System Reference Code	Description
BED10822	Unable to read local I/O RIO VPD.
BED10830	Remote CEC enclosure read RIO VPD but it is out of order due to incorrect cabling.
BED10831	Remote CEC enclosure read invalid RIO VPD.
BED10832	Unable to read the Remote CEC enclosure RIO VPD.
BED10840	Remote I/O enclosure read RIO VPD but it is out of order due to incorrect cabling.
BED10841	Remote I/O enclosure read invalid RIO VPD.
BED10842	Unable to read the Remote I/O enclosure RIO VPD.
BED10850	Invalid enclosure type returned by PHYP code to RAS code.

BEF*xxxxx*

This section lists the BEF*xxxxx* system reference codes.

- BEF0*xxxx*
- BEFA*xxxx*

Table 535. BEF0xxxx System Reference Codes

System Reference Code	Description
BEF00005	Install Report, manually called home
BEF00010	WebSM Public Key
BEF00012	Heartbeat
BEF00015	Offload Statesaves, cpssdumps
BEF00020	Offload Statesaves, LSS
BEF00025	Offload Statesaves, PHyp
BEF00030	Offload Statesaves, MOW

Table 536. BEFAxxxx System Reference Codes

System Reference Code	Description
BEFA0001	Field Install SF was successful, call home with Data.
BEFA0002	Field Install SF failed, call home with Data.

Table 537. BEFCxxxx System Reference Codes

System Reference Code	Description
BEFCDA00	CDA code update

(C*xxxxxxx*) codes

Cxxxxxxx codes are progress codes. See Chapter 50, “Progress codes,” on page 1611.

(DA*xxxxxx*) Partition firmware reference (error) codes

The partition firmware detected a failure. The first eight characters in the display represent the SRC. Any additional characters represent the associated location code. Record the location code as well as the reference code, then find the SRC in the following table.

Table 538. (DAxxxxxx) Partition firmware reference (error) codes

SRC	Description/Action	Failing item
DA080001	An IDE device remained busy for a longer period than the time-out period.	“FWFWPBL” on page 397
DA080002	The IDE controller senses IDE devices but with errors. • Verify that the IDE devices are seated properly and cabled correctly. • Replace the IDE controller (model-dependent).	
DA080010	An IDE device is busy longer than specified time-out period. Retry the operation.	“FWIDE1” on page 397
DA080011	An IDE command timed out; command is exceeding the period allowed to complete. Retry the operation.	“FWIDE1” on page 397
DA080012	The ATA command failed.	“FWIDE2” on page 398
DA080013	The media is not present in the tray. Retry the operation.	“FWIDE1” on page 397
DA080014	The media has been changed. Retry the operation.	“FWIDE1” on page 397
DA080015	The packet command failed; the media might not be readable. Retry the operation.	“FWIDE1” on page 397

(D*xxxxxxx*) codes

Dxxxxxxx codes are progress codes. See Chapter 50, “Progress codes,” on page 1611.

(E2*xxxxxx*) Licensed Internal Code error codes

The management console (HMC) generates E2*xxxxxx* error codes when it encounters a Licensed Internal Code (LIC) problem.

Table 539. (E2xxxxxx) Licensed Internal Code progress codes

SRC	Description/Action	Failing item
E2*xxxxxx*	Licensed Internal Code failure. An internal error has occurred. Contact your service provider.	"NEXTLVL" on page 899

(E3*xxxxxx*) Licensed Internal Code error codes

The management console (HMC) generates E3*xxxxxx* error codes when it encounters a Licensed Internal Code (LIC) problem.

For all other E3*xxxxxx* SRCs, use the following table.

Table 540. (Exxxxxxx) Licensed Internal Code error codes

SRC	Description/Action	Failing item
"(E300*xxxx*) Licensed Internal Code error codes"	Licensed Internal Code error codes	"NEXTLVL" on page 899
"(E302*xxxx*) Licensed Internal Code error codes" on page 2104	Licensed Internal Code error codes	"NEXTLVL" on page 899
"(E338*xxxx*) Licensed Internal Code error in guided maintenance in Service Focal Point" on page 2129	Licensed Internal Code error in guided maintenance in Service Focal Point	"NEXTLVL" on page 899
E3*xxxxxx*	Licensed Internal Code failure on the management console (HMC). Contact your service provider.	"NEXTLVL" on page 899

(E300*xxxx*) Licensed Internal Code error codes

The Hardware Management Console (HMC) generates E300*xxxx* error codes when it fails to retrieve a dump from the managed system. When this SRC occurs in an environment that includes redundant HMCs, a peer HMC might have retrieved the dump. The SRC indicates which type of dump the HMC was attempting to retrieve when the failure occurred.

Table 541. (E300xxxx) Licensed Internal Code error codes

SRC	Description/Action	Failing Item
E3006601	The Hardware Management Console (HMC) failed to retrieve a platform system dump. This might be a temporary problem.	"NEXTLVL" on page 899
E3006602	The HMC failed to retrieve a dump from the service processor. This might be a temporary problem.	"NEXTLVL" on page 899
E3006604	The HMC failed to retrieve a power subsystem dump. This might be a temporary problem.	"NEXTLVL" on page 899

(E302*xxxx*) Licensed Internal Code error codes

For use by service providers.

The Hardware Management Console generates E302*xxxx* error codes when it encounters a problem during an update of the firmware for the managed system.

Table 542. (E302xxxx) Licensed Internal Code error codes

SRC	Description/Action	Failing Item
E302F800	An error occurred while attempting to create a provider instance of the service processor interface code as a PIHSCCECCIMClient. An exception was thrown from the PIHSCCECCIMClient createInstance code. Go to the Server and Partition display, refresh the screen and ensure the system is in a good state (for example, power off, standby, or operating). Then repeat the operation.	"NEXTLVL" on page 899
E302F801	An error occurred while attempting to find one of the directories used to store data for the firmware update application. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F802	The survey from the repository method was called, but the repository selected was not the IBM support system, the IBM Web site, the DVD, or the hard drive. Use the HMC graphical user interface (GUI) to reselect the source for code updates, and then retry the update. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F803	The survey from an FTP site failed when downloading the list of files from the FTP repository failed. Verify that you correctly entered valid values for the FTP site, user, password, and directory. Then repeat the operation.	"NEXTLVL" on page 899
E302F804	The request to get a list of IBM support system fixpacks failed because the request timed out. Verify that the HMC is properly configured to communicate with the IBM support system. Verify that the IBM support system has accepted the administrative information for your HMC, and then repeat the operation. Verify that you correctly entered valid values for the FTP site, user, password, and directory. Then repeat the operation.	"NEXTLVL" on page 899
E302F805	The request to get a list of IBM support system fixpacks failed with an exception. Repeat the operation. If it fails, call your next level of support.	"NEXTLVL" on page 899
E302F806	The request to get a list of IBM support system fixpacks failed with an error code. Repeat the operation. If it fails, call your next level of support.	"NEXTLVL" on page 899
E302F807	No phone server was available to service the request to get a list of IBM support system fixpacks. Ensure that your connection to the IBM support system is set up correctly and repeat the operation.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F808	The list of fixpacks was retrieved from the IBM support system, but an I/O exception occurred when the list was written to the hard file. Reboot the HMC and retry the operation. If it fails again, consider replacing the disk drive in the HMC.	"NEXTLVL" on page 899
E302F809	An error occurred while attempting to run the code to get the service processor to run a query, or set, the current IPL side or the next IPL side. Go to the Server and Partition display, refresh the screen and ensure the system is in a good state (for example, power off, standby, or operating). Then repeat the operation.	"NEXTLVL" on page 899
E302F80A	An invalid object was used while attempting to create an owner for the update. Something is wrong with the selected target. Reboot the HMC and retry the operation. If the problem persists contact your next level of support.	"NEXTLVL" on page 899
E302F80B	Unable to get the name of the HMC while preparing to create a service processor client. Reboot the HMC and retry the operation. If it fails again, contact your next level of support.	"NEXTLVL" on page 899
E302F80C	Failure when attempting to read a file. Reboot the HMC and retry the operation. If it fails again, consider replacing the disk drive of the HMC.	"NEXTLVL" on page 899
E302F80D	Failure when attempting to close a file. Reboot the HMC and retry the operation. If it fails again, consider replacing the disk drive of the HMC.	"NEXTLVL" on page 899
E302F80E	The list of fixpacks was retrieved from the IBM system, but an I/O exception occurred when closing the list that was written to the hard file. Reboot the HMC and retry the operation. If it fails again, consider replacing the disk drive of the HMC.	"NEXTLVL" on page 899
E302F80F	The method to import the stageable cover letter was called, but the repository selected was not the IBM support system, the IBM Web site,, the DVD, or the hard drive. Use the HMC GUI to reselect the source for code updates, and then retry the update. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F810	Unable to FTP the cover letter from the specified repository to the staging area. Verify that the FTP site is still up, and then retry the operation.	"NEXTLVL" on page 899
E302F811	The request to get cover letter from the IBM support system timed out. Verify that your connection to the IBM support system is set up correctly and is operational. Retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F812	The request to get cover letter from the IBM support system failed with an exception. Verify that your connection to the IBM support system is set up correctly and is operational. Retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F813	The request to get cover letter from the IBM support system failed with an error code. Verify that your connection to the IBM support system is set up correctly and is operational. Retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F814	No phone server was available to service the request to get cover letters from the IBM support system. Configure the HMC as a phone server and retry the operation.	"NEXTLVL" on page 899
E302F815	Failure when attempting to copy the cover letter from the DVD to the staging area on the hard file. The CD or DVD might be faulty. Try another one.	"NEXTLVL" on page 899
E302F816	An error occurred when attempting to get the service processor to run a query of its state. Go to the Server and Partition display, refresh the screen and ensure the system is in a good state (for example, power off, standby, or operating). Then repeat the operation.	"NEXTLVL" on page 899
E302F817	A query of the current IPL side returned a null. Go to the Server and Partition display, refresh the screen and ensure the system is in a good state (for example, power off, standby, or operating). Then repeat the operation.	"NEXTLVL" on page 899
E302F818	A query of the next IPL side returned a null. Go to the Server and Partition display, refresh the screen and ensure the system is in a good state (for example, power off, standby, or operating). Then repeat the operation.	"NEXTLVL" on page 899
E302F819	A query of the current IPL side failed. Go to the Server and Partition display, refresh the screen and ensure the system is in a good state (for example, power off, standby, or operating). Then repeat the operation.	"NEXTLVL" on page 899
E302F81A	An exception occurred during a query of the current IPL side. Go to the Server and Partition display, refresh the screen and ensure the system is in a good state (for example, power off, standby, or operating). Then repeat the operation.	"NEXTLVL" on page 899
E302F81B	A query of the next IPL side failed. Go to the Server and Partition display, refresh the screen and ensure the system is in a good state (for example, power off, standby, or operating). Then repeat the operation.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F81C	An exception occurred during a query of the next IPL side. Go to the Server and Partition display, refresh the screen and ensure the system is in a good state (for example, power off, standby, or operating). Then repeat the operation.	"NEXTLVL" on page 899
E302F81D	Failure during an attempt to copy the cover letter from the IBM Web site to the staging area on the hard file. Reboot the HMC. Verify that your LAN connection is set up properly. Then retry the operation.	"NEXTLVL" on page 899
E302F81E	Failure of a survey from an FTP site occurred when a connection to the site was unavailable. Ensure that the FTP site is reachable on the network from the HMC and that the site is up and running properly. Ensure that all firewall authentications are successfully performed if needed, and then retry the operation.	"NEXTLVL" on page 899
E302F81F	Failure of a survey from an FTP site occurred when logging into the site was unsuccessful. Ensure that the login parameters are correct, and then retry the operation.	"NEXTLVL" on page 899
E302F820	An error occurred while attempting to read the common marker firmware update file from flash memory to the hard file. Go to the Server and Partition display, refresh the screen and ensure the system is in a good state (for example, power off, standby, or operating). Then repeat the operation. If the problem occurs again contact your next level of support.	"NEXTLVL" on page 899
E302F821	An error occurred while attempting to read the common marker firmware update file from the hard file into memory. Reboot the HMC and retry the operation. If the problem occurs again contact your next level of support.	"NEXTLVL" on page 899
E302F822	An error occurred while attempting to find one of the directories used to store data for the firmware update application. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F828	An error occurred while attempting to read the master firmware update file from flash memory to the hard drive. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F829	An error occurred while attempting to read the master firmware update file from the hard drive into memory. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F82A	An error occurred while attempting to read the header of the master firmware update file from flash memory to the hard file. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F82B	An error occurred while attempting to find one of the directories used to store data for the firmware update application. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F82C	An error occurred while attempting to create a provider instance of the secondary service processor interface code as a PIHSCCECCIMClient. An exception was thrown from the PIHSCCECCIMClient createInstance code. Go to the Server and Partition display, refresh the screen and ensure that the system is in a good state (power off, standby, or power on). Then repeat the operation.	"NEXTLVL" on page 899
E302F830	An error occurred while attempting to read a flash firmware update file from the hard file into memory. Reboot the HMC and try the operation again. If the problem occurs again, consider replacing the disk drive of the HMC.	"NEXTLVL" on page 899
E302F831	A file that was supposed to be a firmware update file either does not exist or is too small to contain a valid header. If you are using nondisruptive microcode, verify that your test firmware update files are correct. Otherwise contact your next level of support.	"NEXTLVL" on page 899
E302F838	An error occurred while attempting to read the information about the fixpack out of the cover letter. Verify that the cover letter is correct and has not been corrupted. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F840	An error occurred while attempting to get the engineering change streams in order to retrieve all of the updates from removable media. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F841	An error occurred while attempting to issue a start code update command to the master service processor. Manually point the next FSP re-IPL to the P side using the Flash Side Selection panels. Then perform a ″Disruptive activate″ using the Select advanced features panels. Try the operation again. If the problem reoccurs, contact your next level of support.	"NEXTLVL" on page 899
E302F842	An error occurred while attempting to issue a write firmware update file command to the master service processor. Manually point the next FSP re-IPL to the P side using the Flash Side Selection panels. Then perform a ″Disruptive activate″ using the Select advanced features panels. Try the operation again. If the problem reoccurs, contact your next level of support.	"NEXTLVL" on page 899
E302F843	An error occurred while attempting to issue a ″code update complete″ action to the master service processor. Try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F844	An error occurred while attempting to reboot the service processor Try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F845	The "import from a remote repository" code routine was called, but the repository selected was not the IBM support system or the IBM Web site. Use the HMC GUI to reselect the source for code updates. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F846	An error occurred while attempting to swap the T and P sides of the service processor. Try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F847	An engineering change stream was passed between components, but no such engineering change stream exists for the targeted object. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F848	A request to import the IBM support system fixpacks and cover letters timed out. Verify that your connection to the IBM support system is set up correctly and is operational. Retry the operation. If the problem reoccurs, contact your next level of support.	"NEXTLVL" on page 899
E302F849	A request to import the IBM support system fixpacks and cover letters failed. Verify that your connection to the IBM support system is set up correctly and is operational. Retry the operation. If the problem reoccurs, contact your next level of support.	"NEXTLVL" on page 899
E302F84A	Failure during an attempt to read the surveyed list of fixpacks. Reboot the HMC and try the operation again. If the problem occurs again, consider replacing the disk drive of your HMC.	"NEXTLVL" on page 899
E302F84B	Failure during an attempt to close the surveyed list of fixpacks. Reboot the HMC and try the operation again. If the problem occurs again, consider replacing the disk drive of your HMC.	"NEXTLVL" on page 899
E302F84C	An error occurred while attempting to get the engineering change streams in order to list all of the updates available on the removable media. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F84D	An error occurred while trying to copy the RPM files from the media repository to the hard file. The CD or DVD might be faulty. Try another one.	"NEXTLVL" on page 899
E302F84E	An error occurred in a removable media code routine because the file types were null. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F84F	An error occurred in a method because one of the file arrays had a length of zero. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F850	A failure occurred while trying to unpack the RPM file in the "complete concurrently" code routine. Reboot the HMC and try the operation again. In the HMC code released before August 2004, there was a problem that can be corrected with commands from the Linux command line as follows: `ls -l /opt/ccfw/data/*.rpm` `rpm -qp` *`rpmfilename`* (where *rpmfilename* is the name of the file returned by the **ls** command) `rpm -e rpm` *`packagename`* (where *packagename* is the name of the package returned by the **rpm -e** command)	"NEXTLVL" on page 899
E302F851	The request to retrieve fixpacks from the IBM support system failed with an error code. Verify that your connection to the IBM support system is set up correctly and is operational. Retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F852	No phone server was available to serve the request to retrieve IBM support system fixpacks. Configure the HMC as a phone server and retry the operation.	"NEXTLVL" on page 899
E302F853	An error occurred while attempting to find the directory where firmware update files are stored for testing with the non disruptive application panel. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F854	An error occurred while attempting to issue a read firmware update file command to a service processor Try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F855	Importing from an FTP site failed when the files from the FTP repository were not retrieved. Try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F856	A failure occurred when trying to query the name of the image in the RPM file. Try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F857	A failure occurred while attempting to issue the runact API. Try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F858	An exception occurred while attempting to issue the runact API. Try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F859	An exception occurred while trying to query the name of the image in the RPM file. Try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F85A	An exception occurred while trying to unpack the RPM file in the "complete concurrently" code routine. Try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F85B	An exception occurred while trying to import updates from the DVD. The CD or DVD might be faulty. Try another one.	"NEXTLVL" on page 899
E302F85C	An error occurred while attempting to copy the T side to the P side. In the Licensed Internal Code Update panels, choose **Select advanced features**, and then choose **Accept** to copy the T side to the P side. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F85D	An error occurred while attempting to IPL the system unit. The level of code requested is most likely activated on the targeted system. Verify the activated level through System Information. Then IPL the system unit if desired.	"NEXTLVL" on page 899
E302F85E	An error occurred while attempting to power on the system unit. The level of code requested is most likely activated on the targeted system. Verify the activated level through System Information. Then power on the system unit if desired.	"NEXTLVL" on page 899
E302F85F	An error occurred while attempting to power off the system unit. Try powering off the system unit manually and doing the code update while the system is in the platform standby state.	"NEXTLVL" on page 899
E302F860	An error occurred while trying to import updates to the DVD during an export command. The CD or DVD might be faulty. Try another one.	"NEXTLVL" on page 899
E302F861	An error occurred while attempting to open the hypervisor diff file prior to writing. The level of code requested is most likely activated on the targeted system, but not loaded into the server firmware. Verify the activated level through System Information. If the activated level is what is expected, schedule a time to IPL the system.	"NEXTLVL" on page 899
E302F862	An error occurred while attempting to write the hypervisor diff file to the hypervisor. The level of code requested is most likely activated on the targeted system, but not loaded into the server firmware. Verify the activated level through System Information. If the activated level is what is expected, schedule a time to IPL the system.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F863	An error occurred while attempting to close the hypervisor firmware diff file after writing it to the server firmware. The level of code requested is most likely activated on the targeted system, but not loaded into the hypervisor. Verify the activated level through System Information. If the activated level is what is expected, schedule a time to IPL the system.	"NEXTLVL" on page 899
E302F864	An exception occurred during the query to see if a hypervisor firmware update has completed. The level of code requested is most likely activated on the targeted system, but not loaded into the hypervisor. Verify the activated level through System Information. If the activated level is what is expected, schedule a time to IPL the system.	"NEXTLVL" on page 899
E302F865	A failure occurred while querying the status after a firmware update. The level of code requested is most likely activated on the targeted system, but not loaded into the server firmware. Verify the activated level through System Information. If the activated level is what is expected, schedule a time to IPL the system.	"NEXTLVL" on page 899
E302F866	The hypervisor firmware update timed out. The level of code requested is most likely activated on the targeted system, but not loaded into the hypervisor. Verify the activated level through System Information. If the activated level is what is expected, schedule a time to IPL the system.	"NEXTLVL" on page 899
E302F867	An interruption occurred while waiting for the hypervisor firmware update. The level of code requested is most likely activated on the targeted system, but not loaded into the hypervisor. Verify the activated level through System Information. If the activated level is what is expected, schedule a time to IPL the system.	"NEXTLVL" on page 899
E302F868	An error occurred while issuing a start code update command to the secondary service processor. The secondary service processor will be synchronized in the next code update. If this does not occur, contact your next level of support.	"NEXTLVL" on page 899
E302F869	An error occurred while issuing a write firmware update file command to the secondary service processor. The secondary service processor will be synchronized in the next code update. If this does not occur, contact your next level of support.	"NEXTLVL" on page 899
E302F86A	An error occurred issuing a code update complete command to the secondary service processor. The secondary service processor will be synchronized in the next code update. If this does not occur, contact your next level of support.	"NEXTLVL" on page 899
E302F86B	A failure occurred while issuing a runact API to query the partitions and their status. The level of code requested is most likely activated on the targeted system, but not loaded into the server firmware. Verify the activated level through System Information. If the activated level is what is expected, schedule a time to restart the partitions.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F86C	An exception occurred while issuing a runact API to query the partitions and their status. The level of code requested is most likely activated on the targeted system, but not loaded into the server firmware. Verify the activated level through System Information. If the activated level is what is expected, schedule a time to restart the partitions.	"NEXTLVL" on page 899
E302F86D	A fixpack did not contain a diff firmware update file, or no diff firmware update file was found in the firmware update file directory, for nondisruptive firmware application. The level of code requested is most likely activated on the targeted system, but not loaded into the server firmware. Verify the activated level through System Information. If the activated level is what is expected, schedule a time to IPL the system.	"NEXTLVL" on page 899
E302F86E	An error occurred during a call to a code module while preparing to write the hypervisor firmware diff file to flash memory. The level of code requested is most likely activated on the targeted system, but not loaded into the hypervisor firmware. Verify the activated level through System Information. If the activated level is what is expected, schedule a time to IPL the system.	"NEXTLVL" on page 899
E302F86F	An error occurred during a call to a code module while attempting to write the hypervisor firmware diff file to flash memory. The level of code requested is most likely activated on the targeted system, but not loaded into the hypervisor firmware. Verify the activated level through System Information. If the activated level is what is expected, schedule a time to IPL the system.	"NEXTLVL" on page 899
E302F870	An error occurred during a call to a code module after writing the hypervisor firmware diff file to flash memory. The level of code requested is most likely activated on the targeted system, but not loaded into the hypervisor firmware. Verify the activated level through System Information. If the activated level is what is expected, schedule a time to IPL the system.	"NEXTLVL" on page 899
E302F871	An error occurred during the call to start firmware update to concurrently patch firmware. The level of code requested is most likely activated on the targeted system, but not loaded into the server firmware. Verify the activated level through System Information. If the activated level is what is expected, schedule a time to IPL the system.	"NEXTLVL" on page 899
E302F872	Querying status after a firmware update did not return the proper number of elements in the vector. The level of code requested is most likely activated on the targeted system, but not loaded into the server firmware. Verify the activated level through System Information. If the activated level is what is expected, schedule a time to IPL the system.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F873	Rebooting the service processor was executed, but the system unit did not return to the state where the T side was active within a reasonable amount of time. This generally means that the system was not successful when coming up with the new code level and went back to the older code level Retry the operation. To do this, select Select Advanced Features and then select Install And Activate. If the code update fails again, contact your next level of support.	"NEXTLVL" on page 899
E302F874	Rebooting the service processor was executed, but the system unit did not return to its original state within a reasonable amount of time. Go to the Server and Partition display, refresh the screen and ensure the system is in a good state (for example, power off, standby, or operating). If it is not in a good state, and then take the necessary steps to put it in a good state. After it is in a good state, check System Information to ensure the code update was applied. If it is now in a good state but the update is not applied, repeat the operation.	"NEXTLVL" on page 899
E302F875	An error occurred while attempting to query (at standby) in an attempt to retrieve all of the updates from the removable media. The CD or DVD might be faulty. Try another one.	"NEXTLVL" on page 899
E302F876	A failure occurred while trying to query the name of the image in the RPM file. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F877	An exception occurred while trying to query the name of the image in the RPM file. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F878	A failure occurred trying to erase an RPM file. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F879	An exception occurred trying to erase an RPM file. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F87A	A failure occurred while trying to change the permissions of an image file after it had been pulled from an RPM package. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F87B	An exception occurred while trying to change the permissions of an image file after it had been pulled from an RPM package. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F87C	After the flash write to the primary service processor was complete, the secondary service processor did not complete operations within half an hour. The secondary service processor will be synchronized in the next code update. If this does not occur, contact your next level of support.	"NEXTLVL" on page 899
E302F87D	A failure occurred importing I/O microcode. Try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F87E	An IPL of the service processor was executed as part of a disruptive firmware update, but it did not put the system in its original state within a reasonable amount of time. Go to the Server and Partition display, refresh the screen and ensure the system is in a good state (for example, power off, standby, or operating). If it is not in a good state, take the necessary steps to put it in a good state. After it is in a good state, check System Information to ensure the code update was applied.	"NEXTLVL" on page 899
E302F87F	Powering off the service processor was executed as part of a disruptive firmware update, but it did not put the service processor in a powered off state within a reasonable amount of time. Go to the Server and Partition display, refresh the screen and ensure the system is in a good state (for example, power off, standby, or operating). If it is not in a good state, take the necessary steps to put it in a good state. After it is in a good state, repeat the code update operation.	"NEXTLVL" on page 899
E302F880	Powering on the service processor was executed as part of a disruptive firmware update, but it did not put the service processor in a powered on state within a reasonable amount of time. Go to the Server and Partition display, refresh the screen and ensure the system is in a good state (for example, power off, standby, or operating). If it is not in a good state, take the necessary steps to put it in a good state. After it is in a good state, check System Information to ensure the code update was applied.	"NEXTLVL" on page 899
E302F881	An IPL was executed as part of a disruptive firmware update, but the managed system was placed in an error state. If this message occurs, contact your next level of support.	"NEXTLVL" on page 899
E302F882	A power off was executed as part of a disruptive firmware update, but the managed system was placed in an error state. If this message occurs, contact your next level of support.	"NEXTLVL" on page 899
E302F883	A power on was executed as part of a disruptive firmware update, but the managed system was placed in an error state. If this message occurs, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F884	The service processor was rebooted during a firmware update, but it did not put the service processor in a ″not connected″ state within a reasonable amount of time. Go to the Server and Partition display, refresh the screen and ensure the system is in a good state (for example, power off, standby, or operating). If it is not in a good state, take the necessary steps to put it in a good state. Once in a good state, check System Information to ensure the code update was applied. If it is now in a good state but the update is not applied, and then repeat the operation.	“NEXTLVL” on page 899
E302F885	The service processor was rebooted during a firmware update, which put the service processor in a ″not connected″ state. However, this action did not clear the ″not connected″ state within a reasonable amount of time. Contact the next level of support for assistance in getting the HMC to communicate with the service processor again.	“NEXTLVL” on page 899
E302F886	An exception occurred during execution of the synchronous import program while retrieving code from a repository. If this message occurs, contact your next level of support.	“NEXTLVL” on page 899
E302F887	An exception occurred during execution of the synchronous apply staged updates program while applying code from the hard file staging area. If this message occurs, contact your next level of support.	“NEXTLVL” on page 899
E302F888	A **chsyscfg** command was issued to change the next IPL side, but it failed. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F889	An exception occurred after a **chsyscfg** command was issued to change the next IPL side. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F88A	Powering off the system unit has started.	“NEXTLVL” on page 899
E302F88B	Reading of the firmware update files has started.	“NEXTLVL” on page 899
E302F88C	Writing of the firmware update files has started.	“NEXTLVL” on page 899
E302F88D	Rebooting the service processor has started.	“NEXTLVL” on page 899
E302F88E	Powering on the system unit has started.	“NEXTLVL” on page 899
E302F88F	Restoring of the firmware update files to the P side has started.	“NEXTLVL” on page 899
E302F890	An error occurred while attempting to find the directory used as temporary storage. Reboot the HMC and try the operation again. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F891	Failure when attempting to import an RPM package from the IBM Web site. Verify that your LAN connections are set up properly and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F892	A request was received to take the service processor back to an earlier level, but it was a concurrent request. This operation can only be performed disruptively. Reboot the HMC and schedule time for a disruptive update. Retry the operation during that scheduled time. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F893	A general error occurred while applying code. If another error occurs before this message, follow the action for that error. If this message occurs by itself, contact your next level of support.	"NEXTLVL" on page 899
E302F894	A general error occurred while processing a hardware upgrade. If another error occurs before this message, follow the action for that error. If this message occurs by itself, contact your next level of support.	"NEXTLVL" on page 899
E302F895	A general error occurred while committing code. If another error occurs before this message, follow the action for that error. If this message occurs by itself, contact your next level of support.	"NEXTLVL" on page 899
E302F896	A general error occurred while exporting code to the DVD. If another error occurs before this message, follow the action for that error. If this message occurs by itself, contact your next level of support.	"NEXTLVL" on page 899
E302F897	A general error occurred while importing code. If another error occurs before this message, follow the action for that error. If this message occurs by itself, contact your next level of support.	"NEXTLVL" on page 899
E302F898	A general error occurred while rejecting code. If another error occurs before this message, follow the action for that error. If this message occurs by itself, contact your next level of support.	"NEXTLVL" on page 899
E302F899	An attempt was made to update the hypervisor firmware, but the hypervisor reported that it is already at that level.	"NEXTLVL" on page 899
E302F89A	A general error occurred while updating the flash on a service processor. If another error occurs before this message, follow the action for that error. If this message occurs by itself, contact your next level of support.	"NEXTLVL" on page 899
E302F89B	An error occurred while swapping the T and P sides of the secondary service processor. The secondary service processor will be synchronized in the next code update. If this does not occur, contact your next level of support.	"NEXTLVL" on page 899
E302F89C	An error occurred while copying the T to the P side on the secondary service processor. The secondary service processor will be synchronized in the next code update. If this does not occur, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F89D	A failure occurred either writing the firmware to the bulk power assemblies, or rebooting them after writing the firmware. If another error occurs before this message, follow the action for that error. If this message occurs by itself, contact your next level of support.	"NEXTLVL" on page 899
E302F89E	A failure occurred while trying to erase a file. If another error occurs before this message, follow the action for that error. If this message occurs by itself, contact your next level of support.	"NEXTLVL" on page 899
E302F8A0	An error occurred while trying to read the list of fixpacks that was surveyed. Reboot the HMC and retry the operation. If the problem occurs again, consider replacing the disk drive of the HMC.	"NEXTLVL" on page 899
E302F8A1	An error occurred while trying to close the list of fixpacks that was surveyed. Reboot the HMC and retry the operation. If the problem occurs again, consider replacing the disk drive of the HMC.	"NEXTLVL" on page 899
E302F8A2	An error occurred while attempting to update the server firmware. Try the operation again. If the error occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F8A3	An error occurred while querying to see if the server firmware diff file is in memory. Try the operation again. If the error occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F8A4	An exception occurred while querying to see if the server firmware diff file is in memory. Try the operation again. If the error occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F8A5	An exception occurred while querying to see if the HMC is the code update owner. Try the operation again. If the error occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F8A6	An exception occurred while setting the HMC to be the code update owner. Try the operation again. If the error occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F8A8	Querying to see if the service firmware diff file is in memory did not return the proper number of elements in the vector. Try the operation again. If the error occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F8A9	A general error occurred while rebooting. If another error occurs before this message, follow the action for that error. If this message occurs by itself, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F8D0	An I/O error occurred while reading the fixpack image. Reboot the HMC and retry the operation. If the problem occurs again, consider replacing the disk drive in the HMC.	"NEXTLVL" on page 899
E302F8D1	An error occurred while writing a firmware update file that was read from a fixpack to disk. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F8F0	An error occurred while surveying the IBM Web site. Verify that your LAN connections are set up properly and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F8F1	An exception occurred while surveying the IBM Web site. Verify that your LAN connections are set up properly and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F8F2	An exception occurred while copying the XML file to the cover letter during importation from the Web site. Verify that your LAN connections are set up properly and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F8F3	Two hour wait period exceeded for the updating of firmware on the service processor in the bulk power assembly. If another error occurs before this message, follow the action for that error. If this message occurs by itself, contact your next level of support.	"NEXTLVL" on page 899
E302F900	The survey from an FTP site failed when the control program was not able to change the directory to that of the user. Verify that the FTP site directory specified is correct and that any firewall authentications were completed, if necessary, before performing the update. Try the operation again. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F901	A query of the current boot side of the secondary processor returned a null. Verify that the authentication passwords for the service processors are synchronized and that the TCP/IP addresses of the service processors are not in the HMC DHCP servers removed list. Use the Update Managed System Password field under the Server and Partition panels to reset the password if necessary. Use the restricted shell "mksysconn -o auto" command to reset the HMC DHCP servers removed list and reconnect the affected service processors. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F902	A query of the next boot side of the secondary processor returned a null. Verify that the authentication passwords for the service processors are synchronized and that the TCP/IP addresses of the service processors are not in the HMC DHCP servers removed list. Use the Update Managed System Password pulldown under the Server and Partition panels to reset the password if necessary. Use the restricted shell ″mksysconn -o auto″ command to reset the HMC DHCP servers removed list and reconnect the affected service processors. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F910	An exception occurred when querying to find out if the bulk power assembly was N-mode. Verify that both the primary and secondary service processors for the bulk power assembly (or assemblies) are configured properly and available for communication with the HMC. This is a requirement. Retry the operation. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F911	A failure occurred when querying to find out if the bulk power assembly was N-mode. Verify that both the primary and secondary service processors for the bulk power assembly (or assemblies) are configured properly and available for communication with the HMC. This is a requirement. Retry the operation. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F912	One of the bulk power assemblies targeted for firmware update has N-mode power. Verify that both the primary and secondary service processors for the bulk power assembly (or assemblies) are configured properly and available for communication with the HMC. This is a requirement. Retry the operation. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F913	One of the bulk power assemblies targeted for firmware update has a power code update pending. A code update cannot be performed while a service processor in the bulk power assembly is running an auto-code download process. Depending on the number of FRUs being loaded, this process might take a significantly long time. After two hours, try the original operation again. If the failure occurs again, wait two hours and manually point the next re-IPL of the service processor to the ″P″ side by using the Flash Side Selection panels. Perform a ″Disruptive Activate″ using the Select advanced features panels. Wait two hours for that auto-code download to complete, and then try the original operation again. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F914	An exception occurred when attempting to start the power code update on a bulk power assembly. If another error occurs before this message, follow the action for that error. If this message occurs by itself, contact your next level of support.	“NEXTLVL” on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F915	A failure occurred when attempting to start the power code update on a bulk power assembly. If another error occurs before this message, follow the action for that error. If this message occurs by itself, contact your next level of support.	"NEXTLVL" on page 899
E302F916	An exception occurred when attempting to determine how many FRUs were completed after an asynchronous event was received. If another error occurs before this message, follow the action for that error. If this message occurs by itself, contact your next level of support.	"NEXTLVL" on page 899
E302F917	An failure occurred when attempting to determine how many FRUs were completed after an asynchronous event was received. If another error occurs before this message, follow the action for that error. If this message occurs by itself, contact your next level of support.	"NEXTLVL" on page 899
E302F918	The power code update failed on one side of the BPA. If another error occurs before this message, follow the action for that error. If this message occurs by itself, contact your next level of support.	"NEXTLVL" on page 899
E302F919	The power code update began but did not complete successfully. Perform an ″Accept″ operation followed by a ″Disruptive Activate″ using the Select advanced features panels. This sequence also accepts the system unit code. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F91A	An error occurred in the service processor support code during a query of the state of a service processor for a frame. Reboot the HMC and retry the operation. If the error occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F91B	A failure occurred when attempting to query the state of the system unit after an receiving an asynchronous report that the state had changed. Reboot the HMC and retry the operation. If the error occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F91C	A failure occurred while copying the firmware from the T side to the P side after a successful update of the bulk power controller code. Perform an ″Accept″ operation using the Select advanced features panels. This operation also accepts the system unit code. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F91D	A failure occurred when trying to deactivate a bulk power assembly. Reboot the HMC and retry the operation. If the error occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F91F	An exception occurred when trying to deactivate a bulk power assembly. Reboot the HMC and retry the operation. If the error occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9AF	An error occurred during the processing for the advanced features task when trying to run a tasklet exit on the client to display the license panel. The task is terminated. Reboot the HMC and retry the operation. If the error occurs again, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F9B0	An error occurred during the processing for the MES upgrade task when trying to run a tasklet exit on the client to display the license panel. The task is terminated. Reboot the HMC and retry the operation. If the error occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9B1	An error occurred during the processing for the change internal code wizard when trying to run a tasklet exit on the client to display the license panel. The task is terminated. Reboot the HMC and retry the operation. If the error occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9B2	Error during processing for the Change Internal Code Wizard Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9B3	Error during processing for an internal code method. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9B4 to E302F9B6	Error during processing for an internal panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9B7	Error during processing of the server side of the scheduleable update task. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9B8	Error trying to perform processing in a hardware upgrade code path. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9B9	Error during the main ″service″ processing for the server side of the hardware upgrade task. The task has been terminated. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9BA	Error during the main processing for the client side of the hardware upgrade task. The task has been terminated. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9BB	Error during the main processing for the server side of the hardware upgrade task. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9BC	Error during the processing of the actual non disruptive firmware update task. The progress panel for the affected target is updated with error message. The task continues to execute. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F9BD	Error during the main ″service″ processing for the server side of the change internal code wizard subtasklet. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F9BE	Error during the main ″service″ processing for the server side of the change internal code wizard1 panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F9BF	Error during the main ″service″ processing for the server side of the change internal code wizard2 panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F9C0	Error during the main ″service″ processing for the server side of the change internal code wizard3 panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F9C1	Error during the main ″service″ processing for the server side of the change internal code wizard4 panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F9C2	Error during the main ″service″ processing for the server side of the change internal code wizard cecconcurrency panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F9C3	Error during the main ″service″ processing for the server side of the change internal code wizard cecdetails panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F9C4	Error during the main ″service″ processing for the server side of the change internal code wizard fix details panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F9C5	Error during the main ″service″ processing for the server side of the change internal code wizard license panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F9C6	Error during the main ″service″ processing for the server side of the change internal code wizard leveldetails panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899
E302F9C7	Error during the main processing for the server side of the flash side selection task. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	“NEXTLVL” on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F9C8	Error during the main ″service″ processing for the server side of the advanced features subtasklet. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9C9	Error during processing for the advanced features panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9CA	Error during processing for the advanced features retrieve panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9CB	Error during processing for the advanced features implied retrieve panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9CC	Error during processing for the advanced features change levels panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9CD	Error during processing for the advanced features select change levels panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9CE	Error during processing for the advanced features install type panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9CF	Error during processing for the advanced features fix details panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9D0	Error during processing for the advanced features confirm panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9D1	Error during processing for the advanced features level details panel handler. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9D2	Error during the main ″service″ processing for the server side of the change internal code task. The task is terminated. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F9D3	Error during processing change internal code MainPanel panel handler. The task is terminated. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9D4	Error during processing change internal code MainRepos panel handler. The task is terminated. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9D5	Error during processing change internal code InbandMessage panel handler. The task is terminated. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9D6	Error during processing change internal code FtpPanel panel handler. The task is terminated. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9D7	Error during processing change internal code ChangeFTP panel handler. The task is terminated. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9D8	Error trying to assign values from a SysInfoEcInternalCodeData object. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9D9	Error during the main processing for the server side of the system information task. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9DA	Error from getting null presentation task parameters in the system information task. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9DB	Error during the processing for the server side SysInfoEcTasklet system information subtask. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9DC	Error trying to do the main processing for the client side of the change internal code task. The task has been terminated. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9DD	Error trying to do the main processing for the client side of the flash side selection task. The task has been terminated. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F9DE	Error trying to do the main processing for the client side of the non disruptive firmware update task. The task has been terminated. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9DF	Error during the main processing for the server side of the advanced features subtask. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9E0	Error during the main processing for the server side of the advanced targeting subtask. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9E1	Error during the main processing for the server side of the Change Internal Code task. This could be the result of an exception being caught by the underlying tasklet infrastructure. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9E2	Error during the main processing for the server side of the Nondisruptive Firmware Update task. This could be the result of an exception being caught by the underlying tasklet infrastructure. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9E3	Error during the main processing for the server side of the Change Internal Code Wizard subtask. This could be the result of an exception being caught by the underlying tasklet infrastructure. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9E4	Error trying to perform some processing in the Advanced Features Bean panelAction() method. The bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9E5	Error trying to perform some processing in the Advanced Targeting for Frames Bean panelAction() method. The bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9E6	Error trying to perform some processing in the Advanced Targeting for System Bean panelAction() method. The bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9E7	Error in the select advanced targeting type bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F9E8	Error in the CEC/power concurrency bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9E9	Error in the CEC/power level details bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9EA	Error in the change FTP directory bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9EB	Error in the specify levels bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9EC	Error in the advanced features confirm bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9ED	Error in the LIC details bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9EE	Error in the flash side selection bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9EF	Error in the FTP site access bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9F0	Error in the advanced features install and activate (implied retrieval) bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9F1	Error in the inband configuration detected bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9F2	Error in the advanced features select installation type bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F9F3	Error in the confirmation level details bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9F4	Error in the license agreement bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9F5	Error in the change internal code main bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9F6	Error in the change internal code main repos bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9F7	Error in the nondisruptive firmware update bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9F8	Error in the advanced features retrieve bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9F9	Error in the select advanced targeting frame choice bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9FA	Error in the advanced features select level bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9FB	Error in the system information bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9FC, E302F9FD	Error in the change internal code wizard1 bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899
E302F9FE	Error in the change internal code wizard2 bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899

