

Lucent Technologies
Bell Labs Innovations



DEFINITY[®]
Enterprise Communications Server
Release 5
Upgrades and Additions for R5r

555-230-121
Comcode 107959116
Issue 2
April 1997

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Notice

Every effort was made to ensure that the information in this book was complete and accurate at the time of printing. However, information is subject to change.

Your Responsibility for Your System's Security

Toll fraud is the unauthorized use of your telecommunications system by an unauthorized party, for example, persons other than your company's employees, agents, subcontractors, or persons working on your company's behalf. Note that there may be a risk of toll fraud associated with your telecommunications system and, if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

You and your system manager are responsible for the security of your system, such as programming and configuring your equipment to prevent unauthorized use. The system manager is also responsible for reading all installation, instruction, and system administration documents provided with this product in order to fully understand the features that can introduce risk of toll fraud and the steps that can be taken to reduce that risk. Lucent Technologies does not warrant that this product is immune from or will prevent unauthorized use of common-carrier telecommunication services or facilities accessed through or connected to it. Lucent Technologies will not be responsible for any charges that result from such unauthorized use.

Lucent Technologies Fraud Intervention

If you *suspect that you are being victimized* by toll fraud and you need technical support or assistance, call Technical Service Center Toll Fraud Intervention Hotline at 1 800 643-2353.

Federal Communications Commission Statement

Part 15: Class A Statement. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Part 68: Network Registration Number. This equipment is registered with the FCC in accordance with Part 68 of the FCC Rules. It is identified by FCC registration number AS593M-13283-MF-E. Refer to "Federal Communications Commission Statement" in "About This Book" for more information regarding Part 68.

Canadian Department of Communications (DOC)

Interference Information

This digital apparatus does not exceed the Class A limits for radio noise emissions set out in the radio interference regulations of the Canadian Department of Communications.

Le Présent Appareil Numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Trademarks

See the preface of this document.

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For additional documents, refer to the section in "About This Document" entitled "Related Resources."

You can be placed on a standing order list for this and other documents you may need. Standing order will enable you to automatically receive updated versions of individual documents or document sets, billed to account information that you provide. For more information on standing orders, or to be put on a list to receive future issues of this document, contact the Lucent Technologies Publications Center.

European Union Declaration of Conformity

The "CE" mark affixed to the DEFINITY® equipment described in this book indicates that the equipment conforms to the following European Union (EU) Directives:

- Electromagnetic Compatibility (89/336/EEC)
- Low Voltage (73/23/EEC)
- Telecommunications Terminal Equipment (TTE) i-CTR3 BRI and i-CTR4 PRI

For more information on standards compliance, contact your local distributor.

Comments

To comment on this document, return the comment card at the front of the document.

Acknowledgment

This document was prepared by Product Documentation Development, Lucent Technologies, Denver, CO.

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Contents

About This Book

This book provides procedures and information for upgrading and updating an assortment of existing systems to a DEFINITY[®] Enterprise Communications Server Release 5. It also contains instructions for adding equipment to an existing system.

This document covers information related to DEFINITY ECS Release 5, and includes all incremental releases up to and including Release 5.4. For details about changes for Release 5.4, refer to *DEFINITY Enterprise Communications Server Release 5.4.0, Change Description*.

This book is intended for use by trained installation technicians.

Administration

Use the management terminal, connected to the control carrier, to enter commands to access and display screens (forms). The forms list data and allow you to add, change, and remove system and voice terminal features. System administration is detailed in *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*.

Security Issues

To ensure the customer of the greatest security possible, Lucent Technologies offers services that can reduce toll fraud liabilities. Contact your Lucent Technologies representative for more security information.

Login security is an attribute of the DEFINITY Enterprise Communications Server (ECS) software. Advise customers that their existing passwords expire 24 hours after the upgrade. Also explain that the new passwords must conform to strict requirements.

Upgrades and Additions

An upgrade changes the hardware and software of a previously installed system to the hardware and software of a later system version or release. An upgrade is performed when call processing demands an increased system size, an enhanced feature set is needed, or other changes in customer requirements are needed.

An addition consists of adding voice terminals, circuit packs, cabinets, carriers or software features to an existing system without upgrading the version of the system. The system design makes additions and upgrades easy and aids a customer in planning and managing system growth. All additional hardware installation instructions are provided in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

For adjunct and peripheral installation instructions, refer to *DEFINITY Enterprise Communications Server Release 5 Installation for Adjuncts and Peripherals*.

Upgrade Paths

Table 1 correlates each software upgrade to an associated chapter number within this manual.

⇒ NOTE:

The upgrade paths described in this book assume the system being upgraded is at the level of a G3 V2, V3, or V4. To upgrade prior systems to this starting point, refer to *DEFINITY Communications System Generic 3 Upgrades and Additions*.

Table 1. Software and Hardware Upgrade Chapters

Description	Chapter
G3r V2, V3, or V4 to Release 5r (hardware and software)	1
G3r V4 to Release 5r (software only)	2
Release 5 with a TN790 Processor to a Release 5r	3
Multi-Carrier G2 Universal Module to Release 5 si + Memory EPN	4
Single-Carrier Cabinet G2 Universal Module to Release 5 si + Memory EPN	5

If upgrading to a DEFINITY ECS Release 5vs or si, refer to *DEFINITY Enterprise Communications Server Release 5 Upgrades and Additions for R5vs/si*.

If upgrading from a pre-Release 5vs to a Release 5vs, refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Upgrades for R5vs*.

Anti-Static Protection

CAUTION:

When handling circuit packs or any components of a DEFINITY System, always wear a wrist ground strap. Connect the strap to an approved ground such as an unpainted metal surface on the DEFINITY System.

Conventions Used in This Book

This book uses the following conventions:

- Information you type is shown in the following typeface:
save announcements
- Information displayed on the screen is shown in the following typeface:
login:
- Keyboard keys are shown as follows: Enter
- Circuit pack codes (for example, TN772 or TN777B) are shown with the *minimum acceptable* alphabetic suffix (like the “B” in the code “TN777B”).

Generally, an alphabetic suffix higher than the one shown is also acceptable. However, not every *vintage* of either the minimum suffix or a higher suffix code is necessarily acceptable.

NOTE:

Refer to *Technical Monthly: Reference Guide for Circuit-Pack Vintages and Change Notices*, for current information about the usable vintages of specific circuit pack codes (including the suffix) in a Release 5 system.

The following conventions describe the systems referred to in this book.

- The word *system*, is a general term encompassing Release 5 and includes references to the DEFINITY Enterprise Communications Server.
- DEFINITY Systems in this book are called: G3rV4, Release 5; and Release 5r.
- Older DEFINITY Communications Systems Generic 3r Systems are referred to as G3r.
- All occurrences of G3rV