Table 542. (E302xxxx) Licensed Internal Code error codes (continued)

SRC	Description/Action	Failing Item
E302F9FF	Error in the change internal code wizard3 bean panelAction method. This bean attempts to close the panel. Reboot the HMC and retry the operation. If the problem occurs again, contact your next level of support.	"NEXTLVL" on page 899

(E338*xxxx*) Licensed Internal Code error in guided maintenance in Service Focal Point

For use by service providers.

An error occurred during the initialization of the components required for performing guided maintenance from Service Focal Point.

Table 543. (E338xxxx) Licensed Internal Code error in Guided Maintenance in Service Focal Point

SRC	Description/Action	Failing Item
E3380001	An error occurred during the initialization of the components required for performing guided maintenance from Service Focal Point.	"NEXTLVL" on page 899
E3380002	An error occurred during the initialization of the components required for performing guided maintenance from Service Focal Point.	"NEXTLVL" on page 899

(E4*xxxxxx*) Licensed Internal Code error codes

For use by service providers.

The Hardware Management Console generates E4*xxxxxx* error codes when it encounters a Licensed Internal Code problem.

Table 544. (E4xxxxxx) Licensed Internal Code progress codes

SRC	Description/Action	Failing Item
E4*xxxxxx*	Licensed Internal Code failure.	"NEXTLVL" on page 899

Using system reference codes and firmware codes

This section describes how to use system reference codes (SRCs) and firmware codes.

System reference codes (SRCs) indicate a storage complex hardware or software problem that can originate in hardware or in Licensed Internal Code.

A storage complex component generates an error code when it detects a problem. An SRC identifies the component that detected the error code and describes the error condition.

Note: Storage complex repair actions should always begin from the management console - **Service Applications** → **Service Focal Point** → **Repair Serviceable Event**. The SRC information provided should be used in conjunction with the Serviceable Event for additional reference information and possible isolation procedures.

Using the list of system reference codes and firmware codes

This section describes how to use the list of system reference codes (SRCs) and firmware codes.

The list of system reference codes is organized in hexadecimal sequence, with numeric characters listed before alphabetic characters. Each entry in the list represents the first four characters (the reference code type) of the SRC. The entries link to more information, typically a table that lists the unit reference codes (URCs) that are associated with that reference code type.

Unless specified otherwise on a particular SRC page, the SRC tables contain the following columns:

- The Last four characters of SRC column contains numbers that represent the URC.
- The Description/Action column offers a brief description of the failure that this SRC represents. It also contains instructions for continuing the problem analysis.
- The Failing Item column represents functional areas of the system unit. When available, the failing function code links to the FRU that contains this function for each specific system unit.

The steps below show you how to use the list of system reference codes

1. Click the item in the list of system reference codes that matches the reference code type that you want to find.

   Note: The SRC tables support only 8-character reference code formats. If the reference code provided contains only 4 or 6 characters, contact your next level of support for assistance.
2. When the SRC table appears, select the appropriate URC from the first column of the table. The tables list URCs in hexadecimal sequence with numeric characters listed before alphabetic characters.
3. If you have a serviceable event which contains FRUs or links to a Symbolic FRU procedure then you must use them to repair the DS8000. In that case, the information in these tables is provide for reference purposes only. If you are here because you do not have a serviceable event containing FRUs or links to a Symbolic FRU procedure then perform the following actions:
   a. Perform the action indicated for the URC in the Description/Action column of the table.
   b. If the table entry does not indicate an action or if performing the action does not correct the problem, exchange the failing items or parts listed in the Failing Item column in the order that they are listed. Use the following instructions to exchange failing items:
      - Exchange the failing item listed first.
      - If exchanging the first failing item does not correct the problem, reinstall the original item and exchange the next failing item listed.
      - Continue to exchange and reinstall the failing items, one at a time, until the problem is corrected. If exchanging the failing items does not correct the problem, ask your next level of support for assistance.

For more information, see the “List of system reference codes and firmware codes” on page 1849.

Chapter 53. Safety

Use this section to determine all safety measures to take related to this product.

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Chapter 54. ESD procedures

When you service this machine, always wear an electrostatic discharge (ESD) wrist strap that is properly connected to the rack frame or enclosure sheetmetal. This prevents possible damage to the hardware, and decreases any possible impact to customer operations.

Purpose

Following is a list of the ESD-sensitive parts in thestorage facility. Always wear the ESD wrist strap when you work on or touch any of these parts.

- All logic FRUs (cards and planars)
- All disk drives
- Any cables connected to ESD-sensitive parts

See “How to attach the ESD wrist strap.”

To prevent damage when you work with ESD-sensitive parts, perform these instructions carefully.

- Keep the ESD-sensitive part in a special ESD bag until you are ready to install the part into the machine.
- Make the fewest possible movements with your body to prevent an increase of static electricity from clothing, fibers, carpets, and furniture.
- If instructed to do so, switch off the machine power before you remove ESD-sensitive parts.
- Just before touching the ESD-sensitive part, discharge to the machine any static electricity in your body by touching the metal frame or cover of the machine. If possible, keep one hand on the frame when you install or remove an ESD-sensitive part.
- Never touch or work on any electronic circuits without wearing the ESD wrist strap.

  Touching the logic board pins without wearing the ESD wrist strap (for example, while counting the pins) can cause logic card failures. Touching the voltmeter leads when you measure board pins or cable connections can also cause ESD damage.
- Do not place any ESD-sensitive parts on the machine cover or on a metal table because large metal objects can become discharge paths if they are not grounded. If you must set aside an ESD-sensitive part, first place it into the special ESD bag.
- Prevent ESD-sensitive parts from being accidentally touched by other personnel such as service support representatives or customers. Reinstall all covers when you are not working on the machine.
- If possible, keep all ESD-sensitive parts in a grounded metal case.
- Be very careful when you work with ESD-sensitive parts in cold weather. Low humidity and heating increase static electricity.

How to attach the ESD wrist strap

Follow these steps to attach an electrostatic discharge (ESD) wrist strap.

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When you wear the ESD wrist strap, ensure the flexible grounding cord remains connected to you and to the rack frame or enclosure sheetmetal.

This wrist strap has a high resistance (>1 megohm) resistor in series with the grounding clip so there is no danger to you. It discharges the static electricity from your body.

1. Connect the clip on the flexible grounding cord to the rack frame or enclosure sheetmetal.
2. Keep the strap on and connected while you touch, insert, or remove any ESD-sensitive part.

Chapter 55. Safety notices

Use this process to find information about safety notices related to the DS8000.

To find the translated text for a danger or caution notice:

1. Find the identification number at the end of the notice. In the following examples, the numbers **1000** and **1001** are the identification numbers.

   DANGER

   A danger notice indicates the presence of a hazard that has the potential of causing death or serious personal injury. (1000)

   CAUTION:
   A caution notice indicates the presence of a hazard that has the potential of causing moderate or minor personal injury. (1001)
2. In *IBM TotalStorage Solutions Safety Notices*, GC26-7229, find the matching identification number.
3. The safety notices that are essential to servicing the DS8000 are listed in Table 545. Safety notices that could be relevant depending on your environment are listed after the table.

Table 545. Essential safety notices and labels

Essential safety notices and labels for the DS8000	
D004	An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

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Table 545. Essential safety notices and labels (continued)

Essential safety notices and labels for the DS8000	
D005	Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard: • Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm. • Connect all power cords to a properly wired and grounded electrical outlet. Ensure outlet supplies proper voltage and phase rotation according to the system rating plate. • Connect any equipment that will be attached to this product to properly wired outlets. • When possible, use one hand only to connect or disconnect signal cables. • Never turn on any equipment when there is evidence of fire, water, or structural damage. • Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures. • Connect and disconnect cables as described below when installing, moving, or opening covers on this product or attached devices. To Disconnect: 1. Turn everything OFF (unless instructed otherwise). 2. Disconnect power cords from the outlet. 3. Disconnect signal cables from connectors. 4. Disconnect all cables from devices. To Connect: 1. Turn everything OFF (unless instructed otherwise) 2. Connect all cables to devices. 3. Connect signal cables to connectors. 4. Connect power cords to outlet. 5. Turn device ON.
C026	This product may contain one or more of the following: CD-ROM, DVD-ROM, DVD-RAM, or laser module, which are Class 1 laser products. Please note the following: • Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device. • Use of the controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.
C027	Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle.
L001	Hazardous voltage, current, or energy levels are present inside of a component to which this label is attached. 

Danger notices (without labels)

D001

DANGER

To prevent a possible shock from touching two surfaces with different protective ground (earth), use one hand, when possible, to connect or disconnect signal cables. (D001)

D002

DANGER

Overloading a branch circuit is potentially a fire hazard and a shock hazard under certain conditions. To avoid these hazards, ensure that your system electrical requirements do not exceed branch circuit protection requirements. Refer to the information that is provided with your device or the power rating label for electrical specifications. (D002)

D003

DANGER

If the receptacle has a metal shell, do not touch the shell until you have completed the voltage and grounding checks. Improper wiring or grounding could place dangerous voltage on the metal shell. If any of the conditions are not as described, STOP. Ensure the improper voltage or impedance conditions are corrected before proceeding. (D003)

D004

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (D004)

D005

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet. Ensure outlet supplies proper voltage and phase rotation according to the system rating plate.**
- **Connect any equipment that will be attached to this product to properly wired outlets.**
- **When possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
- **Connect and disconnect cables as described below when installing, moving, or opening covers on this product or attached devices.**

To Disconnect:

1. **Turn everything OFF (unless instructed otherwise).**
2. **Remove power cords from the outlet.**
3. **Remove signal cables from connectors.**
4. **Remove all cables from devices.**

To Connect:

1. **Turn everything OFF (unless instructed otherwise)**
2. **Attach all cables to devices.**
3. **Attach signal cables to connectors.**
4. **Attach power cords to outlet.**
5. **Turn device ON.**

(D005)

D006

DANGER

HEAVY EQUIPMENT -- PERSONAL INJURY OR EQUIPMENT DAMAGE MAY RESULT IF MISHANDLED (D006)

Attention: The customer should prepare his environment to accept the new product based on the installation planning information provided, with assistance from an IBM Installation Planning Representative (IPR) or IBM authorized service provider. In anticipation of the equipment delivery, the final installation site should be prepared in advance such

that professional movers/riggers can transport the equipment to the final installation site within the computer room. If for some reason, this is not possible at the time of delivery, the customer will need to make arrangements to have professional movers/riggers return to finish the transportation at a later date. Only professional movers/riggers should transport the equipment. The IBM authorized service provider will only perform minimal frame repositioning within the computer room, as needed, to perform required service actions. The customer is also responsible for using professional movers/riggers in the case of equipment relocation or disposal.

Danger notices (with labels)

L001

DANGER

Hazardous voltage, current, or energy levels are present inside of a component to which this label is attached. (L001)



L002

DANGER

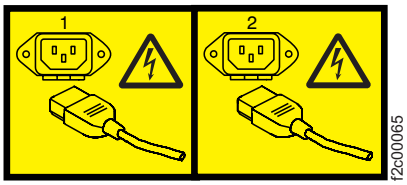
Rack-mounted devices are not to be used as a shelf or work space. (L002)



L003

DANGER

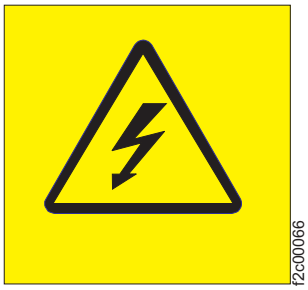
Multiple power cords. (L003)



L004

DANGER

High voltage present. (L004)



Caution notices (without labels)

CAUTION:
Cable warning: handling the cord on this product or cords associated with accessories sold with this product, will expose you to lead, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. *Wash hands after handling.*

CAUTION:
Energy hazard present. Shorting may result in system outage and possible physical injury. Remove all metallic jewelry before servicing. (C001)

CAUTION:
Only trained service personnel may replace this battery. The battery contains lithium. To avoid possible explosion, do not burn or charge the battery. Do not:

- **Throw or immerse into water**
- **Heat to more than 100°C (212°F)**
- **Repair or disassemble.**

Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C002)

CAUTION:
The battery contains lithium. To avoid possible explosion, do not burn or charge the battery. Do not:

- **Throw or immerse into water**
- **Heat to more than 100°C (212°F)**
- **Repair or disassemble**

Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C003)

CAUTION:
Lead-acid batteries can present a risk of electrical burn from high, short-circuit current. Avoid battery contact with metal materials; remove watches, rings, or other metal objects, and use tools with insulated handles. To avoid possible explosion, do not burn.

Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C004)

CAUTION:
The battery is a nickel-cadmium battery. To avoid possible explosion, do not burn. Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C005)

CAUTION:
The battery is a nickel metal hydride battery. To avoid possible explosion, do not burn. Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C006)

CAUTION:
The battery is a lithium ion battery. To avoid possible explosion, do not burn. Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C007)

CAUTION:
This part or unit is heavy, but has a weight smaller than 18 kg (39.7 lb.). Use care when lifting, removing, or installing this part or unit. (C008)

CAUTION:
The weight of this part or unit is between 18 and 32 kg (39.7 and 70.5 lb.). It takes two persons to safely lift this part or unit. (C009)

CAUTION:
The weight of this part or unit is between 32 and 55 kg (70.5 and 121.2 lb.). It takes three persons to safely lift this part or unit. (C010)

CAUTION:
The weight of this part or unit is more than 55 kg (121.2 lb.). It takes specially-trained persons and/or a lifting device to safely lift this part or unit. (C011)

CAUTION:
To avoid personal injury, before lifting this unit, remove all appropriate subassemblies per instructions to reduce the system weight. (C012)

CAUTION:
The doors and covers to the product are to be closed at all times except for service by trained service personnel. All covers must be replaced and doors locked at the conclusion of the service operation. (C013)

CAUTION:
The system contains circuit cards and/or assemblies that contain lead solder. To avoid the release of lead (Pb) into the environment, do not burn. Discard the circuit card as instructed by local regulations. (C014)

CAUTION:
Refrigeration components are pressurized. Eye protection must be worn when servicing the Modular Cooling System (MCS). Refrigerant is very cold and can cause frostbite. Do not place your hands, even with gloves, directly into the path of flowing refrigerant. To avoid the possibility of frostbite from incidental contact, gloves (IBM part 05N6190) must be worn whenever you handle refrigeration lines. (C015)

CAUTION:
When removing the Modular Refrigeration Unit (MRU), immediately remove any oil residue from the MRU support shelf, floor, and any other area to prevent injuries because of slips or falls. Do not use refrigerant lines or connectors to lift, move, or remove the MRU. Use handholds as instructed by service procedures. (C016)

CAUTION:
Do not remove or install this unit without using the provided lift tool. (C017)

CAUTION:
This product is equipped with a 3-wire (two conductors and ground) power cable and plug. Use this power cable with a properly grounded electrical outlet to avoid electrical shock. (C018)

CAUTION:
This product is equipped with a 4-wire (three-phase and ground) power cable. Use this power cable with a properly grounded electrical outlet to avoid electrical shock. (C019)

CAUTION:
This product may be equipped with a 5-wire (three-phase, neutral ground) power cable. Use this power cable with a properly grounded electrical outlet to avoid electrical shock. (C020)

CAUTION:
The power distribution outlets provide 200 - 240 V ac. Use these outlets only for devices that operate within this voltage range. (C021)

CAUTION:
The product may be equipped with a hard-wired power cable. Ensure that a licensed electrician performs the installation per the national electrical code. (C022)

CAUTION:
Ensure the building power circuit breakers are turned off BEFORE you connect the power cord(s) to the building power. (C023)

CAUTION:
To avoid personal injury, disconnect the hot-swap, air-moving device cables before removing the fan from the device. (C024)

CAUTION:
This assembly contains mechanical moving parts. Use care when servicing this assembly. (C025)

CAUTION:
This product may contain one or more of the following: CD-ROM, DVD-ROM, DVD-RAM, or laser module, which are Class 1 laser products. Please note the following:

- **Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.**
- **Use of the controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure. (C026)**

CAUTION:
Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. (C027)

CAUTION:
This product contains a Class 1M laser. Do not view directly with optical instruments. (C028)

CAUTION:
This product contains a Class 2 laser. Do not stare into the beam. (C029)

CAUTION:
Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following: laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam. (C030)

CAUTION:
The power-control button on the device does not turn off the electrical current supplied to the device. The device might also have more than one connection to dc power. To remove all electrical current from the device, ensure that all connections to dc power are disconnected at the dc power input terminals. (C031)

CAUTION:
Servicing of this product or unit is to be performed by trained service personnel only. (C032)

CAUTION:
To reduce the risk of electric shock or energy hazards:

- **This equipment must be installed by trained service personnel in a restricted-access location, as defined by the NEC and IEC 60950, The Standard for Safety of Information Technology Equipment.**
- **Connect the equipment to a reliably-grounded, safety extra low voltage (SELV) source. An SELV source is a secondary circuit that is designed so that normal and single fault conditions do not cause the voltages to exceed a safe level (60 V dc).**
- **The branch circuit overcurrent protection must be rated per the table below.**
- **Use copper wire conductor only, not exceeding 3 m (9.8 ft.) in length and sized according to the table below.**
- **Torque the wiring-terminal screws to the values in the table below.**
- **Incorporate a readily available approved and rated disconnect device in the field wiring. (C033)**

CAUTION:

- **Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.**
- **Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.**
- **Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.**
- *For sliding drawers*: **Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack may become unstable if you pull out more than one drawer at a time.**
- *For fixed drawers*: **This drawer is a fixed drawer and should not be moved for servicing unless specified by manufacturer. Attempting to move the drawer partially or completely out of the rack may cause the rack to become unstable or cause the drawer to fall out of the rack. (R001)**

CAUTION:
Removing components from the upper positions in the rack cabinet improves rack stability during relocation. Follow these general guidelines whenever you relocate a populated rack cabinet within a room or building:

- **Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must do the following: – Remove all devices in the 32U position and above. – Ensure that the heaviest devices are installed in the bottom of the rack cabinet. – Ensure that there are no empty U-levels between devices installed in the rack cabinet below the 32U level.**
- **If the rack cabinet you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.**
- **Inspect the route that you plan to take to eliminate potential hazards.**
- **Verify that the route that you choose can support the weight of the loaded rack cabinet. Refer to the documentation that comes with your rack cabinet for the weight of a loaded rack cabinet.**
- **Verify that all door openings are at least 760 x 230 mm (30 x 80 in.).**
- **Ensure that all devices, shelves, drawers, doors, and cables are secure.**
- **Ensure that the four leveling pads are raised to their highest position.**
- **Ensure that there is no stabilizer bracket installed on the rack cabinet during movement.**
- **Do not use a ramp inclined at more than ten degrees.**
- **Once the rack cabinet is in the new location, do the following:**
  - **Lower the four leveling pads.**
  - **Install stabilizer brackets on the rack cabinet.**
  - **If you removed any devices from the rack cabinet, repopulate the rack cabinet from the lowest position to the highest position.**
- **If a long distance relocation is required, restore the rack cabinet to the configuration of the rack cabinet as you received it. Pack the rack cabinet in the original packaging material, or equivalent. Also lower the leveling pads to raise the casters off of the pallet and bolt the rack cabinet to the pallet. (R002)**

Caution notices (with labels)

CAUTION:
High energy is present. (L005)



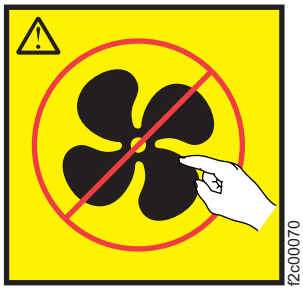
CAUTION:
Sharp edges, corners, or joints are nearby. (L006)



CAUTION:
A hot surface is nearby. (L007)



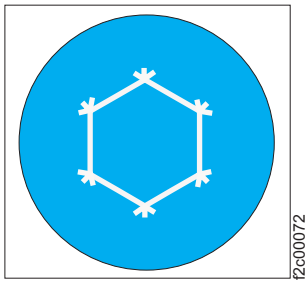
CAUTION:
Hazardous moving parts are nearby. (L008)



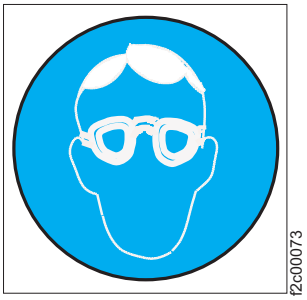
CAUTION:
System or part is heavy. The label is accompanied by a specific weight range. (L009)



CAUTION:
Frostbite hazard. (L010)



CAUTION:
Goggles are needed for the procedure. (L011)



Chapter 56. Safety inspection

Safety notices have been translated for use in Germany and Taiwan. The translations are available in the manual, *IBM TotalStorage Solutions Safety Notices*.

This safety inspection helps you verify the safe condition of a DS8000. Do not service a DS8000 with unsafe conditions.

Perform a safety inspection when any of the following conditions apply:

- When IBM receives a request for a service agreement for a DS8000.
- As part of an alteration-and-attachments review on a DS8000 that is on lease, under a service agreement, or on a per-call service.
- On a relocated DS8000.

Preparation

Read the complete safety inspection before you perform any of the steps. Record any problems in Table 546.

Table 546. Safety inspection problems

Date	Problem found	Date corrected

Verify that you complete the Electrical Safety Training Course for IBM Service Representatives, number 77170.

Unsafe conditions

When first assembled, each DS8000 rack has safety equipment installed to protect the operators and service representatives from injury. This inspection checklist verifies that all safety equipment and safety labels are installed on the DS8000 rack.

The following lists some safety conditions and hazards that can be present on the DS8000:

- A frame that is not grounded. This can cause a serious or lethal electrical shock.
- Missing safety covers or safety shields. This can be a hazard to the customer and maintenance personnel.

CAUTION:

Do not continue with the inspection if any unsafe conditions are present. (1052)

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Note: This notice is translated into selected languages, refer to *IBM TotalStorage Solutions Safety Notices*.

Supplied reference items

The following are items that are supplied with the DS8000:

- A machine history. If the history is not available, obtain a copy and continue with the inspection.
- The IBM System Storage DS8000 Service Information Center.

The following information is not supplied with the DS8000:

- *Electrical Safety for IBM Customer Engineers* manual
- *IBM Input/Output Equipment Installation Manual-Physical Planning* manual
- The DS8000 engineering change announcements (ECAs).

Special tools

Always perform any power safety checks with a recommended analog meter. Do not use a digital meter when you perform power checks. A digital meter is sensitive to external electrical currents on the low-range scale. You can also use a ground impedance tester, P/N 6339716 or P/N 6339695, to perform the ground check. Instructions for the tester are in the operating manual.

Performing the safety inspection procedure

To perform a safety inspection for DS8000 Base Frames, go to "DS8000 Base frame safety inspection."

To perform a safety inspection for DS8000 Storage Expansion Frames, go to "DS8000 Storage expansion frame safety inspection" on page 2167.

DS8000 Base frame safety inspection

Use the following procedures to perform a safety inspection of the DS8000 Base Frame.

Remove AC power

The DS8000 operates with two mainline power cables to each rack.

The DS8000 must be powered off and both mainline power cables disconnected. Follows steps 1 through 5 to perform this task. Refer to figure Figure 919 on page 2156.

1. Power off the DS8000.
2. Instruct the customer to switch off the mainline circuit breakers that are used to supply mainline AC voltage to all the DS8000 racks.
3. Attach a "Do Not Operate" tag (S229-0237) and a safety lockout padlock to each of the customer's mainline circuit breakers. Refer to the *Electrical Safety for IBM Customer Engineers* publication.
4. Open the rear left machine cover. Remove and retain the two screws **(1)** and open the rear right machine cover. See Figure 918 on page 2155.

   Note: The screws must be reinstalled later to prevent non-service personnel from accessing a hazardous section of the machine.

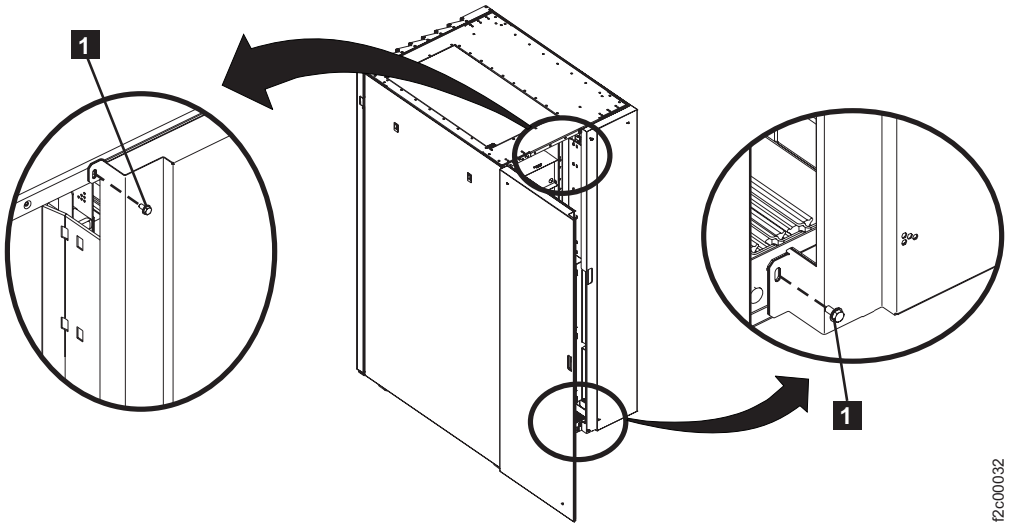


Figure 918. Removing retaining screws on right rear machine cover

5. Disconnect the customer end of both mainline ac power cables.
   - For mainline power cables (plug in): Disconnect both mainline AC power cables from the customer's AC mainline power receptacles.
   - For mainline power cables (wired): If the mainline power cables were recently rewired or have never been used, disconnect both mainline AC power cables before you continue the safety inspection. Instruct the customer to call a licensed electrician to disconnect the mainline AC power cables from the customer's mainline AC power.

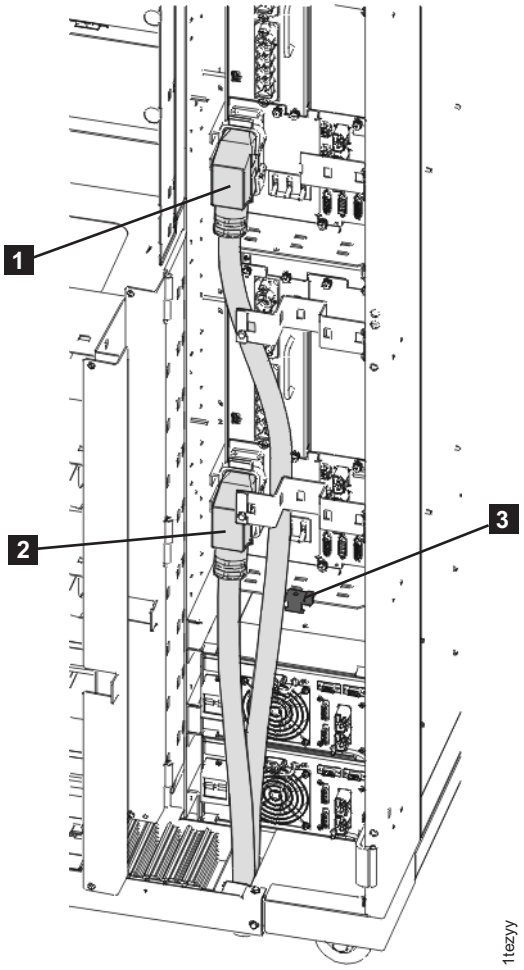


Figure 919. AC line cord

External machine check

Use this section to perform the external machine check.

1. Verify that all external covers are present and not damaged.
2. Verify that all latches and hinges are in correct operating condition.
3. Check the DS8000 for loose, broken, or binding casters.
4. Correct any problems that you find.

Internal machine check

Use this section perform the internal machine check.

1. Check for any non-IBM changes that may have been made to the machine. If any are present, obtain the "Non-IBM Alteration Attachment Survey" form, number R009, from the IBM branch office. Complete the form and return it to the branch office.
2. Check the condition of the inside of the machine for any metal or other contaminants, or any indications of water, other fluid, fire, or smoke damage.
3. Check for any obvious mechanical problems, such as loose components.
4. Check any exposed cables and connectors for wear, cracks, or pinching.

Safety label check

1. Verify that all safety labels shown in the following steps are installed on the machine. If a safety label is missing, order it and install it.
2. Verify that a safety label P/N 22R3738 **1** is installed on the rear cover of the DS8000. See Figure 920. This label warns that only trained personnel are authorized to service the machine.

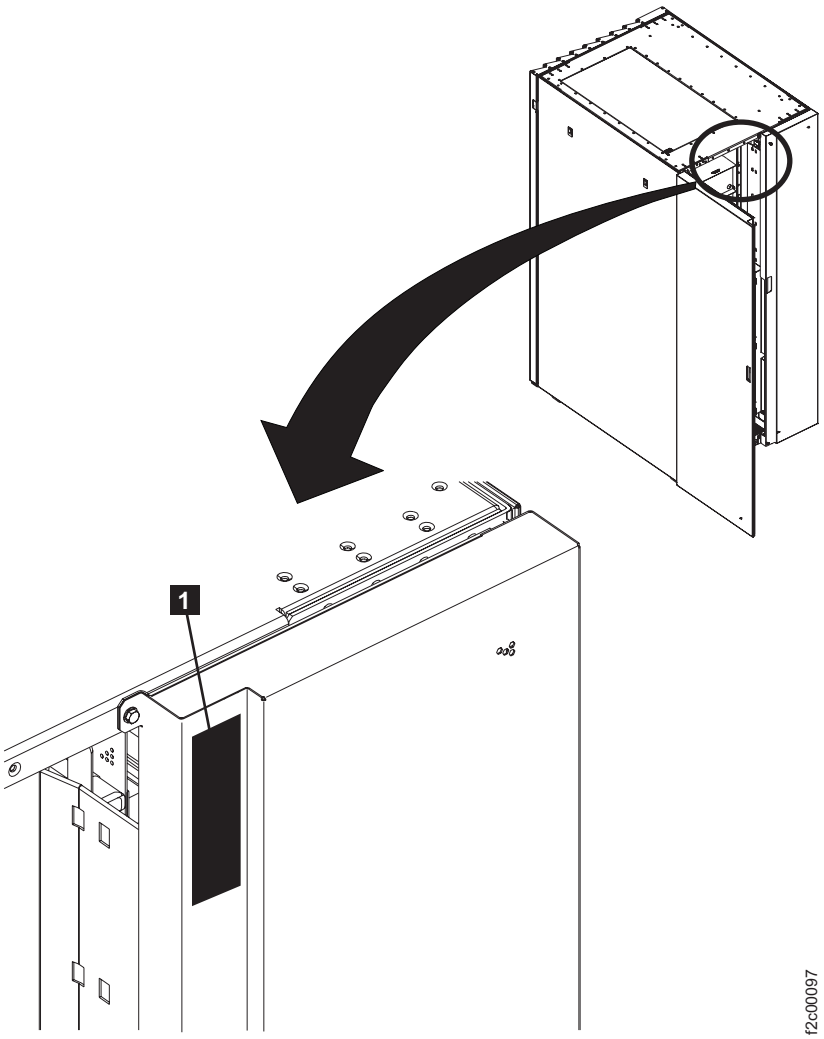


Figure 920. Safety label (trained service personnel only) on the rear cover

3. At the rear of thestorage facility, where mainline power cables 1 and 2 are connected to the primary power supplies (PPSs), verify that each of two language versions of the safety label (>200VAC) **1** is installed on each cable (two labels on each cable). See Figure 921 on page 2158. These labels warn of an electrical shock hazard:
   - Universal (multilanguage) English, French, German, Spanish, Korean, and Brazilian/Portuguese, P/N 08L8011
   - Universal (multilanguage) Hungarian, Greek, Italian, Japanese, and Chinese, P/N 34L7775

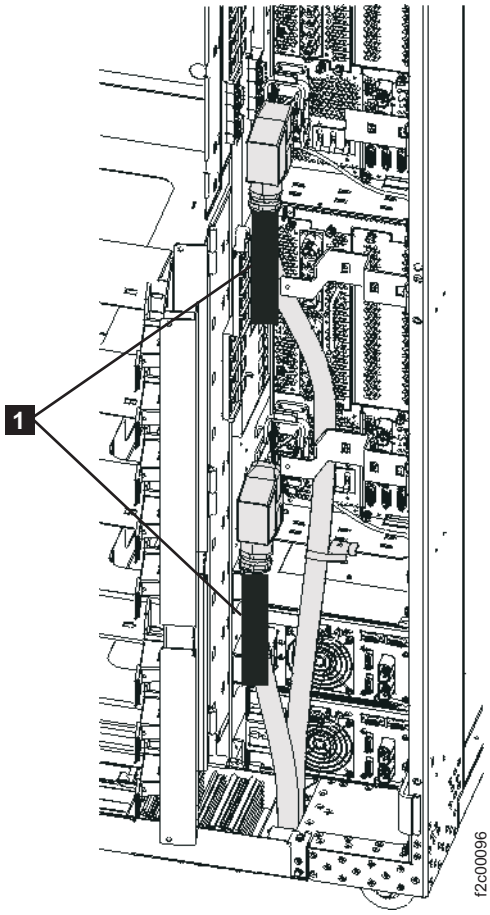


Figure 921. Safety labels (">200VAC") on the mainline power cables

4. At the rear of thestorage facility, verify that a "DO NOT RESET" safety label **1** is installed on CB00 at each PPS. See Figure 922 on page 2159.

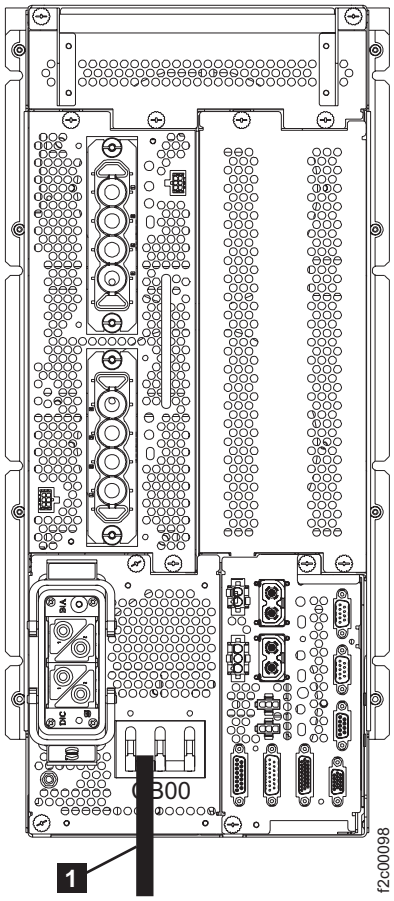


Figure 922. Safety label ("DO NOT RESET") on CB00 of a PPS

5. At the rear of thestorage facility, verify that a safety label P/N 22R3416 **1** is installed on the inner wall (right side). See Figure 923 on page 2160. This label indicates that mainline power is supplied to the storage facility through two cables (dual power cable warning).

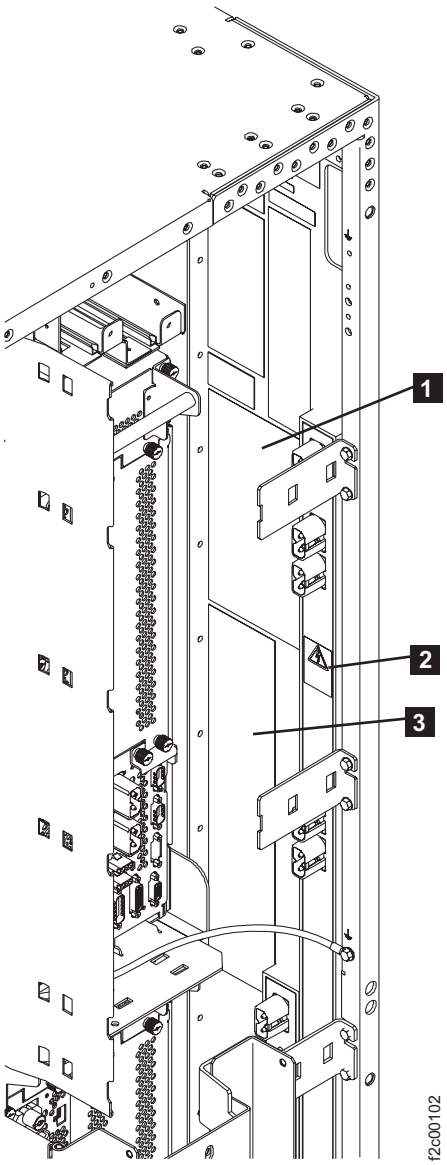


Figure 923. Safety labels on the inner wall (rear, right side)

6. At the rear of the storage facility, verify that a "Danger - High Leakage Current" safety label P/N 05N6608 **3** is installed on the inner wall (right side). See Figure 923. This label is multilanguage (Brazilian/Portuguese, Chinese, Croatian, Czech Republic, Danish, Finnish, French, French/Canadian, French/Dutch, German, Italian, Japanese, Korean, Norwegian, Portuguese, Russian, Slovak, Spanish, and Swedish).
7. At the rear of the storage facility, verify that a safety label P/N 22R0897 **2** is installed on the 208VDC bus bar assembly. See Figure 923. This label warns of an electrical shock hazard.
8. At the rear of the storage facility, verify that a safety label P/N 22R0897 **1** is installed in two places on the 208VDC distribution assembly. See Figure 924 on page 2161. This label warns of an electrical shock hazard.

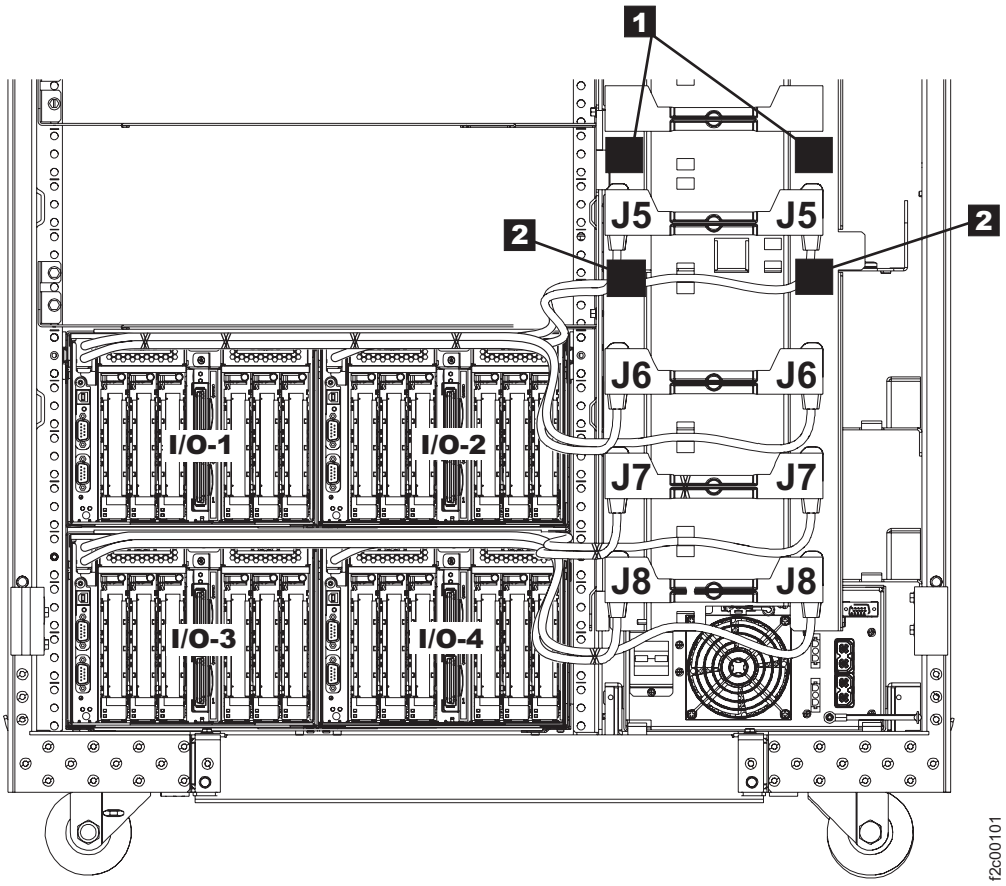


Figure 924. Safety labels on the 208VDC distribution assembly

9. At the rear of the storage facility, verify that a safety label P/N 22R0898 **2** is installed in two places on the 208VDC distribution assembly. See Figure 924. This label warns that only trained personnel are authorized to service the machine.
10. At the front of the storage facility, verify that a safety label (>750V/>200V) **1** is installed on each PPS. See Figure 925 on page 2162. This label warns of an electrical shock hazard.

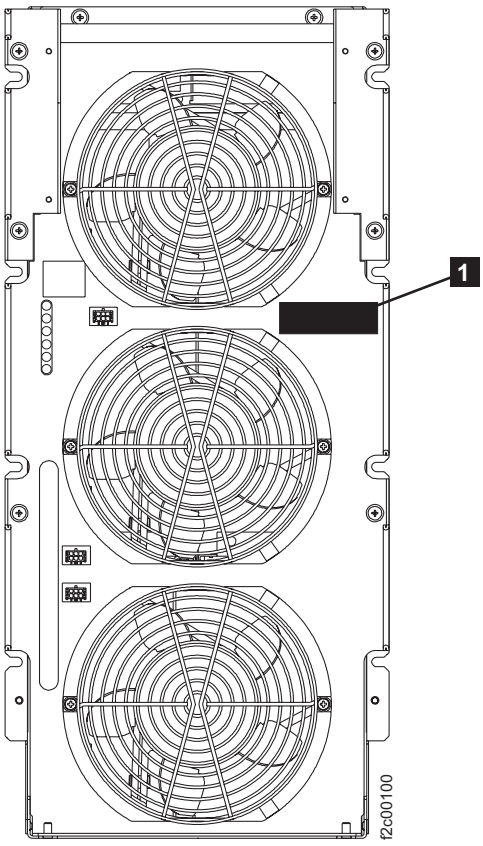


Figure 925. Safety label (">750V/250V") on a PPS

Note: This safety label cannot be ordered individually. If the label is missing, the PPS must be replaced.

11. At the rear of the storage facility, verify that a safety label **1** is installed on each battery module. See Figure 926. This label warns of an electrical shock hazard.

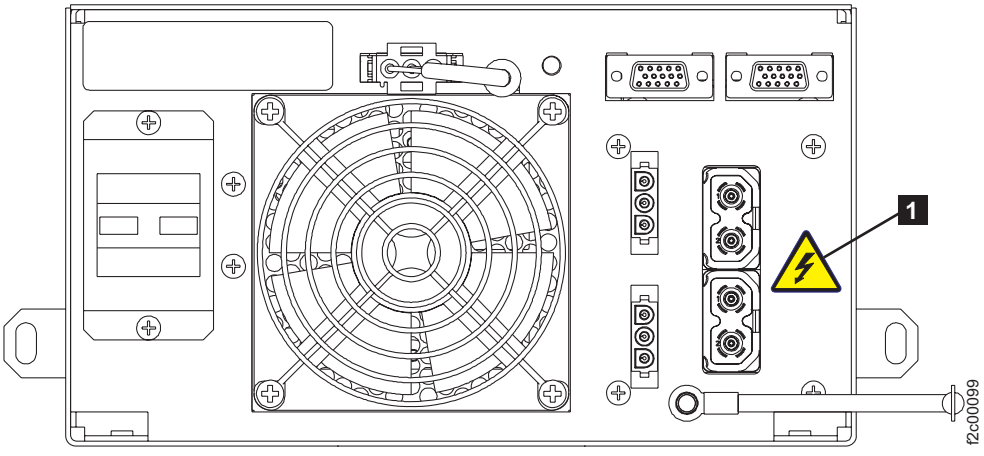


Figure 926. Safety label (shock hazard) on a battery module

Note: This safety label cannot be ordered individually. If the label is missing, the battery module must be replaced.

12. At the front of the storage facility, verify that a safety label P/N 21P6691 **1** is installed on each I/O enclosure. See Figure 927. This label warns that power is supplied to the I/O enclosure through two cables (dual power cable warning).

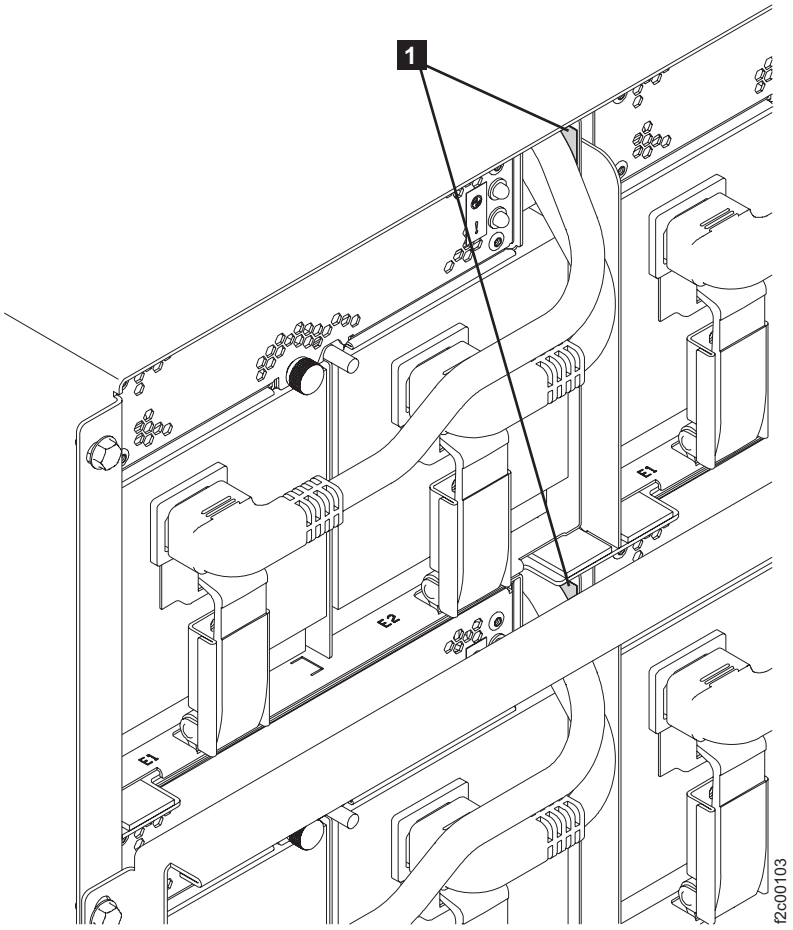


Figure 927. Safety labels on the I/O enclosures

13. At the front of thestorage facility, verify that a safety label P/N 97P5091 **1** is installed on each CEC drawer. See Figure 928 on page 2164. This label, which lists the weight of the CEC drawer, warns that the part is relatively heavy (weight warning).

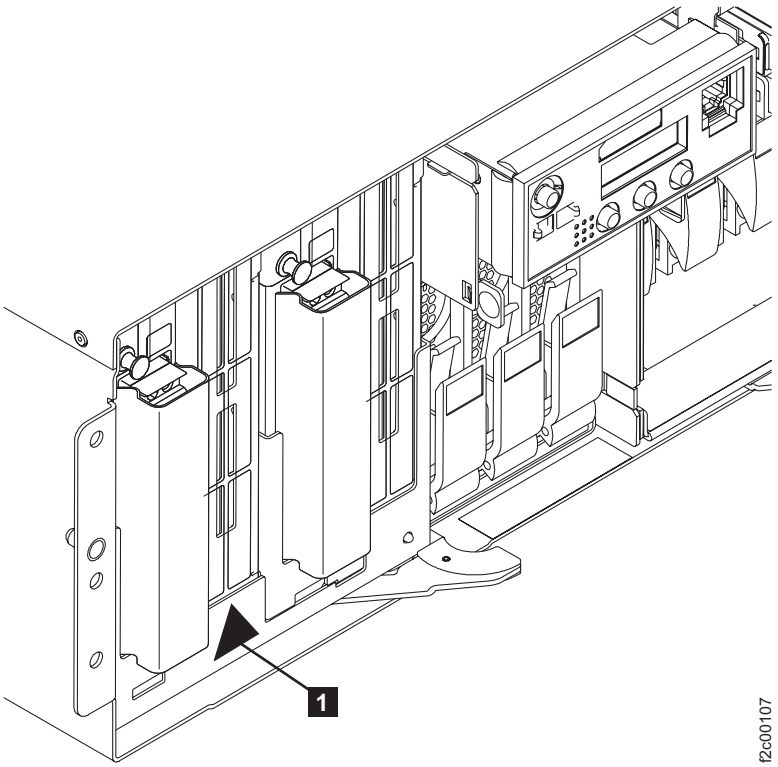


Figure 928. Safety label (weight warning) on a CEC drawer

14. At the rear of the storage facility, verify that a safety label P/N 21P6691 **1** is installed on each CEC power supply. See Figure 929 on page 2165. This label warns that power is supplied to the CEC power supply through two cables (dual power cable warning).

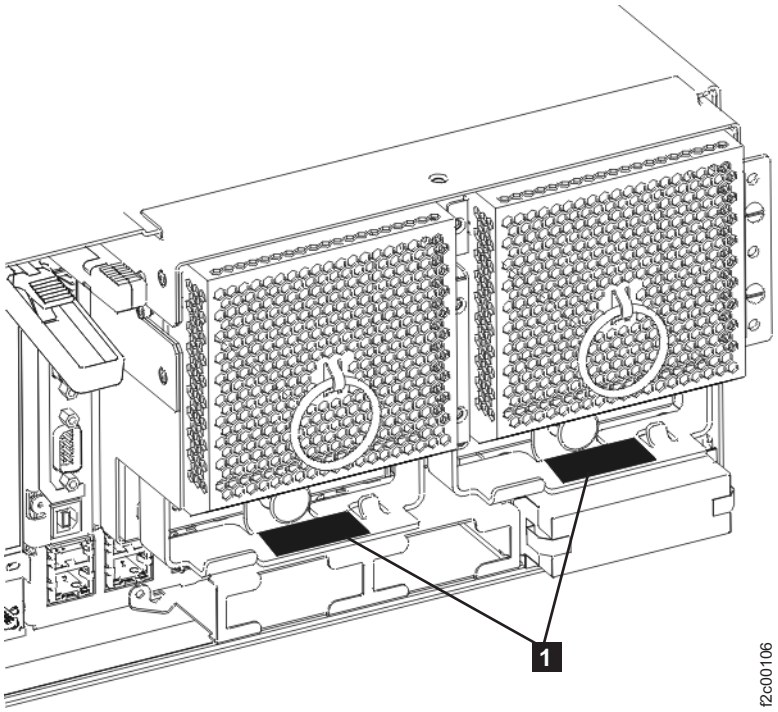


Figure 929. Safety labels on a CEC power supply

15. Continue with "Ground jumper check."

Ground jumper check

1. Verify that the ground jumpers **(1)** are installed between each primary power supply (PPS) and the frame. See Figure 930 on page 2166

   Note: There should be a star washer between the ground jumper terminals at the frame and PPS.

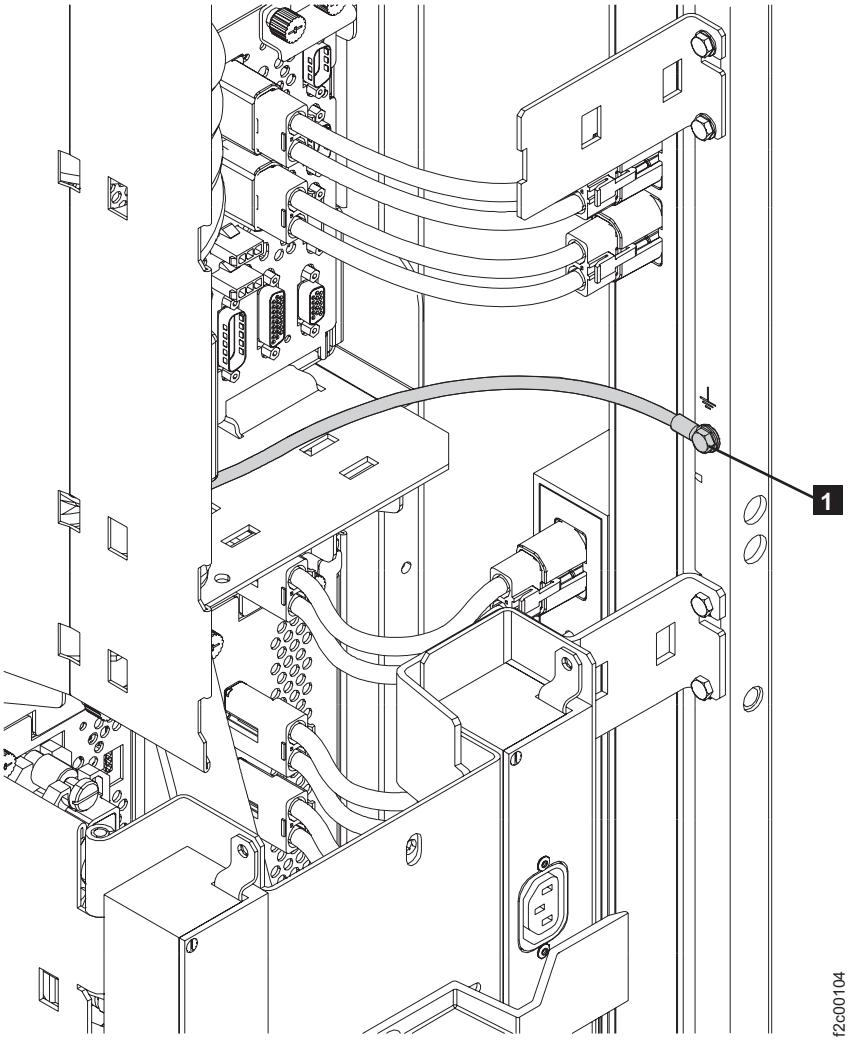


Figure 930. PPS ground strap

2. Verify that the ground jumpers are installed between each Battery Module Chassis and the frame **(2)**. See Figure 931 on page 2167

   Note: There should be a star washer between the ground jumper terminals at the frame and chassis.

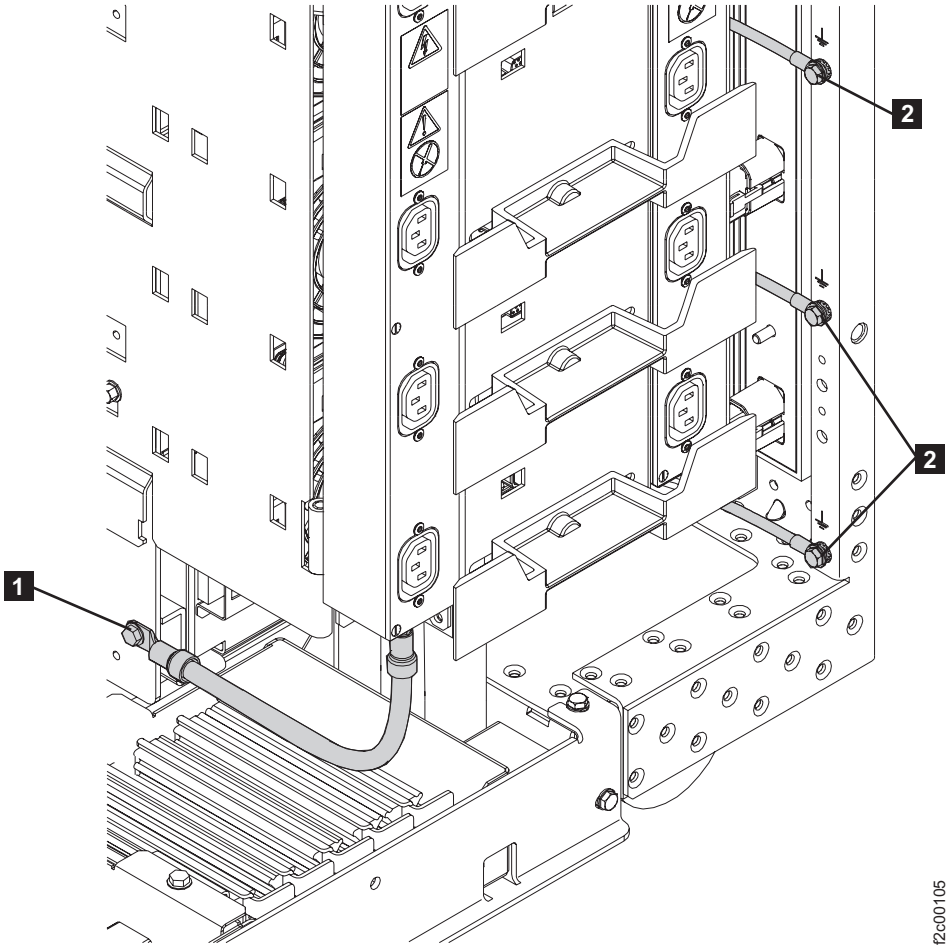


Figure 931. Ground straps

3. Verify that the ground jumper is installed between the 208V distribution assembly and the frame **(1)**. See Figure 931.
4. Do you have a DS8000 Storage Expansion Rack to inspect?
   - Yes, continue with "DS8000 Storage expansion frame safety inspection."
   - No, complete the safety inspection by going to "Safety engineering changes" on page 2179.

DS8000 Storage expansion frame safety inspection

Use this section to perform a safety inspection of the DS8000 Storage Expansion Frame.

Remove AC power

The DS8000 operates with two mainline power cables to each rack.

The DS8000 must be powered off and both mainline power cables disconnected. Complete the following steps to perform this task.

1. Power off the DS8000.
2. Instruct the customer to switch off the mainline circuit breakers that are used to supply mainline AC voltage to all the DS8000 racks.

3. Attach a "Do Not Operate" tag (S229-0237) and a safety lockout padlock to each of the customer's mainline circuit breakers. Refer to the *Electrical Safety for IBM Customer Engineers* publication.
4. Open the rear left machine cover. Remove and retain the two screws **(1)** and open the rear right machine cover. See Figure 932.

   Note: The screws must be reinstalled later to prevent non-service personnel from accessing a hazardous section of the machine.

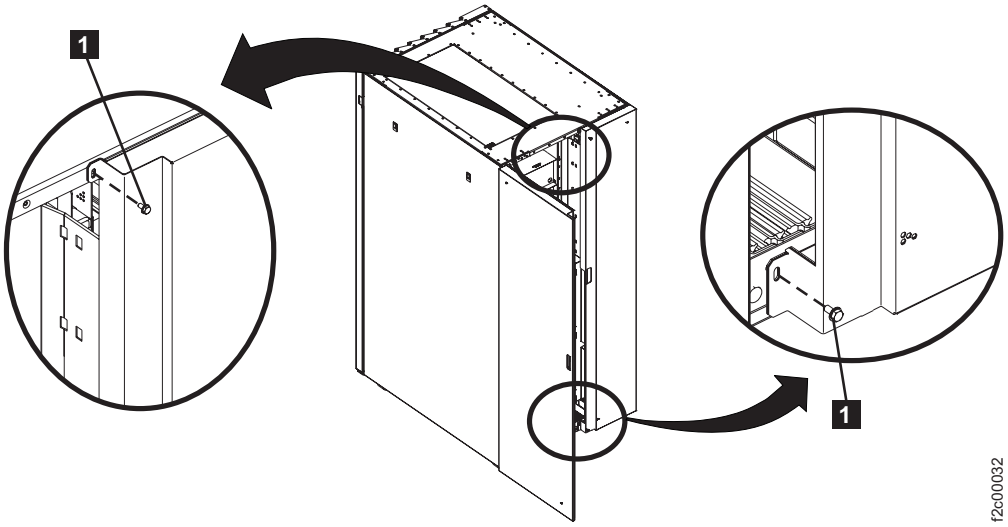


Figure 932. Removing retaining screws on right rear machine cover

5. Disconnect the customer end of both mainline AC power cables.
   - For mainline power cables (plug in): Disconnect both mainline AC power cables from the customer's AC mainline power receptacles.
   - For mainline power cables (wired): If the mainline power cables were recently rewired or have never been used, disconnect both mainline AC power cables before you continue the safety inspection. Instruct the customer to call a licensed electrician to disconnect the mainline AC power cables from the customer's mainline AC power.

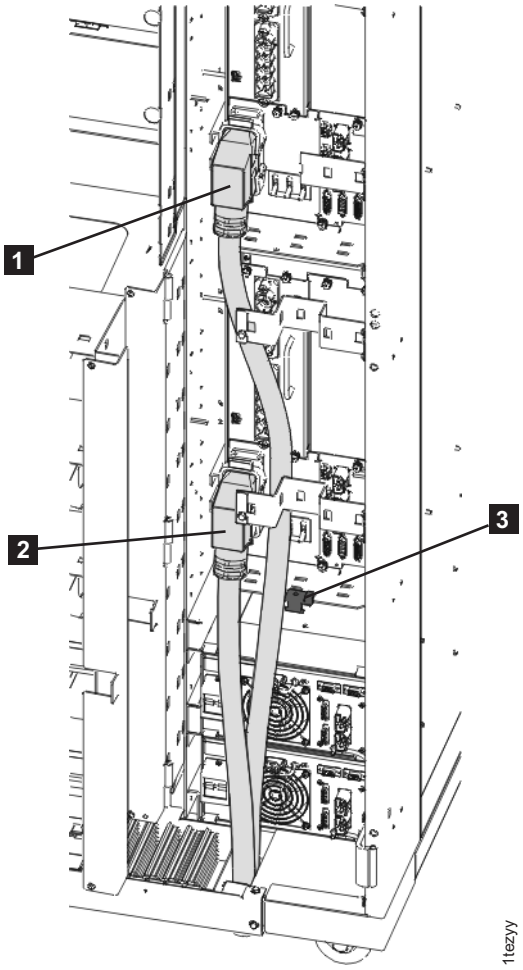


Figure 933. AC line cord

External machine check

Use this section to perform an external machine check.

1. Verify that all external covers are present and not damaged.
2. Verify that all latches and hinges are in correct operating condition.
3. Check the DS8000 for loose, broken, or binding casters.
4. Correct any problems that you find.

Internal machine check

Use this section to perform the internal machine check.

1. Check for any non-IBM changes that may have been made to the machine. If any are present, obtain the "Non-IBM Alteration Attachment Survey" form, number R009, from the IBM branch office. Complete the form and return it to the branch office.
2. Check the condition of the inside of the machine for any metal or other contaminants, or any indications of water, other fluid, fire, or smoke damage.
3. Check for any obvious mechanical problems, such as loose components.
4. Check any exposed cables and connectors for wear, cracks, or pinching.

Safety label check for a storage expansion frame

1. Verify that all safety labels shown in the following steps are installed on the machine. If a safety label is missing, order it and install it.
2. Verify that a safety label P/N 22R3738 **1** is installed on the rear cover of the DS8000. See Figure 934. This label warns that only trained personnel are authorized to service the machine.

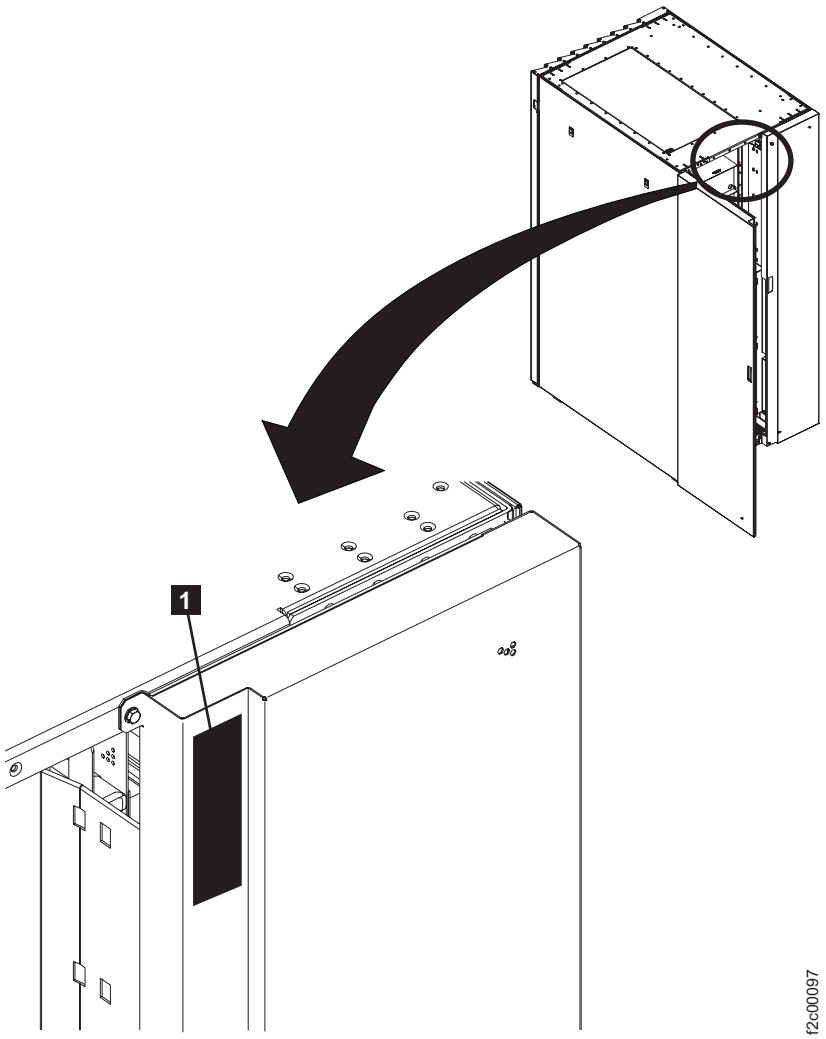


Figure 934. Safety label (trained service personnel only) on the rear cover

3. At the rear of the expansion rack, where mainline power cables 1 and 2 are connected to the primary power supplies (PPSs), verify that each of two language versions of the safety label (>200VAC) **1** is installed on each cable (two labels on each cable). See Figure 935 on page 2171. These labels warn of an electrical shock hazard:
   - Universal (multilanguage) English, French, German, Spanish, Korean, and Brazilian/Portuguese, P/N 08L8011
   - Universal (multilanguage) Hungarian, Greek, Italian, Japanese, and Chinese, P/N 34L7775

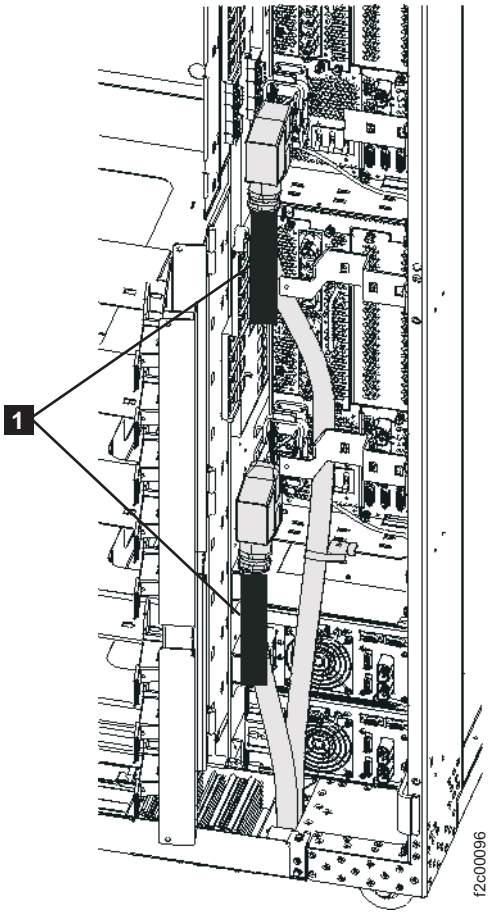


Figure 935. Safety labels (">200VAC") on the mainline power cables

4. At the rear of the expansion rack, verify that a "DO NOT RESET" safety label **1** is installed on CB00 at each PPS. See Figure 936 on page 2172.

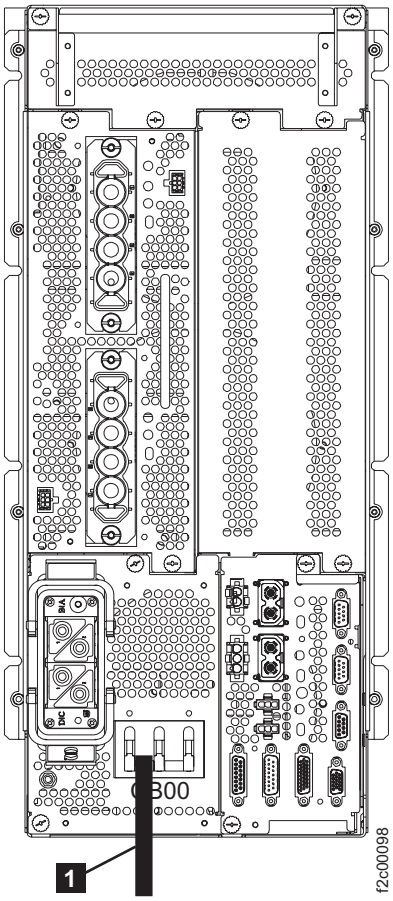


Figure 936. Safety label ("DO NOT RESET") on CB00 of a PPS

5. At the rear of the expansion rack, verify that a safety label P/N 22R3416 **1** is installed on the inner wall (right side). See Figure 937 on page 2173. This label indicates that mainline power is supplied to the storage facility through two cables (dual power cable warning).

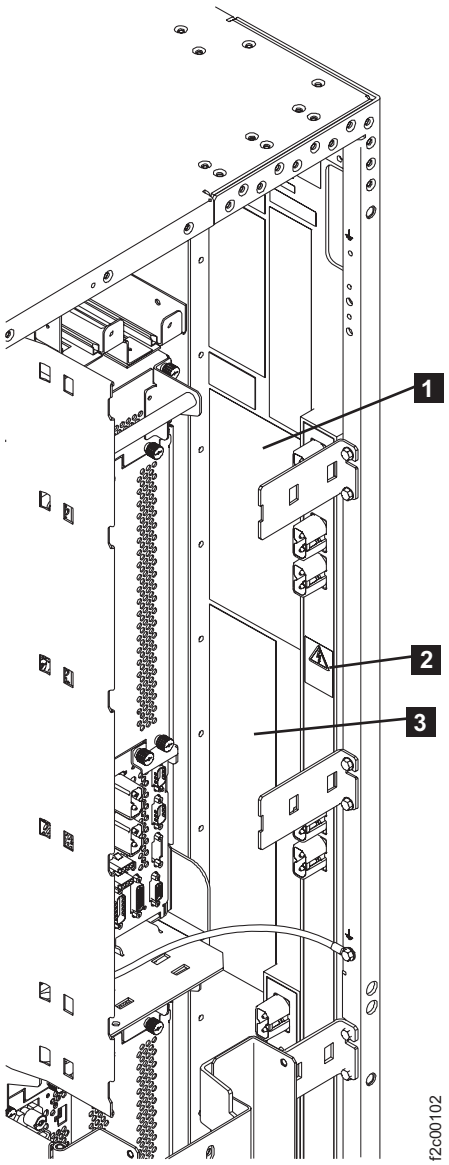


Figure 937. Safety labels on the inner wall (rear, right side)

6. At the rear of the expansion rack, verify that a "Danger - High Leakage Current" safety label P/N 05N6608 **3** is installed on the inner wall (right side). See Figure 937. This label is multilanguage (Brazilian/Portuguese, Chinese, Croatian, Czech Republic, Danish, Finnish, French, French/Canadian, French/Dutch, German, Italian, Japanese, Korean, Norwegian, Portuguese, Russian, Slovak, Spanish, and Swedish).
7. At the rear of the expansion rack, verify that a safety label P/N 22R0897 **2** is installed on the 208VDC bus bar assembly. See Figure 937. This label warns of an electrical shock hazard.
8. At the rear of the expansion rack, verify that a safety label P/N 22R0897 **1** is installed in two places on the 208VDC distribution assembly. See Figure 938 on page 2174. This label warns of an electrical shock hazard.

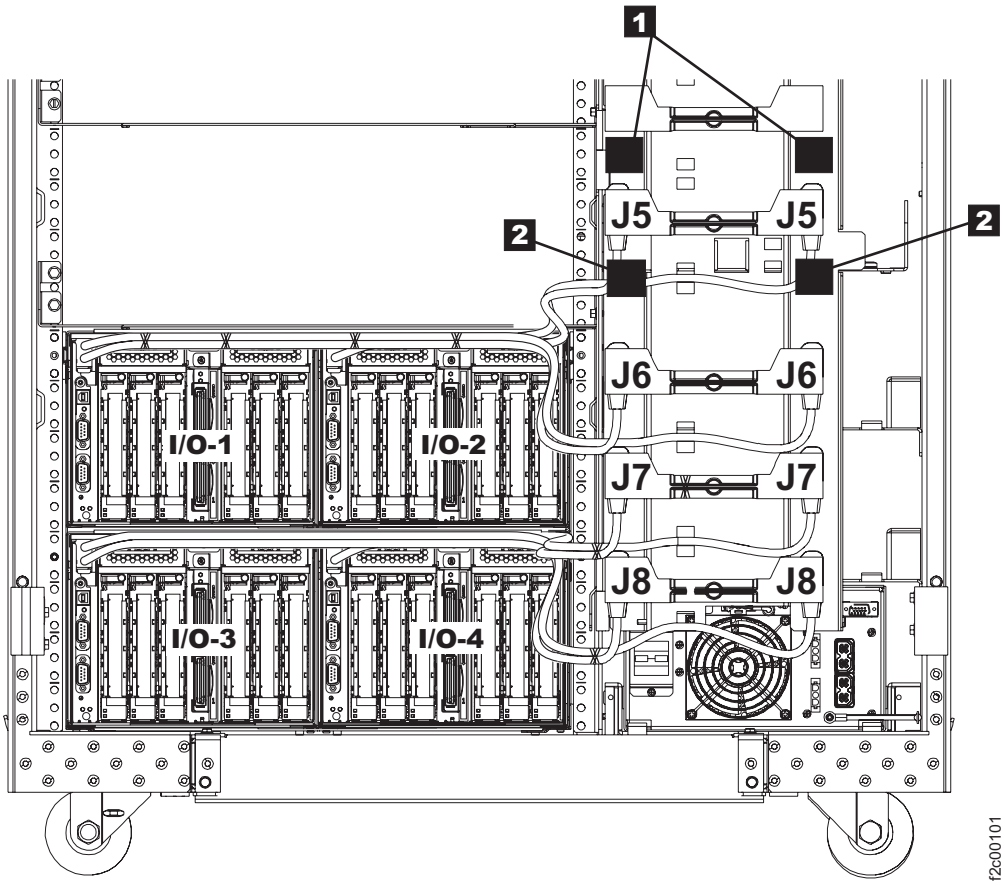


Figure 938. Safety labels on the 208VDC distribution assembly

9. At the rear of the expansion rack, verify that a safety label P/N 22R0898 **2** is installed in two places on the 208VDC distribution assembly. See Figure 938. This label warns that only trained personnel are authorized to service the machine.
10. At the front of the expansion rack, verify that a safety label (>750V/>200V) **1** is installed on each PPS. See Figure 939 on page 2175. This label warns of an electrical shock hazard.

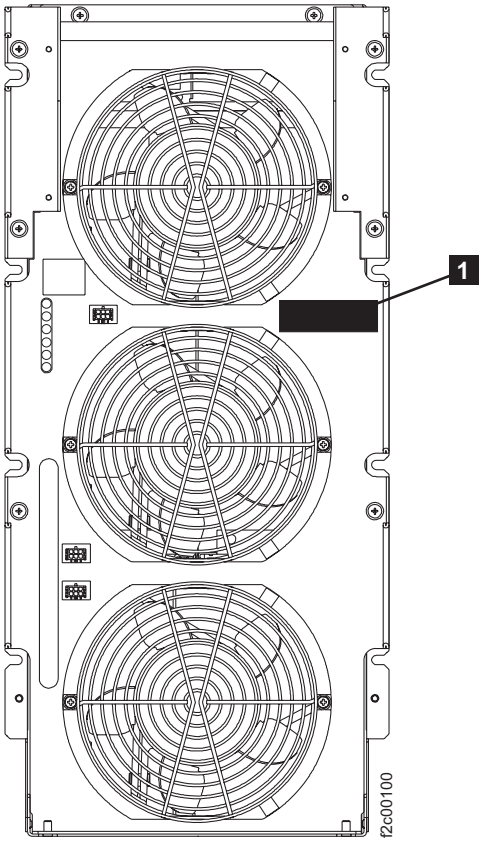


Figure 939. Safety label (">750V/250V") on a PPS

Note: This safety label cannot be ordered individually. If the label is missing, the PPS must be replaced.

11. Check the expansion rack for the presence of a battery module. Is at least one battery module present?
    - Yes, At the rear of the expansion rack, verify that a safety label **1** is installed on each battery module. See Figure 940 on page 2176. This label warns of an electrical shock hazard.
    - No, go to the next step.

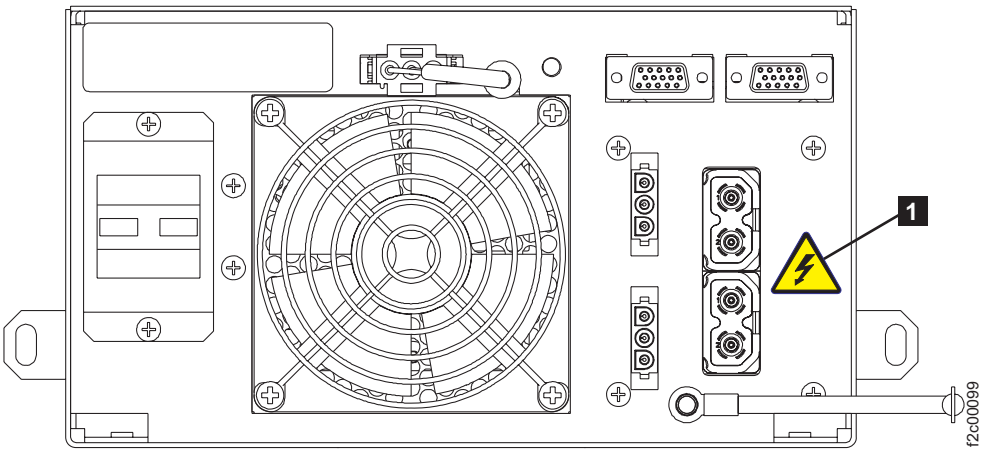


Figure 940. Safety label (shock hazard) on a battery module

Note: This safety label cannot be ordered individually. If the label is missing, the battery module must be replaced.

12. Check the expansion rack for the presence of an I/O enclosure. Is at least one I/O enclosure present?
    - Yes, at the front of the expansion rack, verify that a safety label P/N 21P6691 **1** is installed on each I/O enclosure. See Figure 941 on page 2177. This label warns that power is supplied to the I/O enclosure through two cables (dual power cable warning).
    - No, go to the next step.

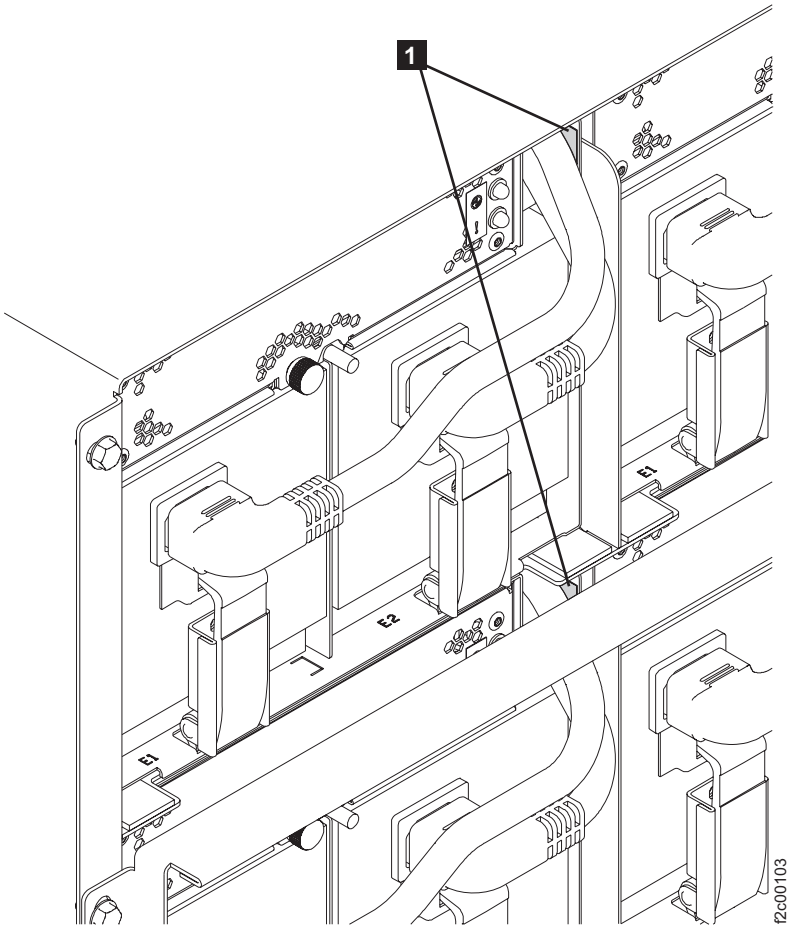


Figure 941. Safety labels on the I/O enclosures

Note: This safety label cannot be ordered individually. If the label is missing, the I/O enclosure must be replaced.

13. Continue with "Ground jumper check" on page 2165.

Ground jumper check for a storage expansion frame

1. Verify that the ground jumpers **(1)** are installed between each primary power supply (PPS) and the frame. See Figure 942 on page 2178

   Note: There should be a star washer between the ground jumper terminals at the frame and PPS.

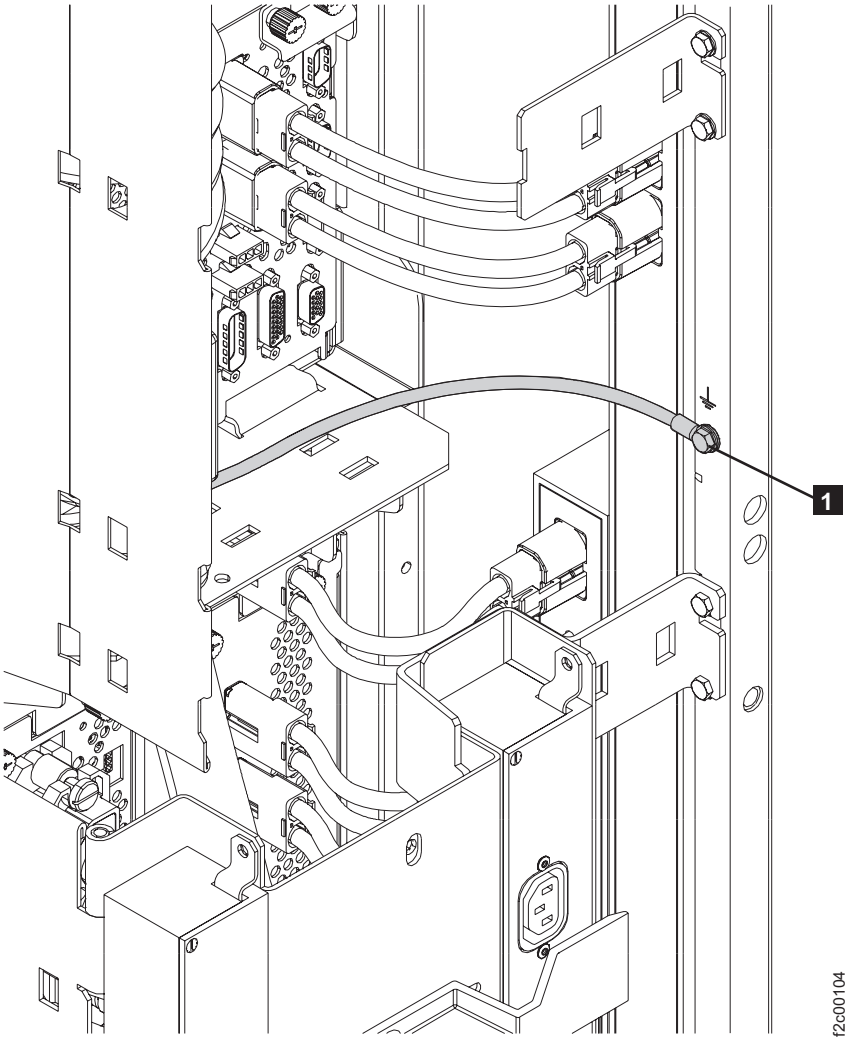


Figure 942. PPS ground strap

2. Verify that the ground jumpers **(2)** are installed between each Battery Module Chassis and the frame. See Figure 943 on page 2179

   Note: There should be a star washer between the ground jumper terminals at the frame and chassis.

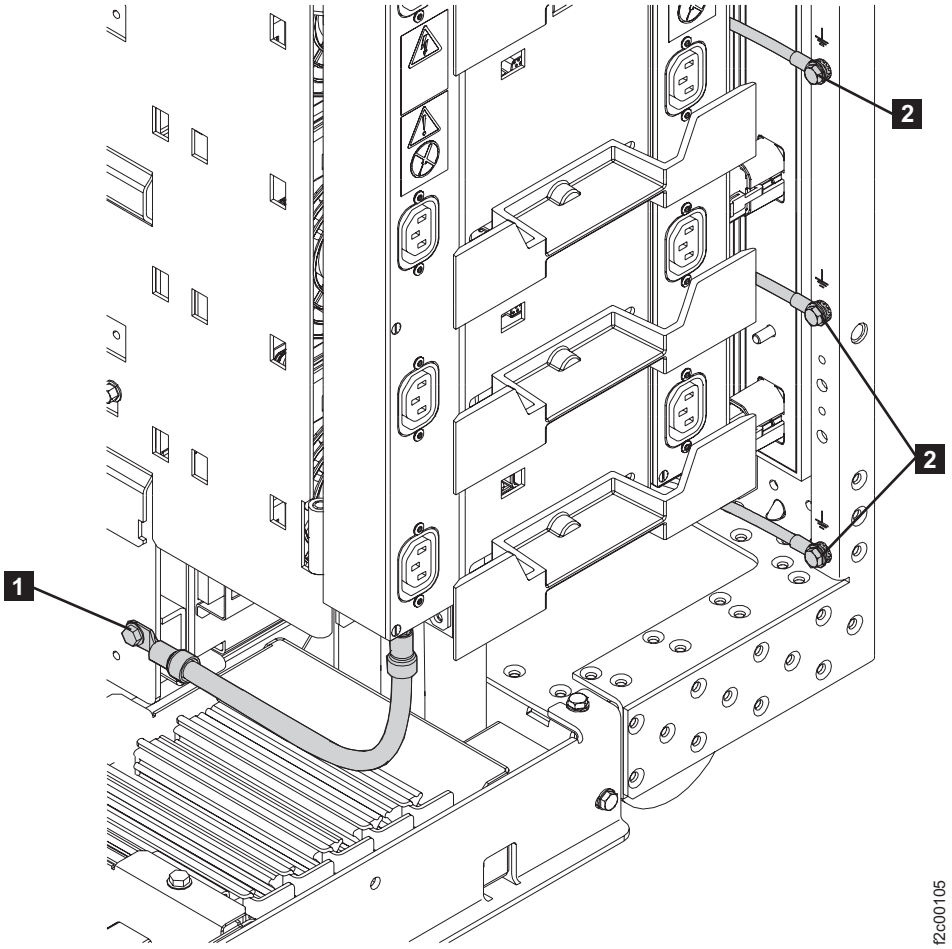


Figure 943. Ground straps

3. Verify that the ground jumper **(1)** is installed between the 208V distribution assembly and the frame. See Figure 943
4. Complete the safety inspection by going to "Safety engineering changes."

Safety engineering changes

1. Verify that all safety engineering changes (ECs) are installed.
2. Reinstall the removed covers.

   Note: Do not reinstall the two retaining screws on the rear right machine cover at this time. That action will be performed later.
3. This completes the visual and mechanical safety inspection procedures with the power off.
4. Continue with ″Completing the DS8000 Safety Inspection.″

Completing the DS8000 safety inspection

Use this section to complete the safety inspection.

CAUTION:
Do not attempt to switch on power to the machine until all unsafe conditions are corrected. (1050)

Note: This notice is translated into selected languages. See *IBM TotalStorage Solutions Safety Notices*, GC26-7229.

CAUTION:
Assume that an electrical safety hazard is present. Perform all continuity, grounding, and power checks specified during the subsystem installation procedures to ensure that the machine meets safety requirements. (1051)

Note: This notice is translated into selected languages. See *IBM TotalStorage Solutions Safety Notices*, GC26-7229.

Perform one of the following steps to complete the inspection:

- Installation: return to ″Installing.″
- Relocate or discontinue:
  1. Perform all the electrical safety checks. See “Performing the power and safety checks” on page 52.
  2. Reinstall the two screws **(1)** on the rear left machine cover. See Figure 944.

     Note: The screws must be installed to prevent non-service personnel from accessing a hazardous section of the machine.

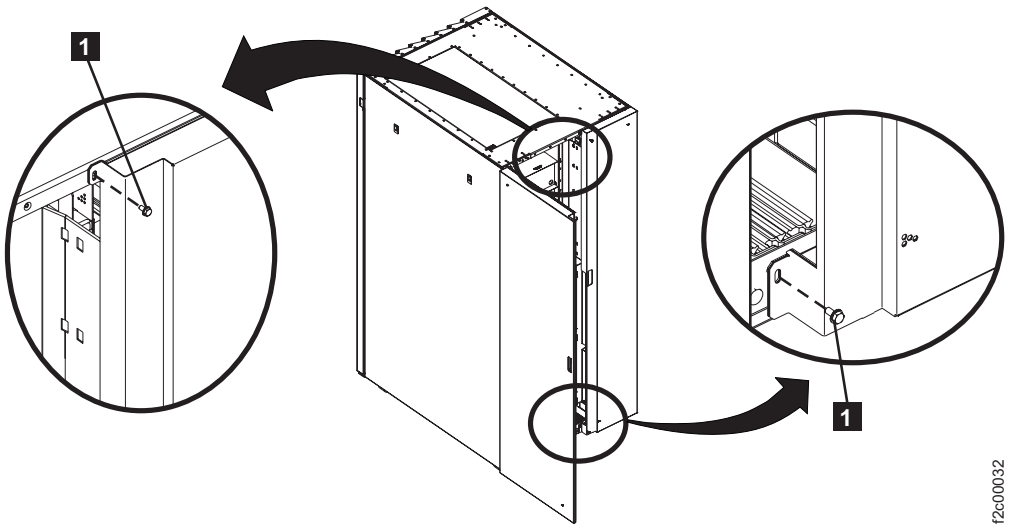


Figure 944. Removing retaining screws on right rear machine cover

Chapter 57. Cable diagrams

The diagrams in this section are intended for the next level of support who can use them to resolve issues with the FCIC, RIO, and SPCN cables.

FC-AL cables

The diagrams in this section are intended for the next level of support who can use them to determine FC-AL cable connectivity.

Mechanical routing diagram for the FC-AL cables

Use the following diagram to route the FC-AL cables.

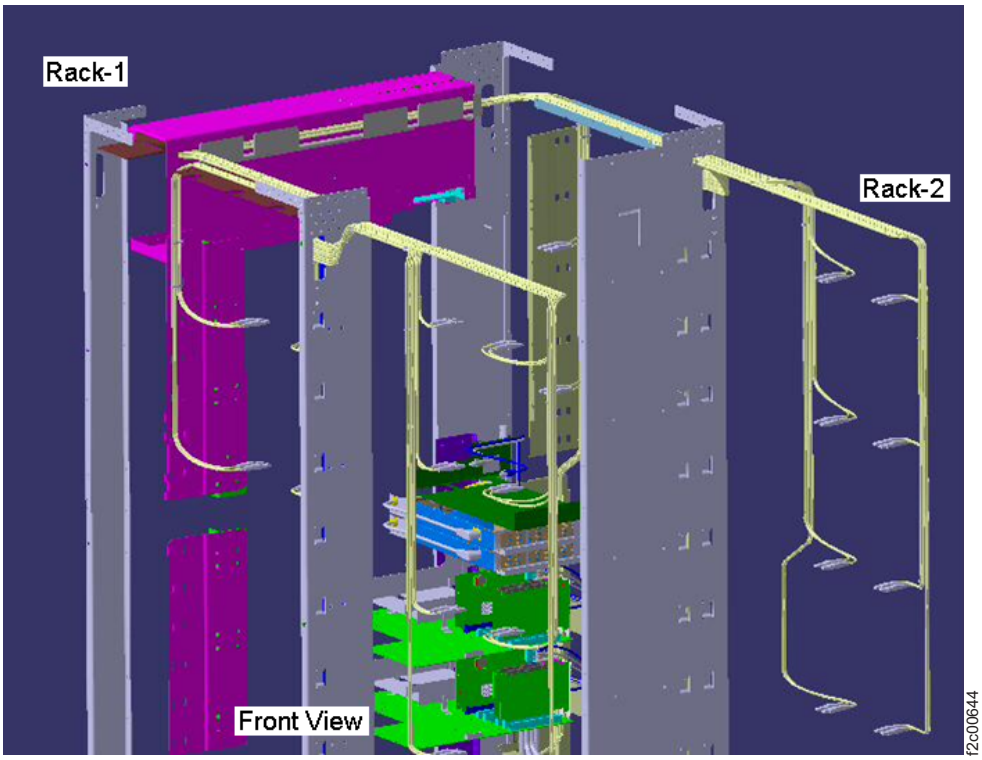


Figure 945. Mechanical routing of the FC-AL cables (rack-to-rack)

Point-to-point cabling diagrams for the FC-AL cables

Use these point-to-point cabling diagrams in this section to route the FC-AL cables.

Rack configuration 921/931

Use the point-to-point cabling diagram below to route the FC-AL cables on a 921/931 without an expansion rack.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.

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2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

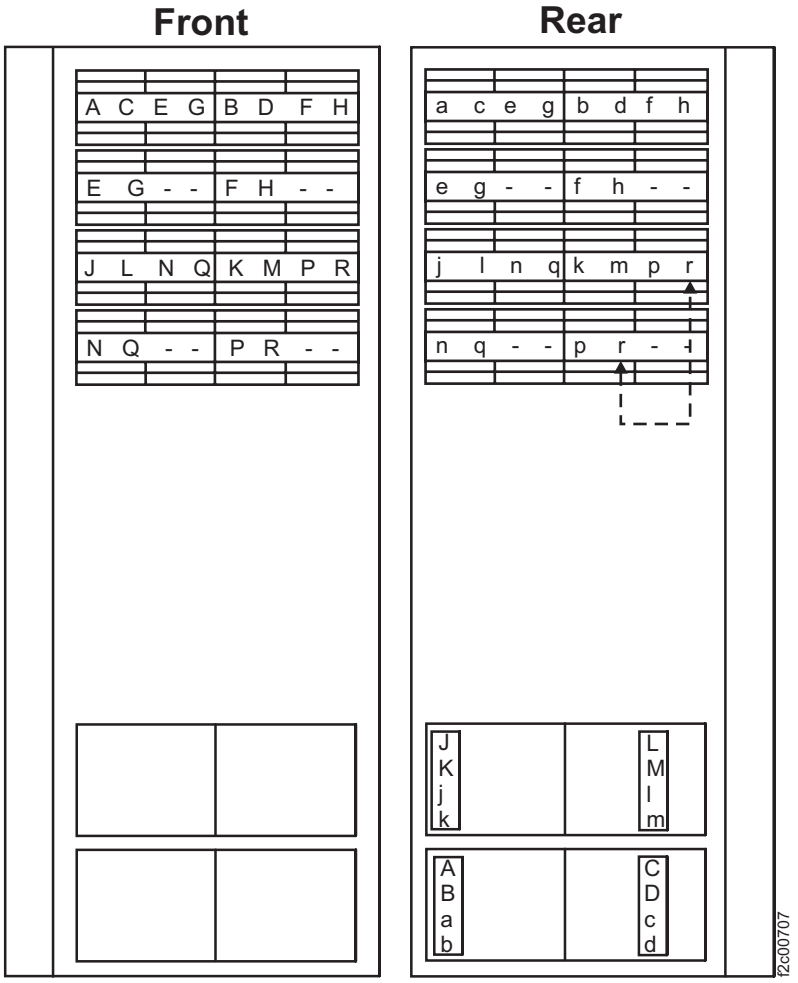


Figure 946. Point-to-point cabling diagram for the FC-AL cables - 921/931 without an expansion rack

Rack configuration 921/931 & 92E

Use the point-to-point cabling diagram below to route the FC-AL cables on a 921/931 with a 92E expansion rack.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

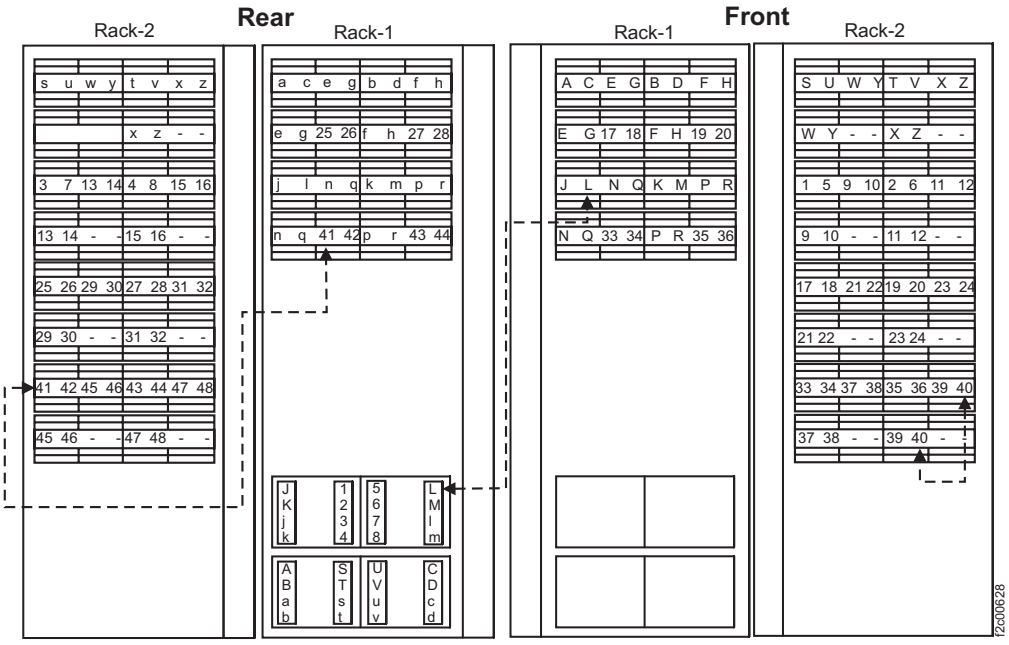


Figure 947. Point-to-point cabling diagram for the FC-AL cables - 921/931 with a 92E expansion rack

Rack configuration 922/932

Use the point-to-point cabling diagram below to route the FC-AL cables on a 922/932 without expansion racks.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

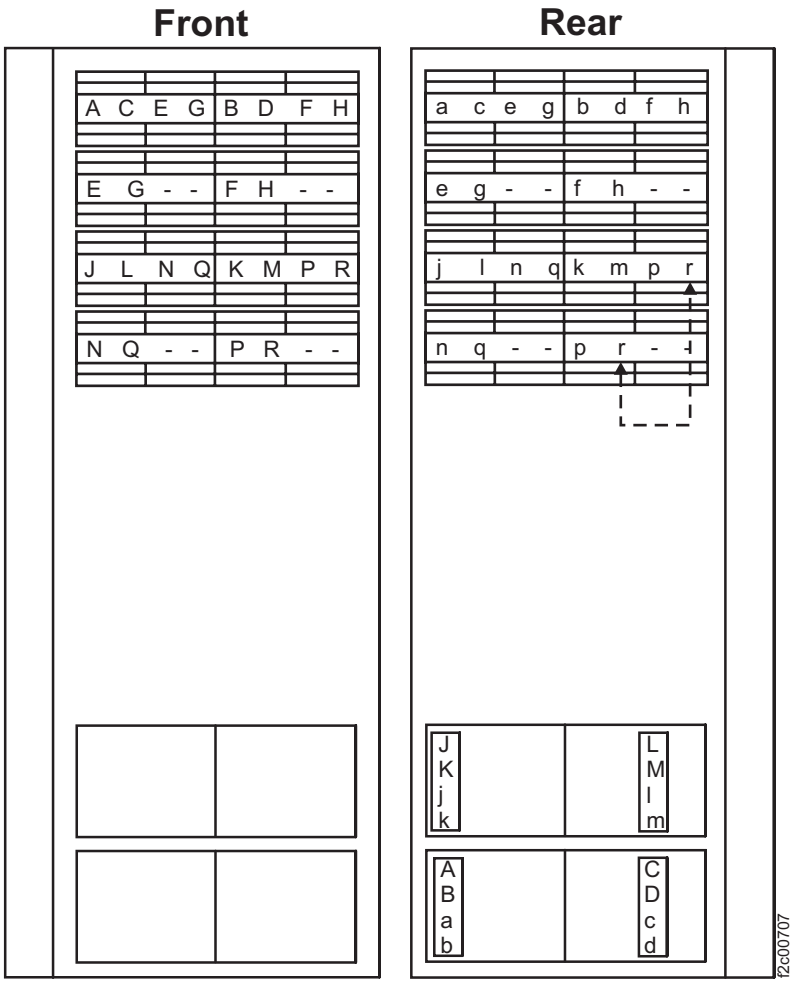


Figure 948. Point-to-point cabling diagram for the FC-AL cables - 922/932 without expansion racks

Rack configuration 922/932 & 92E

Use the point-to-point cabling diagram below to route the FC-AL cables on a 922/932 with one 92E expansion rack.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

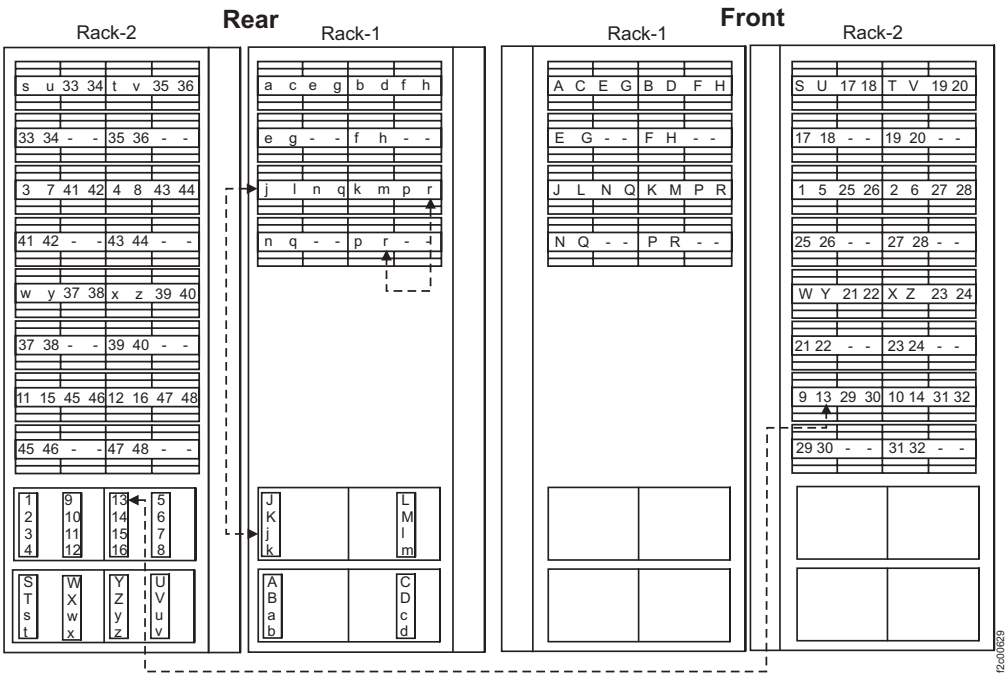


Figure 949. Point-to-point cabling diagram for the FC-AL cables - 922/932 with one 92E expansion rack

Rack configuration 922/932 & 92E & 92E

Use the point-to-point cabling diagrams below to route the FC-AL cables on a 922/932 with two 92E expansion racks.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

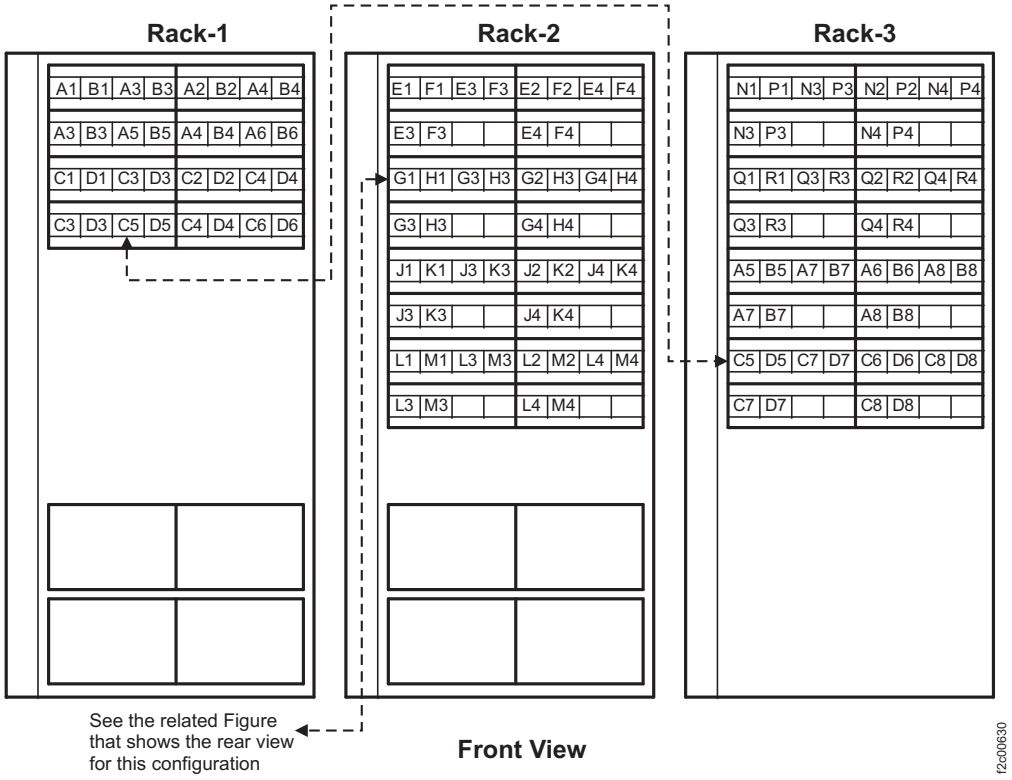


Figure 950. Point-to-point cabling diagram for the FC-AL cables - 922/932 with two 92E expansion racks (front view)

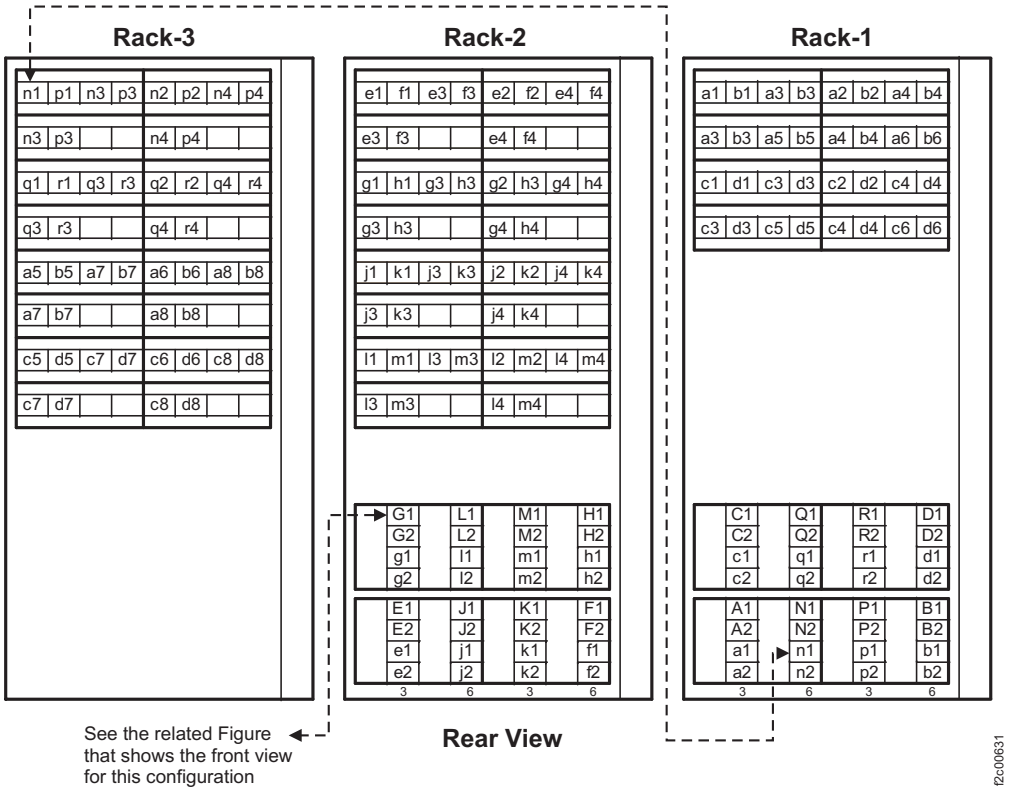


Figure 951. Point-to-point cabling diagram for the FC-AL cables - 922/932 with two 92E expansion racks (rear view)

Rack configuration 9A2/9B2

Use the point-to-point cabling diagram below to route the FC-AL cables on a 9A2/9B2 without expansion racks.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

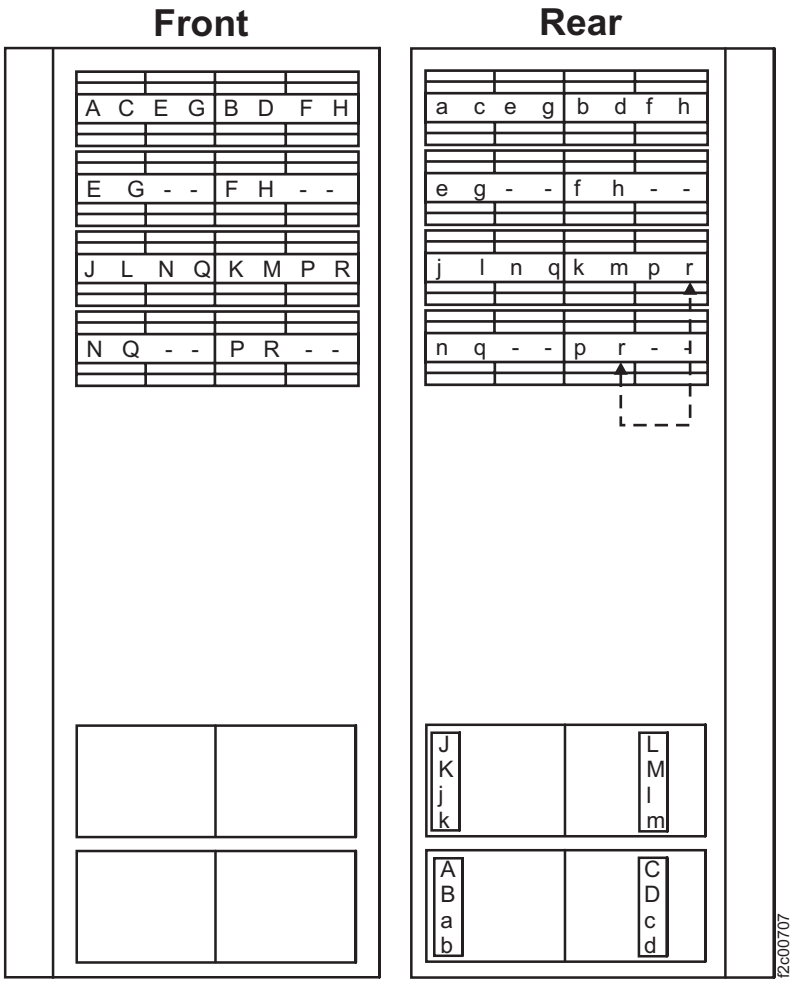


Figure 952. Point-to-point cabling diagram for the FC-AL cables - 9A2/9B2 without expansion racks

Rack configuration 9A2/9B2 & 9AE

Use the point-to-point cabling diagram below to route the FC-AL cables on a 9A2/9B2 with one 9AE expansion rack.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

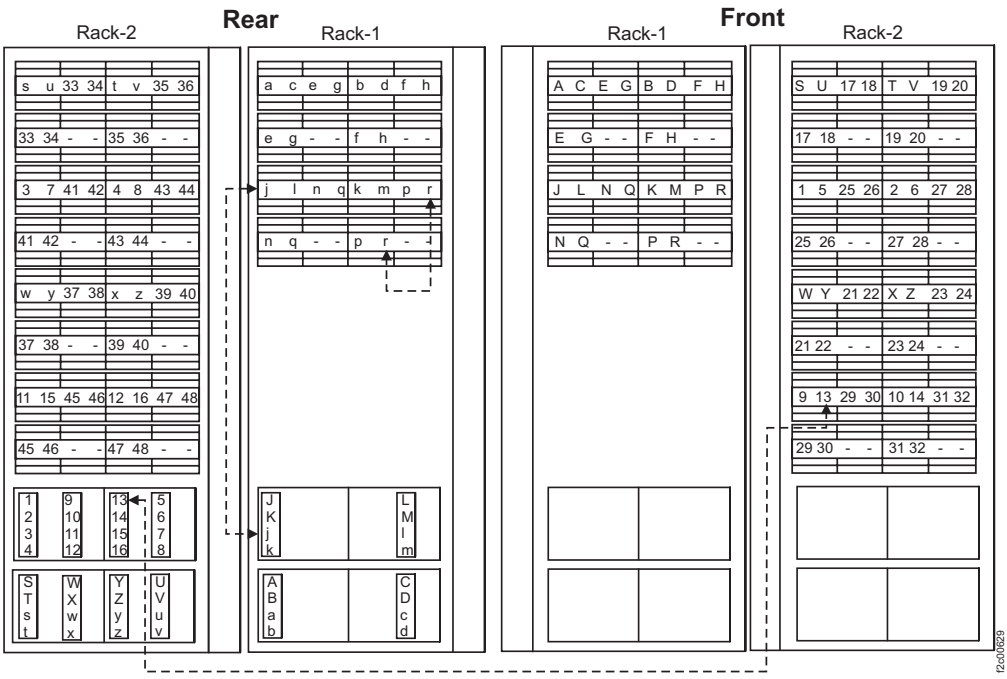


Figure 953. Point-to-point cabling diagram for the FC-AL cables - 9A2/9B2 with one 9AE expansion rack

Rack configuration 9A2/9B2 & 9AE & 9AE

Use the point-to-point cabling diagram below to route the FC-AL cables on a 9A2/9B2 with two 9AE expansion racks.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

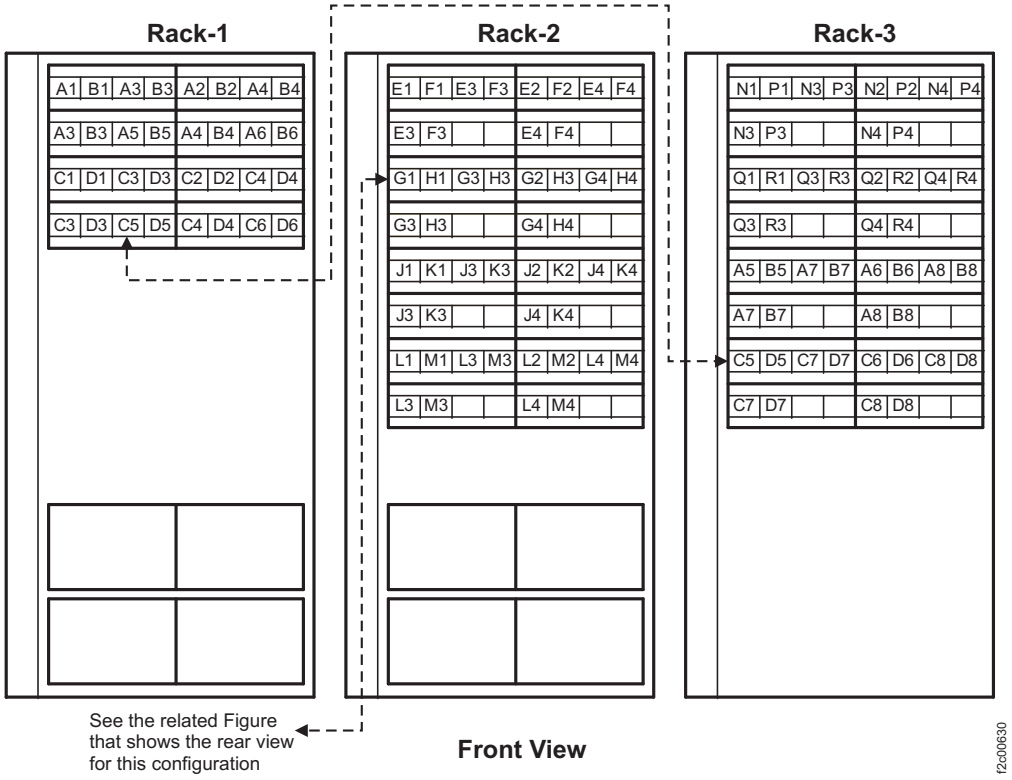


Figure 954. Point-to-point cabling diagram for the FC-AL cables - 9A2/9B2 with two 9AE expansion racks (front view)

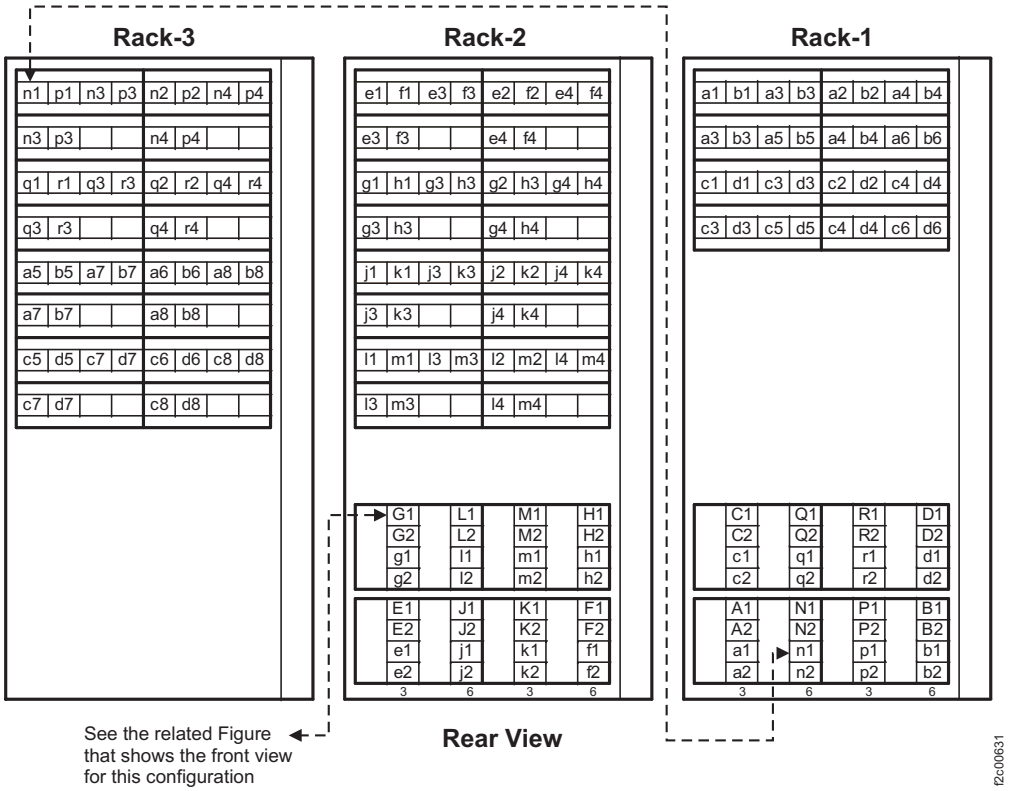


Figure 955. Point-to-point cabling diagram for the FC-AL cables - 9A2/9B2 with two 9AE expansion racks (rear view)

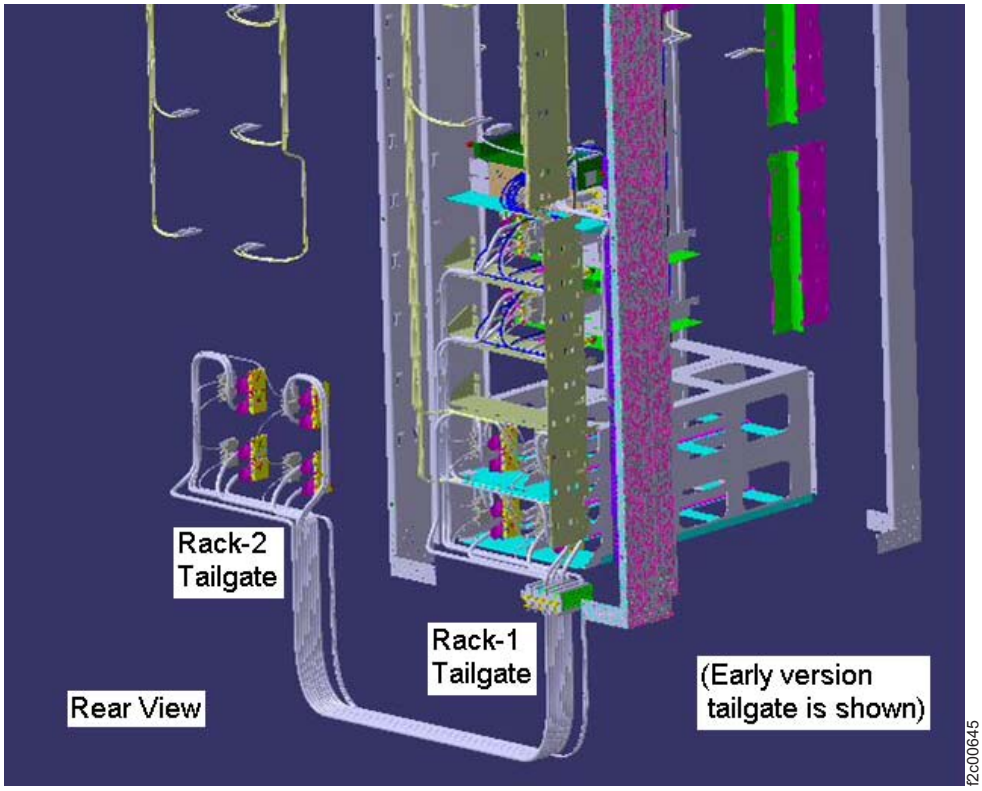
RIO cables

The diagrams in this section are intended for the next level of support who can use them to determine RIO cable connectivity.

Mechanical routing diagram for the RIO cables

Use the diagram below to route the RIO cables.

Figure 956. Mechanical routing of the RIO cables (rack-to-rack)



Point-to-point cabling diagrams for the RIO cables

Use these point-to-point cabling diagrams to route the RIO cables.

Point-to-point cabling diagram for the RIO cables - 921/931

Use the point-to-point cabling diagram below to route the RIO cables on a 921/931 without expansion rack.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

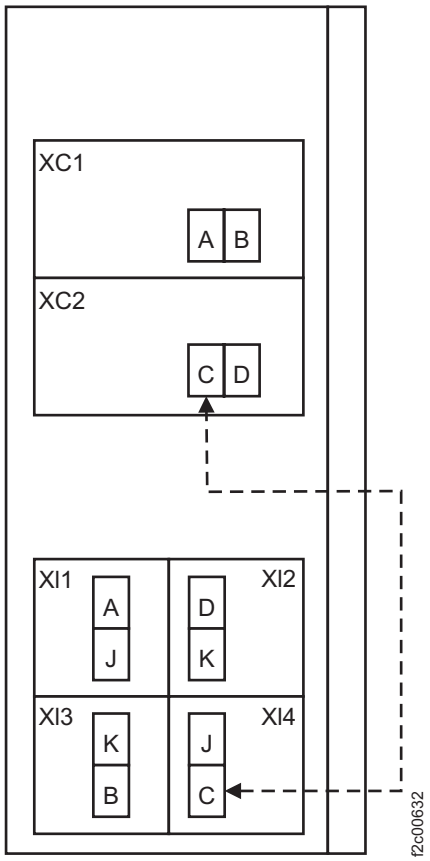


Figure 957. RIO cabling diagram - Rack configuration 921/931 without expansion rack

Point-to-point cabling diagram for the RIO cables - 921 & 92E

Use the point-to-point cabling diagram below to route the RIO cables on a 921 with one 92E expansion rack.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

Note: The second rack is not shown because RIO cables are not connected to it. (It does not contain I/O enclosures).

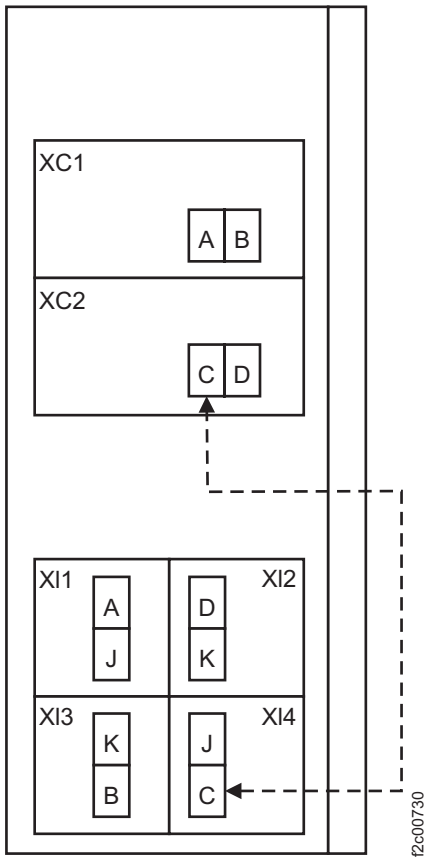


Figure 958. RIO cabling diagram - Rack configuration 921 with one 92E expansion rack

Point-to-point cabling diagram for the RIO cables - 922

Use the point-to-point cabling diagram below to route the RIO cables on a 922 without an expansion rack.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

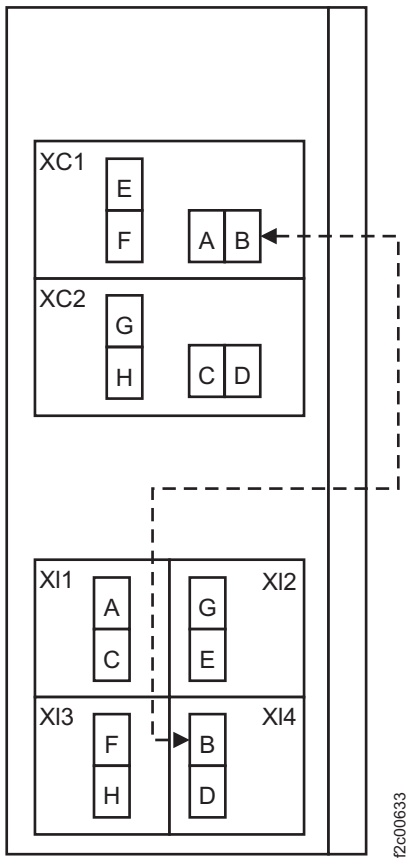


Figure 959. RIO cabling diagram - Rack configuration 922 without expansion rack

Point-to-point cabling diagram for the RIO cables - 922 & 92E

Use the point-to-point cabling diagram below to route the RIO cables on a 922 with one 92E expansion rack.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

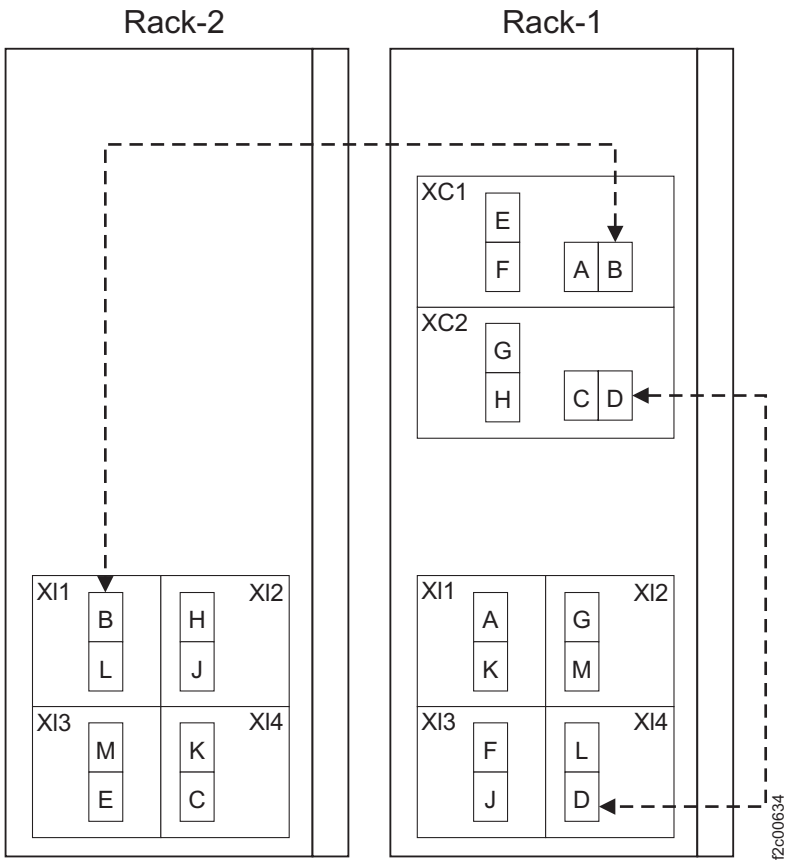


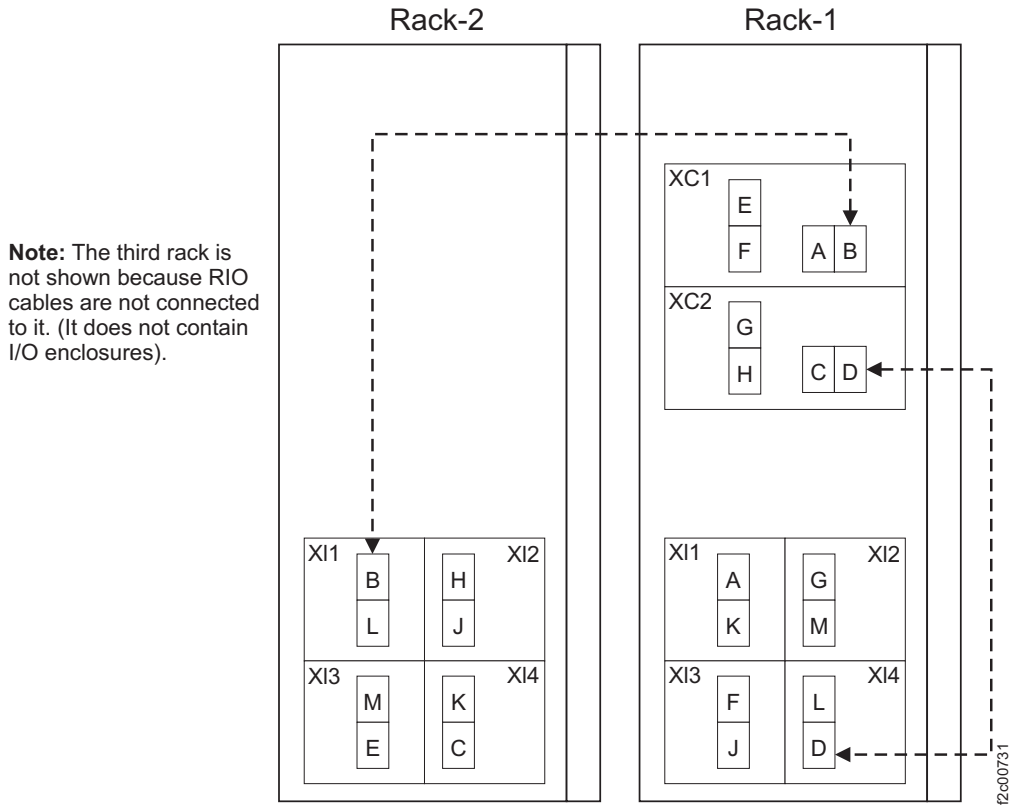
Figure 960. RIO cabling diagram - Rack configuration 922 with one 92E expansion rack

Point-to-point cabling diagram for the RIO cables - 922 & 92E & 92E

Use the point-to-point cabling diagram below to route the RIO cables on a 922 with two 92E expansion racks.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.



Note: The third rack is not shown because RIO cables are not connected to it. (It does not contain I/O enclosures).

Figure 961. RIO cabling diagram - Rack configuration 922 with two 92E expansion racks

Point-to-point cabling diagram for the RIO cables - 9A2

Use the point-to-point cabling diagram below to route the RIO cables on a 9A2 without expansion racks.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

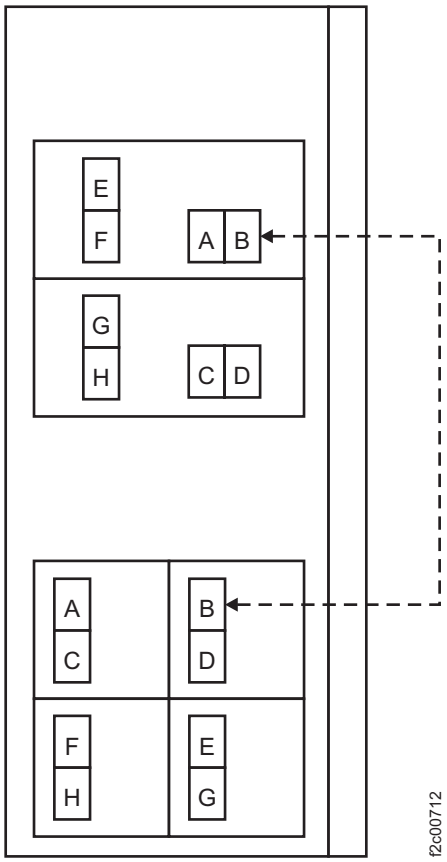


Figure 962. RIO cabling diagram - Rack configuration 9A2 without expansion rack

Point-to-point cabling diagram for the RIO cables - 9A2 & 9AE

Use the point-to-point cabling diagram below to route the RIO cables on a 9A2 with one 9AE expansion rack.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

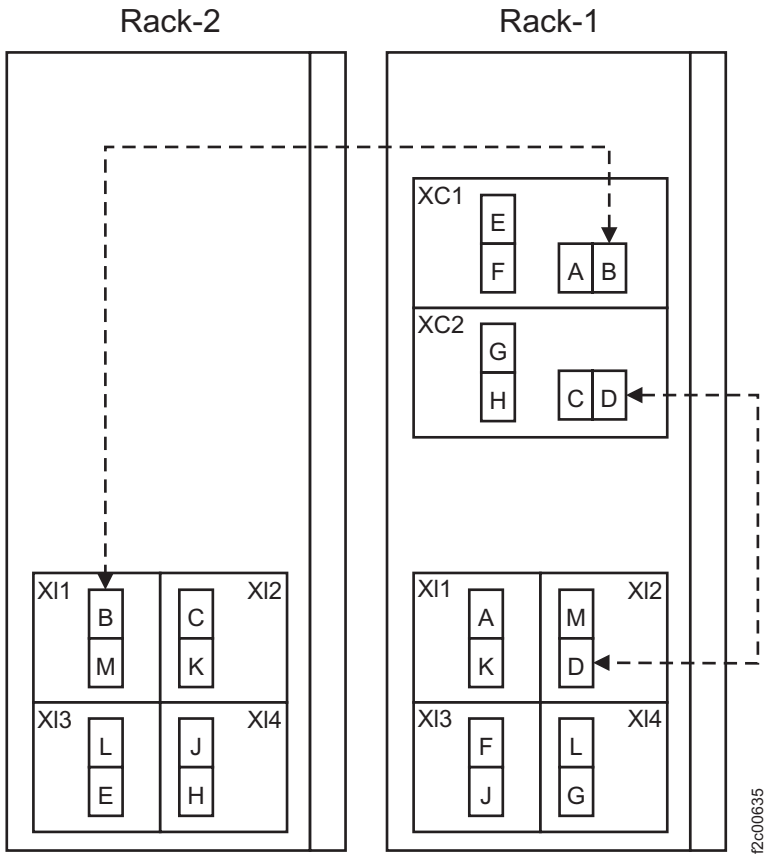


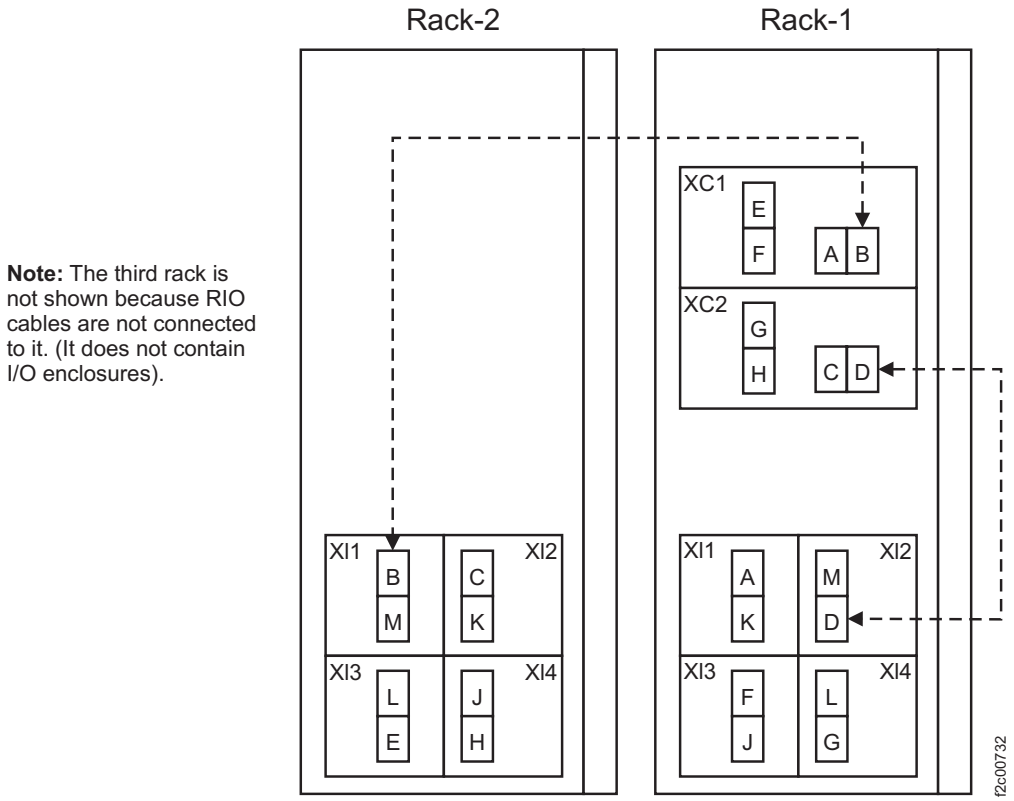
Figure 963. RIO cabling diagram - Rack configuration 9A2 with one 9AE expansion rack

Point-to-point cabling diagram for the RIO cables - 9A2 & 9AE & 9AE

Use the point-to-point cabling diagram below to route the RIO cables on a 9A2 with two 9AE expansion racks.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.



Note: The third rack is not shown because RIO cables are not connected to it. (It does not contain I/O enclosures).

Figure 964. RIO cabling diagram - Rack configuration 9A2 with two 9AE expansion racks

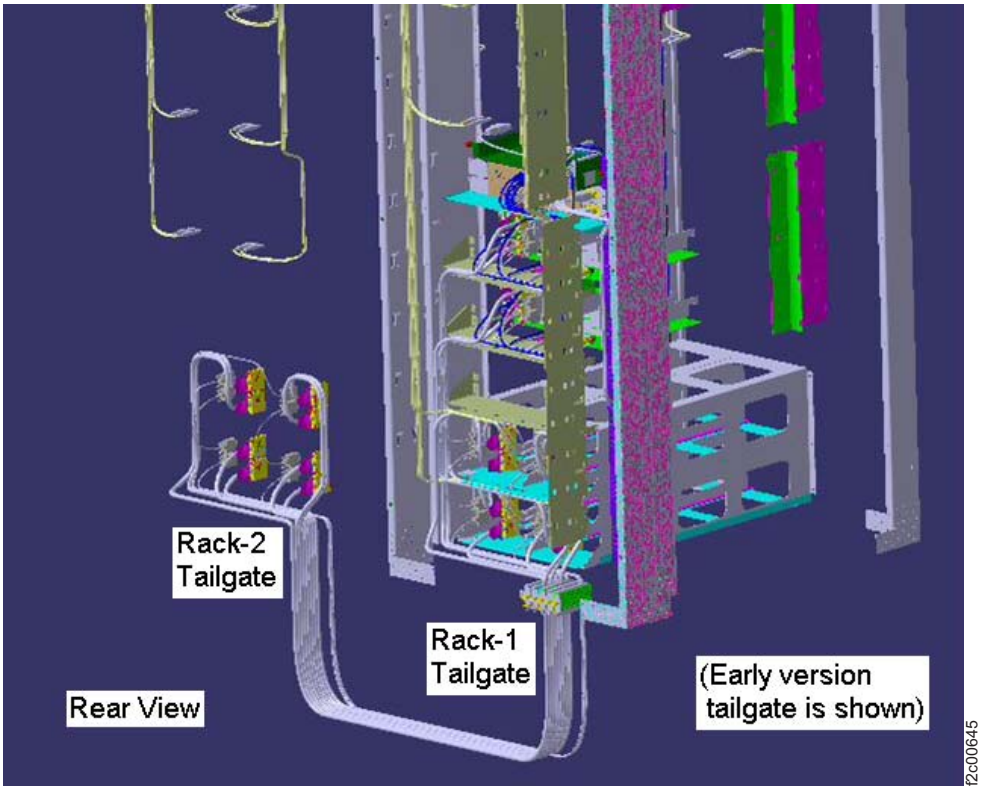
SPCN cables

The diagrams in this section are intended for the next level of support who can use them to determine SPCN cable connectivity.

Mechanical routing diagram for the SPCN cables

Use the diagram below to route the SPCN cables.

Figure 965. Mechanical routing of the SPCN cables (rack-to-rack)



Point-to-point cabling diagrams for the SPCN cables

Use these point-to-point cabling diagrams to route the SPCN cables.

Point-to-point cabling diagram for the SPCN cables - 921

Use the point-to-point cabling diagram below to route the SPCN cables on a 921 without expansion racks.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

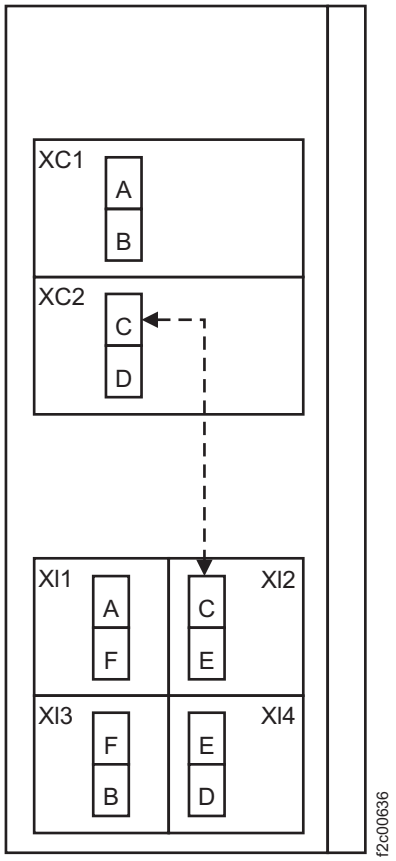


Figure 966. Point-to-point cabling diagram for the SPCN cables - 921 without expansion racks

Point-to-point cabling diagram for the SPCN cables - 921 & 92E

Use the point-to-point cabling diagram below to route the SPCN cables on a 921 with one 92E expansion rack.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

Note: The second rack is not shown because SPCN cables are not connected to it. (It does not contain I/O enclosures).

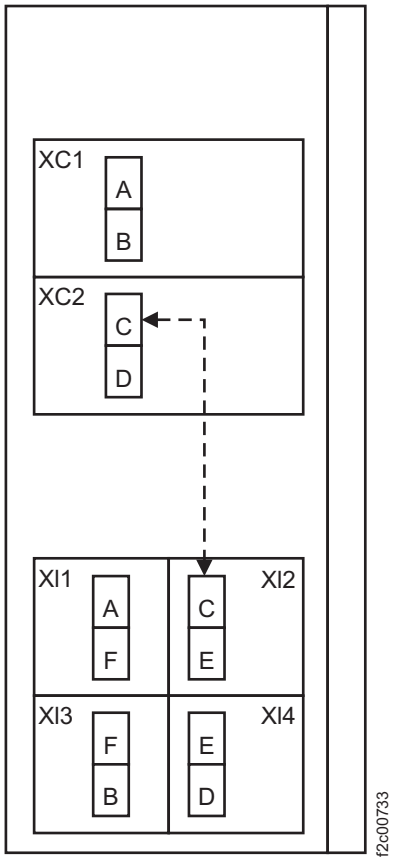


Figure 967. Point-to-point cabling diagram for the SPCN cables - 921 with one 92E expansion rack

Point-to-point cabling diagram for the SPCN cables - 922

Use the point-to-point cabling diagram below to route the SPCN cables on a 922 without expansion racks.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

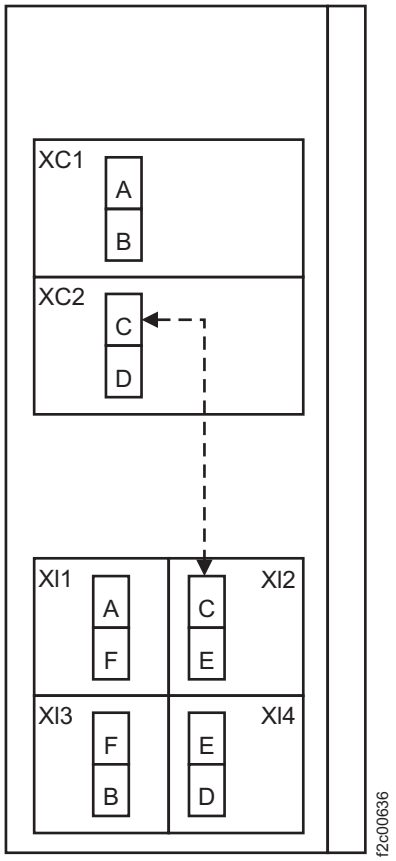


Figure 968. Point-to-point cabling diagram for the SPCN cables - 922 without expansion racks

Point-to-point cabling diagram for the SPCN cables - 922 & 92E

Use the point-to-point cabling diagram below to route the SPCN cables on a 922 with one 92E expansion rack.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

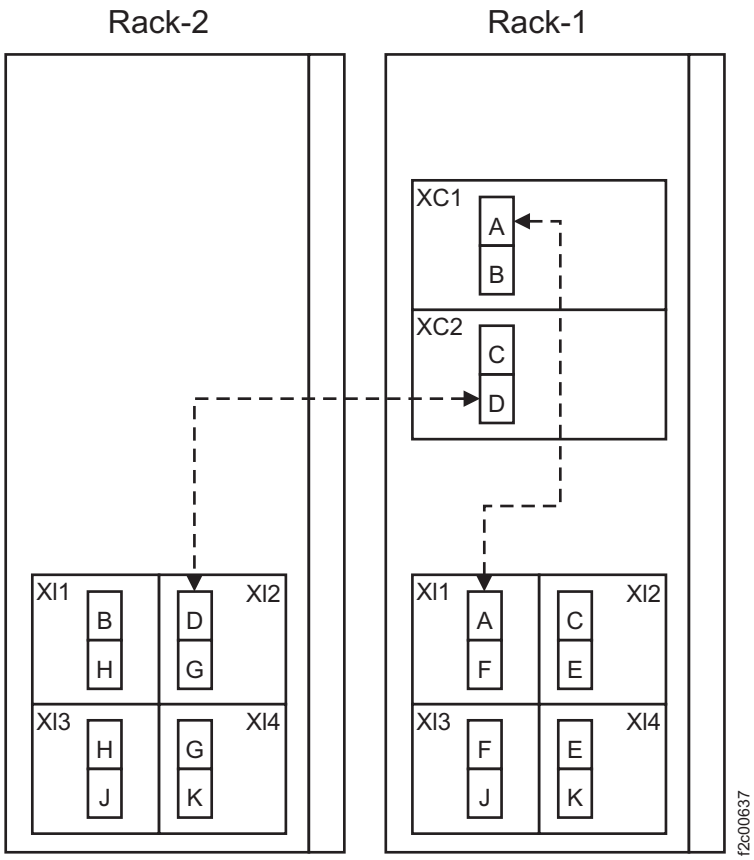


Figure 969. Point-to-point cabling diagram for the SPCN cables - 922 with one 92E expansion rack

Point-to-point cabling diagram for the SPCN cables - 922 & 92E & 92E

Use the point-to-point cabling diagram below to route the SPCN cables on a 922 with two 92E expansion racks.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

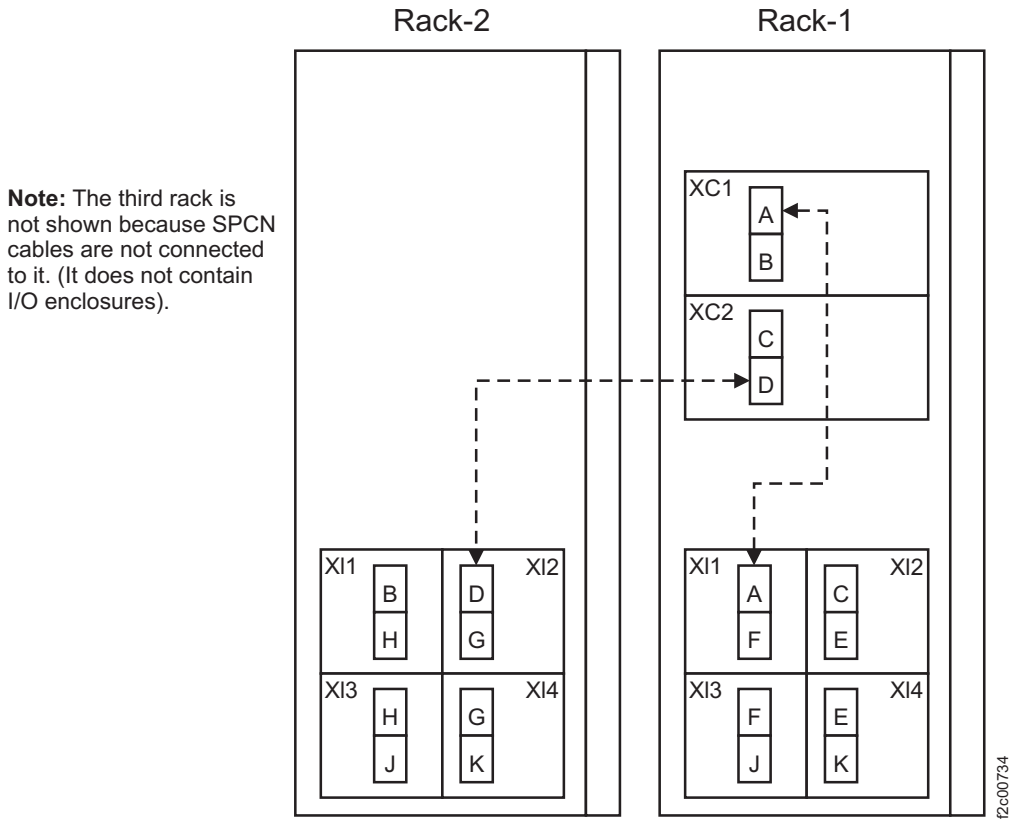


Figure 970. Point-to-point cabling diagram for the SPCN cables - 922 with two 92E expansion racks

Point-to-point cabling diagram for the SPCN cables - 9A2

Use the point-to-point cabling diagram below to route the SPCN cables on a 9A2 without expansion racks.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

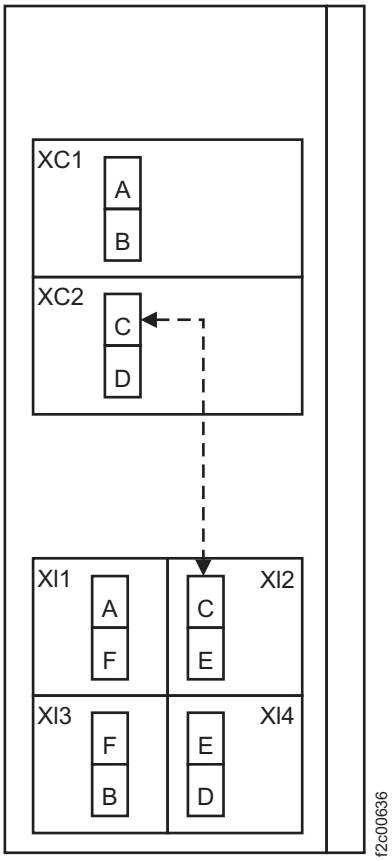


Figure 971. Point-to-point cabling diagram for the SPCN cables - 9A2 without expansion racks

Point-to-point cabling diagram for the SPCN cables - 9A2 & 9AE

Use the point-to-point cabling diagram below to route the SPCN cables on a 9A2 with one 9AE expansion rack.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

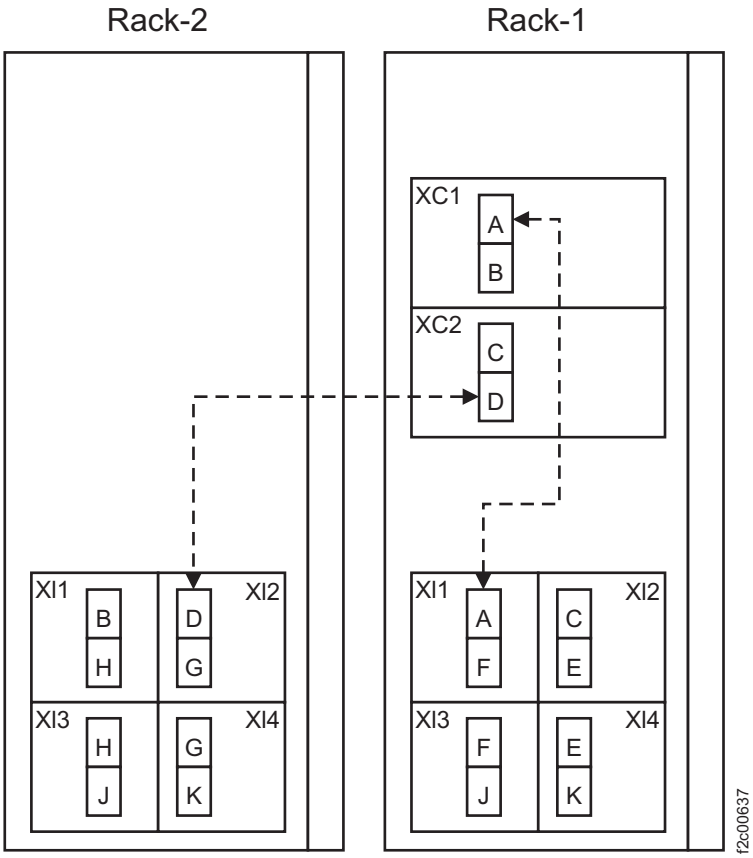


Figure 972. Point-to-point cabling diagram for the SPCN cables - 9A2 with one 9AE expansion rack

Point-to-point cabling diagram for the SPCN cables - 9A2 & 9AE & 9AE

Use the point-to-point cabling diagram below to route the SPCN cables on a 9A2 with two 9AE expansion racks.

Notes:

1. Racks are shown with the maximum number of storage enclosures and device adapter cards. Your rack might contain fewer storage enclosures or device adapter cards.
2. The connector at each end of a cable has the same designator (for example, **A**, **C1**, or **d**).
3. An example of one cable is shown with the dotted line.
4. Some connectors are for cables that would go to an optional expansion rack. In that case, only one instance of that designator is on the rack.

Note: The third rack is not shown because SPCN cables are not connected to it. (It does not contain I/O enclosures).

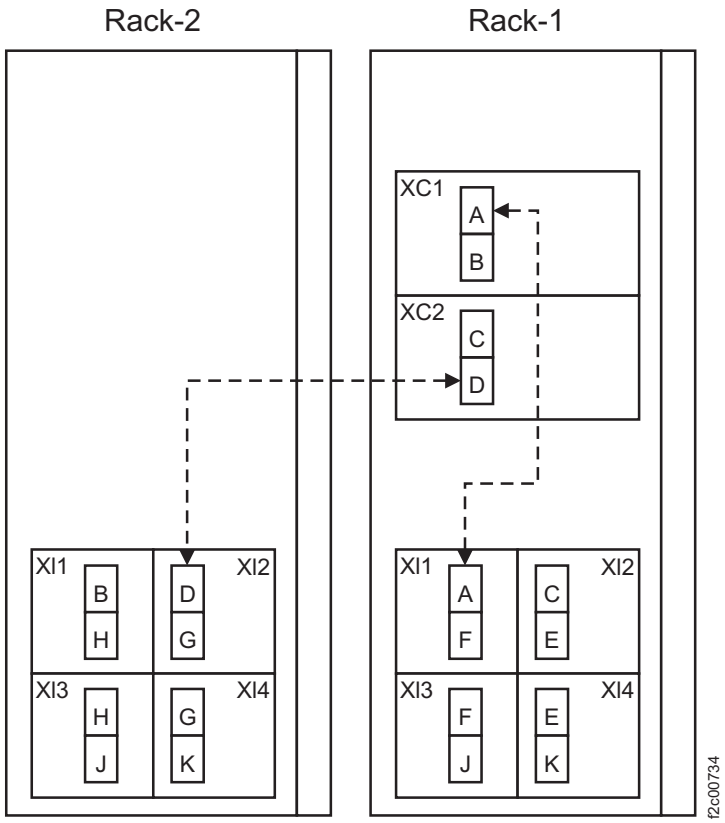


Figure 973. Point-to-point cabling diagram for the SPCN cables - 9A2 with two 9AE expansion racks

Chapter 58. DS8000 Network and Remote Support Overview

Note: The following content is from chapter 5 of the VPN Security and Implementation document found at http://www-1.ibm.com/support/docview.wss?&rs=1114&uid=ssg1S1002693.

The service interface for the DS8000 family of storage products is called the Hardware Management Console (HMC) and has been designed to provide access to the IBM Service organization through a secure high-speed network connection, but can also support a low-speed connection through and asynchronous modem connection. The high-speed connection is provided by configuring the customer network to allow access from the HMC to IBM through a secure virtual private network (VPN) established through the Internet. IBM has designed security features into the HMC that provide a secure connection.

Overview

The HMC manages all network connectivity and remote support as shown in Figure 974. Each storage facility is connected through a redundant private Ethernet fabric to one or two HMCs. The HMC is also connected to the customer's network and it functions as a firewall and application proxy between the networks.

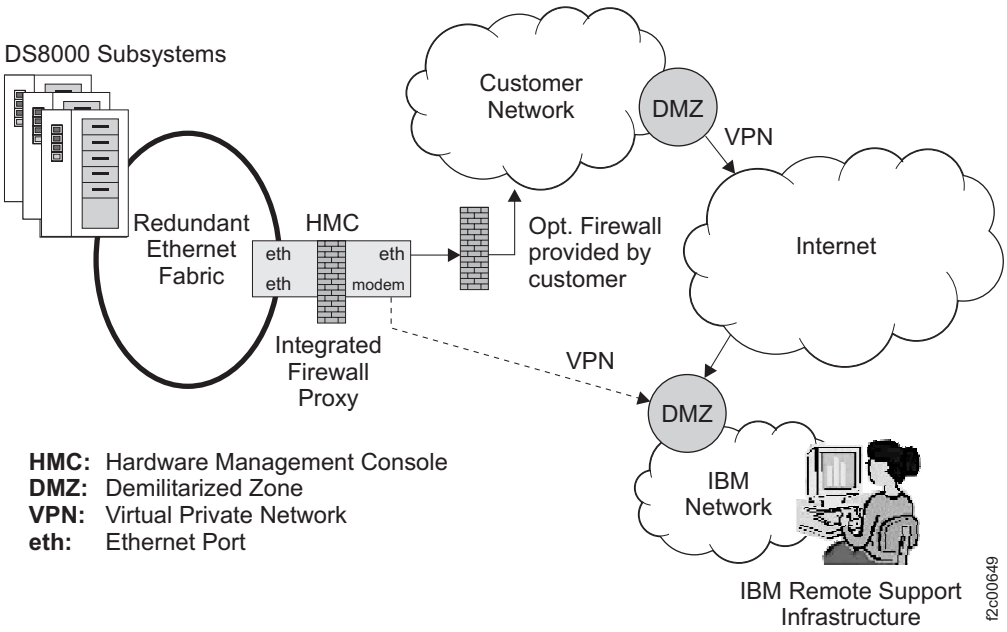


Figure 974. Overview of the DS8000 network and remote support

The redundant Ethernet fabric consists of two separate Ethernet networks. Each network node has assigned nonroutable, private IP addresses. See Table 547 on page 2212. Communication on the private network is performed by proprietary socket communication and is secured by message authentication and by SSL-based encryption.

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Table 547. Address ranges of the storage facility private network

Setting	Address range	
	DS8000 Black network (eth0)	**DS8000 Gray network (eth3)**
Default	172.16.0.0 to 172.16.255.255	172.17.0.0 to 172.17.255.255
Option 1	10.235.158.0 to 10.235.159.255 (10.235.158.0/23)	10.236.158.0 to 10.236.159.255 (10.236.158.0/23)
Option 2	192.168.162.0 to 192.168.163.255 (192.168.162.0/23)	192.168.164.0 to 192.168.165.255 (192.168.164.0/23)
Option 3	9.15.132.0 to 9.15.133.255 (9.15.132.0/23)	9.16.132.0 to 9.16.133.255 (9.16.132.0/23)

The HMC does not route traffic between the networks. There is no IP forwarding configured on the HMC. On the HMC, a firewall is configured to only enable ports and traffic that are needed for the DS8000 connectivity. All security-sensitive configuration changes (network, firewall, remote support) can only be performed on the local HMC. For audit purposes, each network node keeps log files of user activity and authentication.

The VPN is a point-to-point connection, initiated by a proprietary VPN client on the HMC and connected to the VPN server within the IBM Demilitarized Zone (DMZ). The connectivity entry point into the IBM infrastructure is also secured by a Demilitarized Zone (DMZ). The VPN employs the IPSec protocol with Triple DES encryption algorithm (168-bit). Triple DES (3DES) is a strong form of encryption that allows sensitive information to be transmitted over untrusted networks.

Hardware Management Console (HMC)

The HMC is installed in the base frame of a DS8000 when configured as an internal console (Feature Code 1100), or is installed in a custom-supplied 19-inch rack when configured as an external console (Feature Code 1110). The external console feature is designed to provide a redundant HMC to eliminate a potential single point of failure if the internal HMC should fail or require maintenance. Both of these HMCs can perform the same functions.

The HMC is a closed system with no support for customer installation of software or program packages. Standard command-line access is disable. All but the least authoritative user have authentication schemes that require a current IBM employee to provide and access code.

The HMC provides the following functions:

- Call Home Support
- Local Service and Support
- Remote Service and Support
- LPAR Management
- Storage Configuration
- Copy Services Invocation

Section 1 - Call home support

When a DS8000 recognizes a hardware component failure or a predictive analysis shows that a component should be replaced, the HMC is notified that support is required. Depending upon the customer-selected notification process, the HMCs initiated a service action either by dialing IBM using the integrated modem or by connecting to IBM through the secure high-speed VPN connection. Error and

problem determination data is send from the DS8000 to the HMC in preparation for forwarding to IBM for analysis.

Section 2 - Local service and support

IBM Service and Support Representative (SSR) uses the HMC for all service actions. Service actions include initial installation, hardware upgrades, installation of updated licensed machine code, problem determination, and replacement of failed or failing components.

Section 3 - Remote service and support

IBM Service personnel that are located outside of the customer facility might need to log on to the HMC to provide service and support. The available methods for IBM to connect to the HMC are configured by the IBM SSR at the direction of the customer, and can include dial-up only access or access through the secure high-speed VPN connection. The secure high-speed VPN connection is the preferred method of attachment.

Section 4 - LPAR management

Customers can access the HMC to allow them to manage optional LPAR environments. This access allows the configuration, activation, and deactivation of logical partitions.

Section 5 - Storage Configuration

The HMC is required for all customer storage configuration operations. One of the components of the HMC is the CIM Server, which provides the SNIA compliant SMI-S interface to the DS8000. All storage configuration operations are accomplished by invoking SMI-S operations, either through the DS8000 Storage Manager, the DS8000 command-line interface (CLI), or through and SMI-S compliant storage management agent, such as the IBM TotalStorage Productivity Center (TPC).

The HMC also contains an instance of the DS Storage manager, which can be used by the customer to initiate storage configuration operations.

Section 6 - Copy Service Invocation

The same CIM server that supports storage configuration is also used to initiate Advance Copy Services operations. The HMC is required only to initiate changes to the Copy Services environment. Existing Copy Services relationships (such as Flashcopy pairs of PPRC pairs) continue to operate as designed even in the absence of the HMC. Copy Services operations against count key data (CKD) volumes can also be initiated through inband channel commands issued across FICON channels from zSeries hosts. These commands are issued directly to the DS8000 and can be run without support from the HMC.

High speed connection requirement

IBM's recommended service connection is through the high-speed VPN network that uses a secure Internet connection. This connection is preferred for the following reasons:

- Remote service is carried out using a graphical interface (WebSM).

- Problem determination activity logs, error logs, and diagnostic dumps, which might be required to effectively diagnose error conditions can be large.

While IBM recommends configuring the customer network to support connection through the Internet, all support functions can be performed through the asynchronous modem connection if the high-speed network is not available for any reason.

HMC security considerations

Allowing access between the Internet and computers in a customer network raises valid security concerns which must be addressed. IBM has taken a number of necessary steps to provide network access for the HMC.

Section 4.1 - Security mechanism 1 - HMC must initiate session

The first security mechanism that is employed to protect the HMC is to only allow VPN sessions or conversations to be initiated from the HMC itself. This means that there are no applications running on the HMC that are ″listening″ on the TCP/IP ports to establish a VPN session. If a session is needed from the HMC to enable a service action, an IBM Service representative can initiate this session by dialing into the HMC using a non-TCP/IP modem connection and requesting that the HMC establish the session.

This session will, of course, only be initiated to one of the defined TCP/IP addresses that represent the IBM Service centers.

At installation time, the customer can decide to allow a service session to be removed manually only through the HMC interface. These installation options are briefly described below and in more detail in the *DS8000 Installation and Planning Guide*.

Section 4.2 - Security mechanism 2- Public key encryption

The HMC uses a public key encryption mechanism to maintain integrity and authenticity of data exchanged between the HMC and the IBM Service organization. For server authentication, each HMC generates a certificate based on the private key that the HMC uses for Secure Sockets Layer (SSL) based encryption and decryption. IBM is acting as its own Certificate Authority in the generation of these keys.

During the installation process at the customer site, the IBM SSR connects to the IBM Service organization, through a modem, Internet connection, or the SSRs portable console, and transmits the certificate for the installed HMC to a database maintained within the IBM secure network. Whenever IBM Service requires access to the HMC that is located at the customer site, authorized IBM personnel retrieves the HMC-specific certificate from the database and uses this key to establish the communication session needed for service.

Section 4.3 - Security mechanism 3 - Login security

Once a secure network connection and session are established, the IBM Service personnel can log on to the HMC to collect problem determination information and send this information to the IBM data collection site.

If problem analysis shows that additional actions are needed, the next level of IBM service might require a high level of access to the DS8000. If this if the case, all of the previous security measure also apply, but to obtain a higher level of authorization, the service organization is required to log on to secure user IDs on the HMC. These user IDs are protected by an authentication scheme which requires the IBM Service personnel to access a secure online database within IBM. This level of protection ensures that only active IBM Service personnel have access to this security mechanism and therefore access to request these higher privileged user IDs.

Section 4.4 - Command line security

For command-line access from a remote IBM location, Secure Shell (SSH) is used. The SSH daemon on the HMC accepts client connections only if an IBM VPN is up, and a Product Engineer is currently logged on to the HMC. For SSH client authentication a private/public key algorithm provides maximum security.

Section 4.5 - Security summary

There are only two options available for providing service to the DS8000. Those options are for a person to be physically at the HMC, using its local interface, or at the IBM Service center using a VPN interface. Even in the customer, or any other individual, has the necessary tools to connect to the VPN service interface on the HMC, there is no way to establish that connection, because there is no application running on the HMC to accept the connection, only to initiate it. The only option is to instruct the HMC to establish the VPN connection, either through the modem or a locally attached keyboard. The HMC always establishes that session to the defined IBM TCP/IP addresses, not to another server or workstation.

Remote support configuration options

During the installation of the DS8000, the IBM SSR sets the customer preferences for remote support. These preference are specified for both call-home and call-back support.

Section 5.1 - Call home support options

The customer can choose whether to allow the HMC to automatically initiate a request to IBM whenever a serviceable event occurs. If the customer chooses to allow this automatic initiation, the customer can further define if this will be done through the VPN connection or through the modem, or both. When VPN is allowed and the customer has a firewall that isolates its network from the Internet, the firewall must be configured to allow this connection, as defined in VPN Network Settings.

In addition to notifying IBM, the HMC can be configured to send e-mail and SNMP notifications to a server on the customer network.

Section 5.2 - Call back support options

These options define how the HMC responds to the IBM Service organization by establishing a non-TCP/IP inbound connection to the HMC. The default option allows IBM to establish an inbound connection at any time. If this option is chosen or defaulted and if the Call home settings allow connectivity through VPN, IBM is

then authorized to call into the HMC through the modem and tell the HMC to establish the VPN session (as described previously in ″HMC Security Considerations″).

A second option only allows IBM to initiate a point-to-point inbound connection through the modem for a number of days following a Call Home event for a serviceable action. If this option is chosen, the customer can also choose the number of days that the inbound connection will be allowed.

A third option only allows IBM to initiate a point-to-point inbound connection through the modem for a specified number of days. As with the previous option, the customer can choose the number of days that the inbound connection will be allowed.

The final option does not allow unattended inbound connections at all. If this option is chosen and remote support is needed to complete any problem determination, the customer is instructed to used the HMC interface to manually initiate the VPN connection, either through the Internet or through the modem, and remain in attendance at the HMC until the problem determination session has completed.

VPN network settings

When the customer decides to allow the high speed VPN connection for serviceability, and there is a firewall in place between the customer network and the Internet, the firewall must be configured to allow the HMC to connect to the IVM secure servers. THe HMC establishes connections to the following TCP/IP addresses:

- 207.25.252.196 - IBM Boulder VPN Server
- 129.42.160.16 - IBM Rochester VPN Server

If using PAcket Filters alone, the HMC or i5/OS must have a globally routable address (either static of dynamically assigned by an ISP) and the following protocols and ports must be open to the IBM VPN Gateways:

1. UDP (Port 500)
2. ESP (IP Protocol 50)

If using Network Address Translation (NAT or PAT) along with Packet Filters, the following protocol and ports much be open to the IBM VPN Gateways:

1. UDP (Port 500 and 4500)

In the NAT scenario, UDP Encapsulation is used.

Although the VPN connection is always initiated by the HMC, any firewall within the VPN path must allow traffic for the ports previously mentioned in both directions. Usually this is accomplished by a 'stateful' firewall that opens inbound traffic only if a previous outbound connection has occurred.

Following is an example of how these permissions would be defined, based on a typical firewall:

```
access-list Outside_to_DMZ permit esp host 207.25.252.196 host <HMC IP address>
access-list DMZ_to_Outside permit esp host 129.42.160.16 host <HMC IP address>
access-list DMZ_to_Outside permit esp host 207.25.252.196 host <HMC IP address> eq 500
access-list DMZ_to_Outside permit esp host 129.42.160.16 host <HMC IP address> eq 500
access-list DMZ_to_Outside permit esp host 207.25.252.196 host <HMC IP address> eq 4500
access-list DMZ_to_Outside permit esp host 129.42.160.16 host <HMC IP address> eq 4500
```

Additional security measures

The following list of additional security measures ensures maximum network security for the DS8000 and HMC:

- All nontrusted network commands and service are either disabled or completely removed (that is, the Berkeley r-commands, Sun RPC commands, telnet clients.
- As recommended in the US Department of Energy CIAC bulletin, all nonessential Internet daemons are either not installed (ftp, telnet), or disabled.
- All unused Internet ports are disabled.
- All nonessential TCP/IP commands have been removed.
- The root user account is locked, and is not a login user.
- A nonauthenticated user does not have access to a command line or shell.
- In order to gain privileged access, a one time challenge/key password is used that ensures that only current IBM employees can gain access.
- Neither Domain Name Service (DNS) nor any standard TCP/IP services (ftp, telnet) are available for remote connections.

FTP offload option

As an alternative to a VPN connection through the Internet, the HMC can be set up to use the file transfer protocol (ftp) for sending error data to IBM. It is the customer's responsibility to provide a secure path from the HMC to the destination server (testcase.software.ibm.com) on the Internet. Usually this involves some kind of ftp proxy or relay firewall. The HMC supports different types of ftp firewalls:

- type 1: Connect to firewall host, but send `USER user real host name`.
- type 2: Connect to firewall, log in with `USER fwuser` and `PASS fwpassword`, and then `USER user real host name`.
- type 3: Connect to and log in to firewall, and then use `SITE real.host.name`, followed by the regular `USER` and `PASS`.
- type 4: Connect to and log in to firewall, and then use `OPEN real.host.name`, followed by the regular `USER` and `PASS`.
- type 5: Connect to firewall host, but send `USER user wuser@real.host.name` and `PASS pass fwpass` to log in.
- type 6: Connect to firewall host, but send `USER fwuser real host name` and `PASS fwpass` followed by a regular `USER user` and `3PASS pass` to log in.
- type 7: Connect to firewall host, but send `USER user real host name fwuser` and `PASS pass` followed by `ACCT fwpass` to log in.
- type 8 : Connect to firewall host, but send `USER user real host name:port`.
- type 9: Connect to firewall host, but send `USER user real host name port`.

Connectivity using ftp is also required for downloading DS8000 codes packages from an internal IBM remote code repository on the Internet. Although the ftp protocol by itself does not encrypt data, a digital signature guarantees authenticity and integrity of DS8000 code packages.

Data transfer using ftp only involves the ftp client on the HMC, connecting to e remote ftp server. There is no support for inbound ftp sessions. On the HMC, all ftp servers are removed.

Regardless of the type of connectivity (VPN or ftp), no customer data is ever transmitted to IBM.

Chapter 59. Unused connectors

This section describes the unused connectors in the IBM System Storage DS8000 series. If the storage facility is being installed in the Taiwan geography, review this section for information about the cable connectors that are not used.

CEC enclosure control panel

Table 548 describes the unused connector shown in Figure 975.

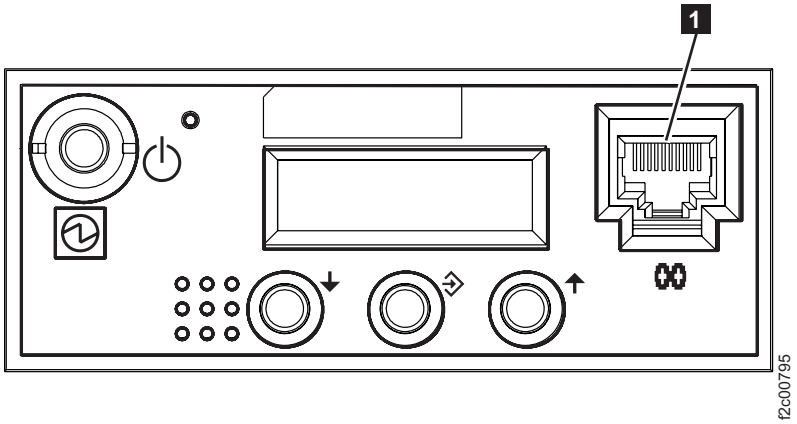


Figure 975. CEC enclosure control panel - unused connectors

Table 548. Unused connectors for the CEC enclosure control panel

Index	Unused Connector	Quantity (Minimum/ Maximum)	Description
1	Ethernet	2	The network connection is through the HMC. The RJ45 network connectors on the two 9117's are not used by the DS8000.

CEC enclosure, front

Table 549 on page 2220 describes the unused connectors in Figure 976.

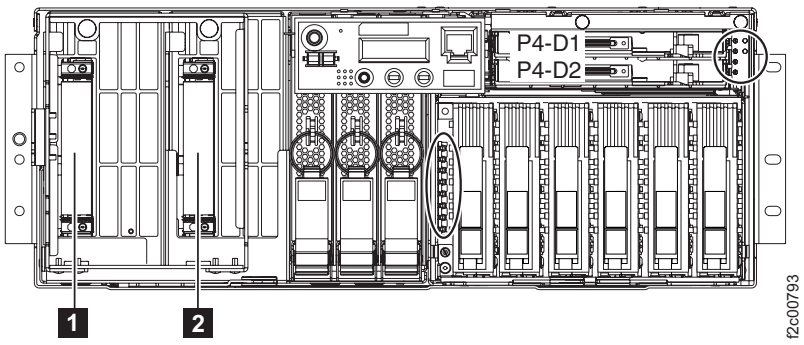


Figure 976. CEC enclosure (front) - unused connectors

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Table 549. Unused connectors - front CEC enclosure

Index	Unused Connector	Quantity (Minimum/ Maximum)	Description
1, 2	System processor card expansion bus	2/4	The front system bus connectors are used to attach multiple 9117's on the same bus to increase the number of processors. The 9117's in the DS8000 are used for redundancy only and will never be connected in parallel. Use of these connectors is not supported by the DS8000 and will cause system failures if connected.

CEC enclosure, rear

Table 550 describes the unused connectors shown in Figure 977.

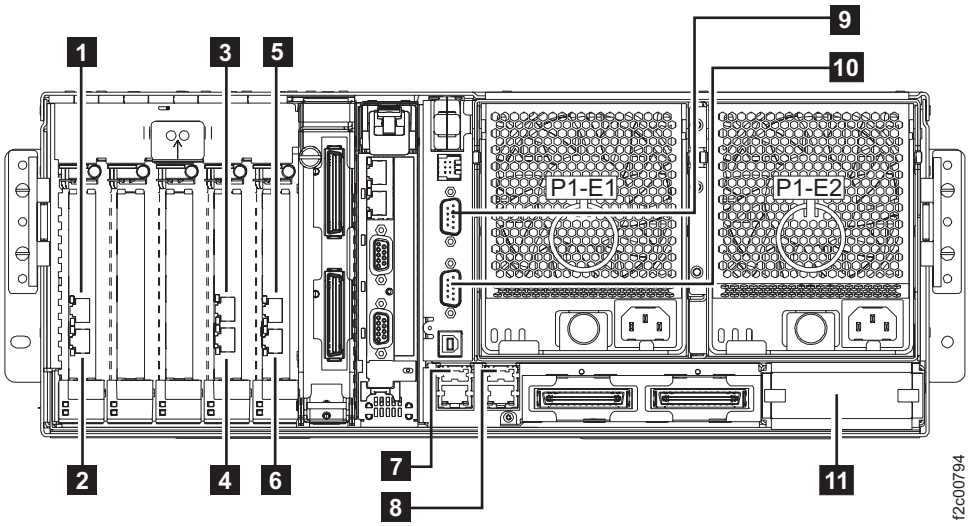


Figure 977. CEC enclosure (rear) - unused connectors

Table 550. Unused connectors - rear CEC enclosure

Index	Unused Connector	Quantity (Minimum/ Maximum)	Description
1, 2, 3, 4, 5, 6	Ethernet port	0/4	The DS8000 supports Ethernet network adapters for system partitioning, but only in a LPAR system configuration.
7, 8, 9, 10	USB/serial port	4/4	The 9117's are redundant controllers for the DS8000. The USB and serial ports of the 9117's are not supported in the DS8000 operating system and will cause system errors if connected.

Table 550. Unused connectors - rear CEC enclosure (continued)

Index	Unused Connector	Quantity (Minimum/ Maximum)	Description
11	External system bus	2/2	The front system bus connectors are used to attach multiple 9117's on the same bus to increase the number of processors. The 9117's in the DS8000 are used for redundancy only and will never be connected in parallel. Use of these connectors is not supported by the DS8000 and will cause system failures if connected.

I/O enclosure, slots

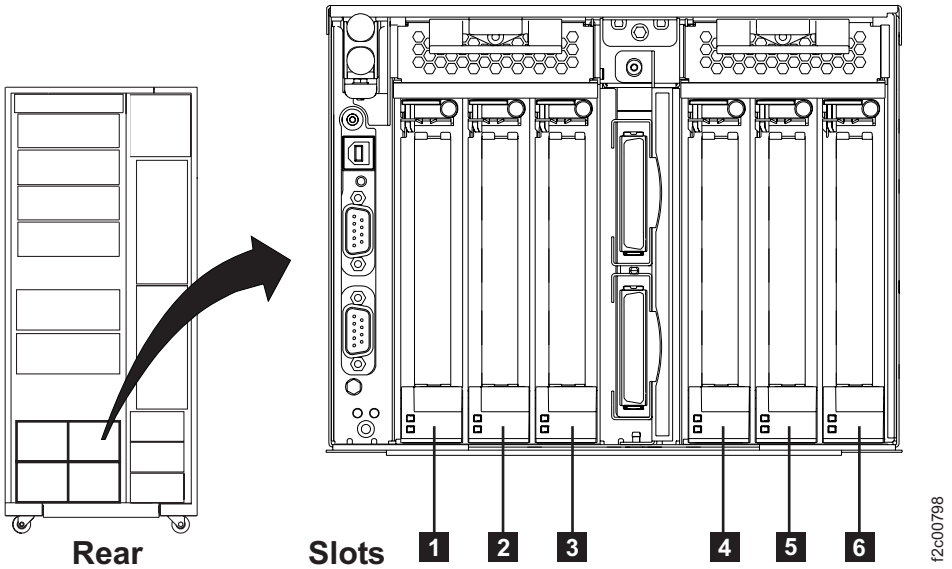


Figure 978. I/O enclosure slots - unused connectors

I/O enclosure, device adapter card

Table 551 on page 2222 describes the unused connectors shown in Figure 979 on page 2222.

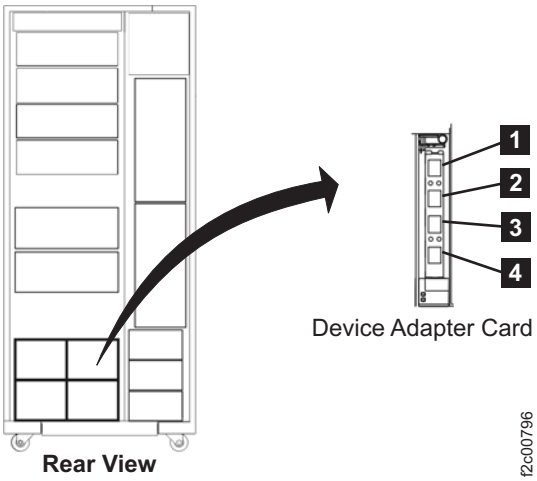


Figure 979. I/O enclosure - unused connectors for device adapter cards

Table 551. Unused connectors - I/O enclosure, device adapter card

Index	Unused Connector	Quantity (Minimum/ Maximum)	Description
1, 2, 3, 4	Fibre channel arbitrated loop port	4/4	The device adapter (DA) cards are plugged in slot 3 or 6 of the I/O enclosure Figure 978 on page 2221. The number of DA cards varies with the installed features. DA card ports 1/2 and 3/4 are each an FC-AL loop. Both ports for a loop will have cables if there are storage enclosures installed using those ports. Both ports for a loop can also be unused and available for potential future use. It is not necessary to externally terminate unused ports.

I/O enclosure, ESCON host card

Table 552 on page 2223 describes the unused connectors in Figure 980 on page 2223

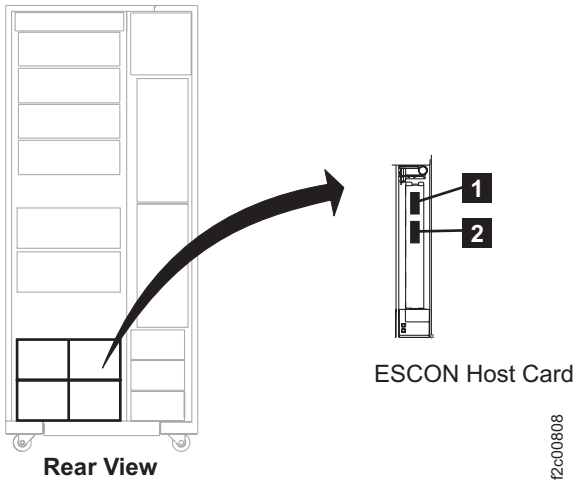


Figure 980. I/O enclosure, unused connectors ESCON host card

Table 552. Unused connectors - I/O enclosure, ESCON host card

Index	Unused Connector	Quantity (Minimum/ Maximum)	Description
1, 2	ESCON host connection port	0/64	The ESCON host adapter cards are plugged in slot 1, 2, 4, or 5 of the I/O enclosure Figure 978 on page 2221. The number of ESCON host cards varies with the installed features. The customer provides ESCON cables and determines how many ports to use. It is not necessary to externally terminate unused ports.

I/O enclosure, fibre channel host card

Table 553 on page 2224 describes the unused connectors in Figure 981.

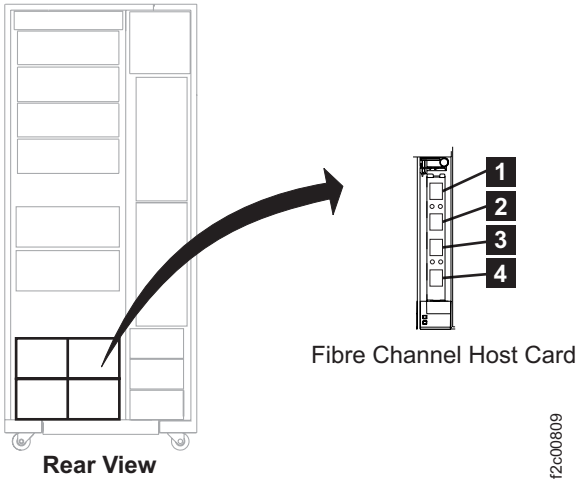


Figure 981. I/O enclosure, unused connectors fibre channel host card

Table 553. Unused connectors - I/O enclosure, fibre channel host card

Index	Unused Connector	Quantity (Minimum/ Maximum)	Description
1, 2	Fibre channel host connection port	0/64	The fibre channel host adapter cards are plugged in slot 1, 2, 4, or 5 of the I/O enclosure Figure 978 on page 2221. The number of fibre channel host cards varies with the installed features. The customer provides fibre channel host cables and determines how many ports to use. It is not necessary to externally terminate unused ports.

x336 management console (HMC), front view

Table 554 describes the unused connectors in Figure 982.

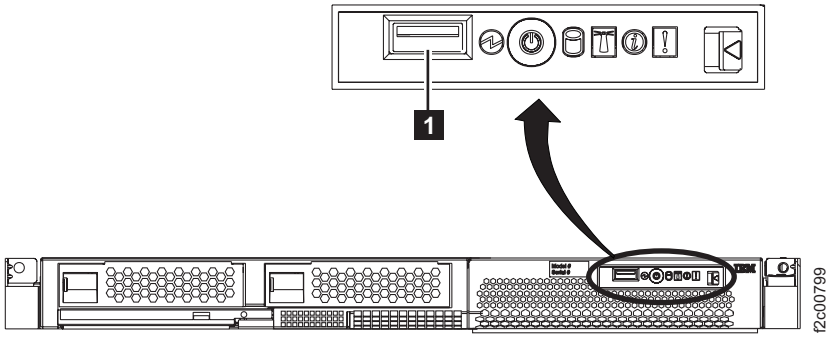


Figure 982. x336 front view - unused connectors

Table 554. Unused connectors - x336 (front)

Index	Unused Connector	Quantity (Minimum/ Maximum)	Description
1	USB port	2	DS8000 has one network connection. Cable entry to the DS8000 is from the rear of the system. Therefore, the network connection is to the rear of the HMC and this connector is not used.

x336 management console (HMC), rear view

Table 555 on page 2225 describes the unused connectors in Figure 983.

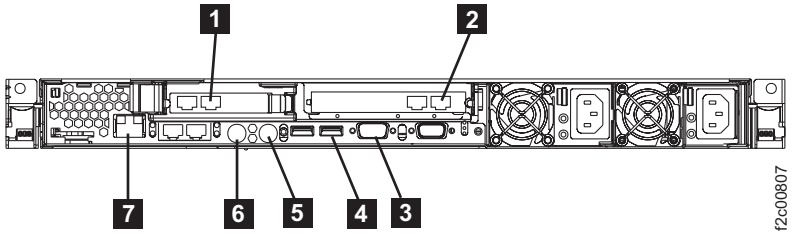


Figure 983. x336 rear view - unused connectors

Table 555. Unused connectors - x336 (rear)

Index	Unused Connector	Quantity (Minimum/ Maximum)	Description
1	Ethernet port	2	The PCI Ethernet card has two ports; only one is needed for the DS8000.
2, 4, 5, 6, 7	USB/Modem phone port	2	The rear Ethernet, firewire, serial, RS232, mouse, and keyboard of the HMC are unsupported in the application of the 8837 and not supported by the DS8000 system hardware.
3	Proprietary outgoing multi-drop keyboard/ display port	2	Not used for DS8000. The incoming port is used, but since there are no multiple display connections, the outbound port is not needed.

Rack power and cooling, RPC card

Table 556 describes the unused connectors in Figure 984.

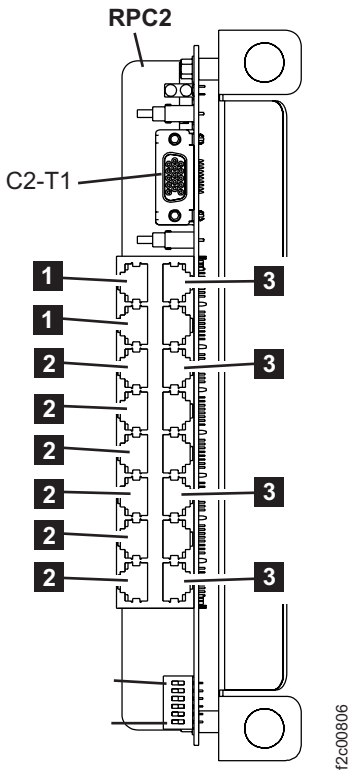


Figure 984. RPC card - unused connectors

Table 556. Unused connectors - RPC card

Index	Unused Connector	Quantity (Minimum/ Maximum)	Description
1	Rack power control port	4	Only used if optional expansion racks 1 or 2 are installed.

Table 556. Unused connectors - RPC card (continued)

Index	Unused Connector	Quantity (Minimum/ Maximum)	Description
2, 3	Rack power control port	10	Reserved for potential future use. A system error may occur if cables are connected to any of these ports under the current configuration.

Rack power and cooling, rack ID card

Table 557 describes the unused connectors in Figure 985.

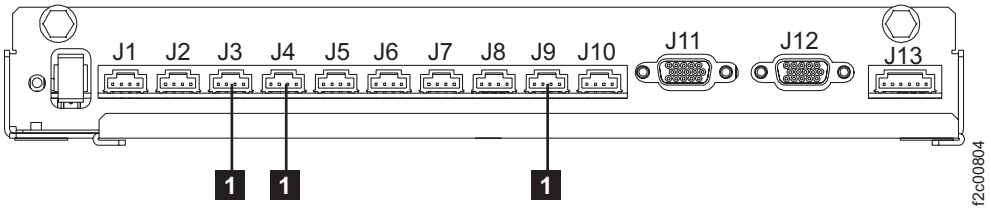


Figure 985. Rack ID card - unused connectors

Table 557. Unused connectors - rack ID card

Index	Unused Connector	Quantity (Minimum/ Maximum)	Description
1	Rack identify signals	4	Cabled on a base rack (first rack). Not used on an expansion rack.

Rack power and cooling, fan sense card

Table 558 on page 2227 describes the unused connectors in Figure 986 on page 2227.

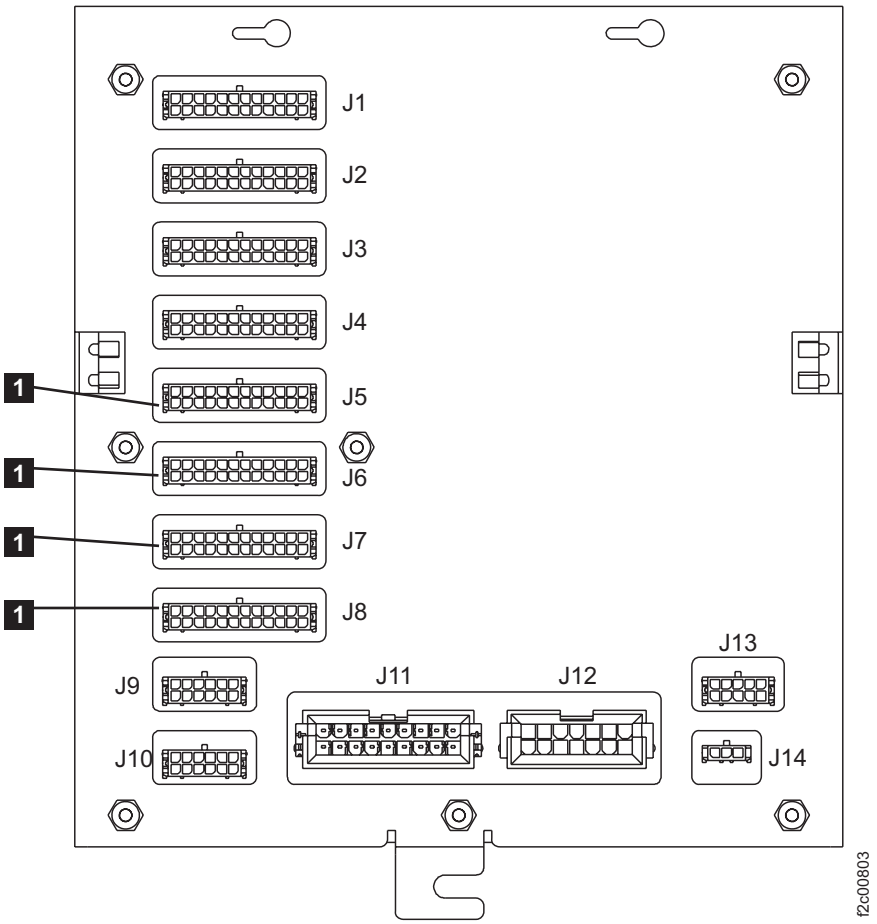


Figure 986. Fan sense card - unused connectors

Table 558. Unused connectors - fan sense card

Index	Unused Connector	Quantity (Minimum/ Maximum)	Description
1	Fan sense control signals port from storage enclosures	8	Not used on a base rack (first rack). Ports are used in an expansion rack depending on how many optional storage enclosures are installed in the bottom half of the rack.

Rack power and cooling, primary power supply

Table 559 on page 2228 describes the unused connectors in Figure 987 on page 2228.

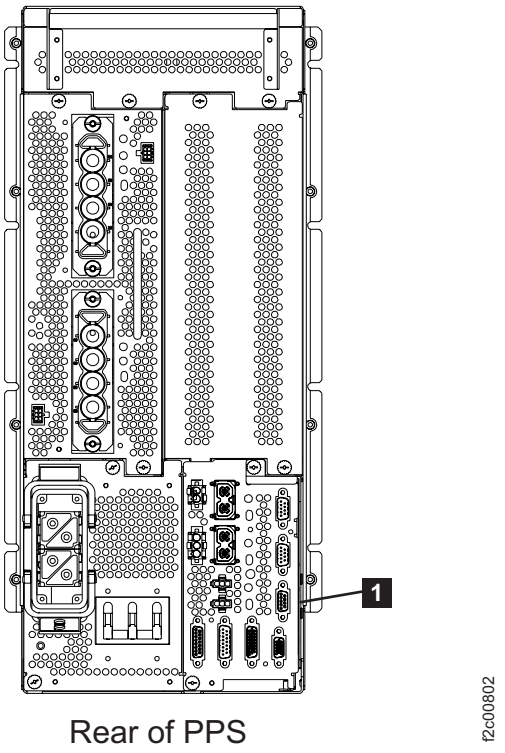


Figure 987. Primary power supply - unused connector

Table 559. Unused connectors - primary power supply

Index	Unused Connector	Quantity (Minimum/ Maximum)	Description
1	Signals to rack ID card	2	Cables are connected for expansion racks only.

Storage enclosure

Table 560 on page 2229 describes the unused connectors in Figure 988.

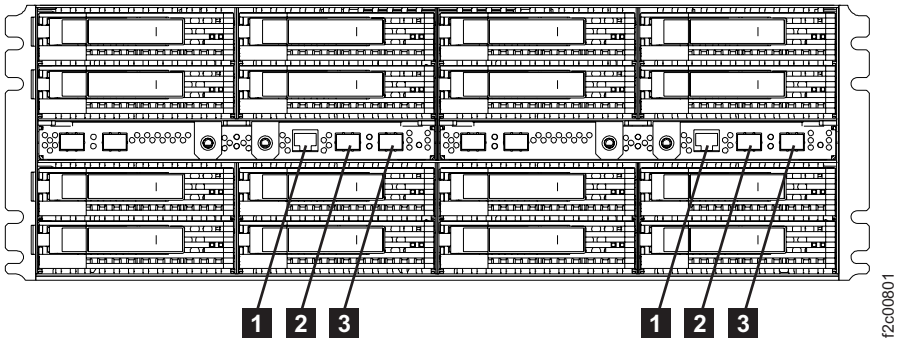


Figure 988. Storage enclosure - unused connectors

Table 560. Unused connectors - storage enclosure

Index	Unused Connector	Quantity (Minimum/ Maximum)	Description
1	Card build test port	2 per storage enclosure	Used for card build test or debug port.
2, 3	Fibre channel arbitrated loop	4 per storage enclosure	The fibre channel in the storage facility is configured in strings. The ends of the strings will always be open. Connecting cables will cause system errors.

Ethernet switch

Table 561 describes the unused connectors in Figure 989.

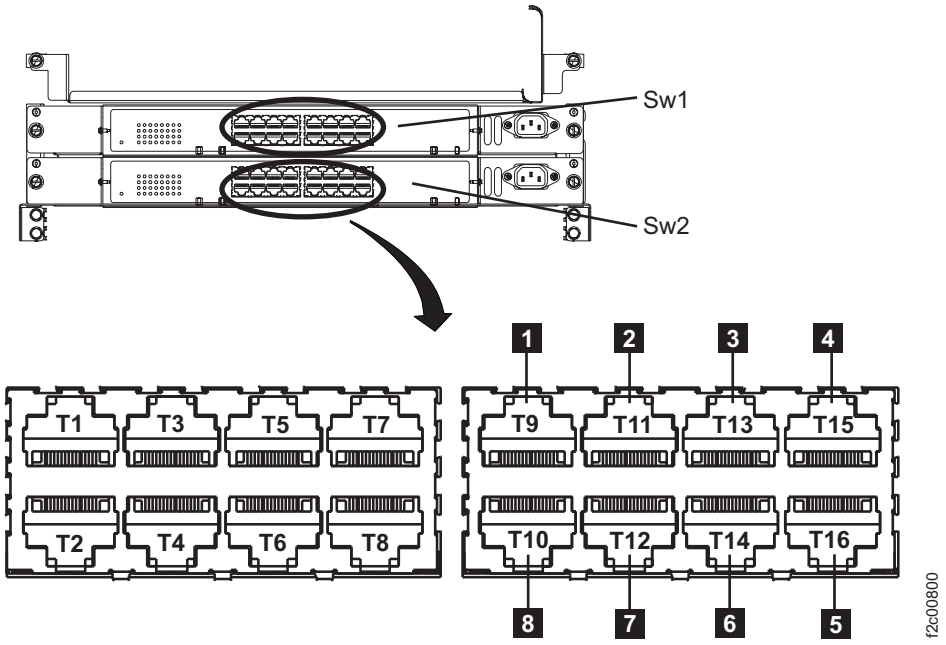


Figure 989. Ethernet switch - unused connectors

Table 561. Unused connectors - Ethernet switch

Index	Unused Connector	Quantity (Minimum/ Maximum)	Description
1, 2, 3, 4, 5, 6, 7, 8	Ethernet port	12	Reserved for potential future use. A system error may occur if cables are connected to any of these ports under the current configuration.

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Accessibility features provide users who have disabilities with the ability to successfully access information and use technology.

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully.

Features

These are the major accessibility features in the IBM System Storage DS8000 information:

- You can use screen-reader software and a digital speech synthesizer to hear what is displayed on the screen. IBM Home Page Reader version 3.0 has been tested.
- You can operate features using the keyboard instead of the mouse.

Navigating by keyboard

You can use keys or key combinations to perform operations and initiate menu actions that can also be done through mouse actions. You can navigate the IBM System Storage DS8000 information from the keyboard by using the shortcut keys for your browser or Home Page Reader. See your browser Help for a list of shortcut keys that it supports. See the following Web site for a list of shortcut keys supported by Home Page Reader: http://www-306.ibm.com/able/solution_offerings/keyshort.html

Accessing the publications

You can find HTML versions of the IBM System Storage DS8000 information at the following Web site: http://www.ehone.ibm.com/public/applications/publications/cgibin/pbi.cgi

You can access the information using IBM Home Page Reader 3.0.

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Zulassungsbescheinigung laut Gesetz ueber die elektromagnetische Vertraeglichkeit von Geraeten (EMVG) vom 30. August 1995.

Dieses Geraet ist berechtigt, in Uebereinstimmung mit dem deutschen EMVG das EG-Konformitaetszeichen - CE - zu fuehren.

Der Aussteller der Konformitaetserklaeung ist die IBM Deutschland.

Informationen in Hinsicht EMVG Paragraph 3 Abs. (2) 2:

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Das Geraet erfuellt die Schutzanforderungen nach EN 50082-1 und
EN 55022 Klasse A.
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EN 55022 Klasse A Geraete beduerfen folgender Hinweise:

Nach dem EMVG:

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"Geraete duerfen an Orten, fuer die sie nicht ausreichend entstoert
sind, nur mit besonderer Genehmigung des Bundesministeriums
fuer Post und Telekommunikation oder des Bundesamtes fuer Post und
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betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Stoerungen zu erwarten sind." (Auszug aus dem EMVG, Paragraph 3, Abs.4)

Dieses Genehmigungsverfahren ist nach Paragraph 9 EMVG in Verbindung mit der entsprechenden Kostenverordnung (Amtsblatt 14/93) kostenpflichtig.

Nach der EN 55022:

"Dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstoerungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Massnahmen durchzufuehren und dafuer aufzukommen."

Anmerkung:

Um die Einhaltung des EMVG sicherzustellen, sind die Geraete wie in den Handbuechern angegeben zu installieren und zu betreiben.

Japanese Voluntary Control Council for Interference (VCCI) class A statement

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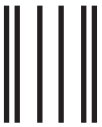
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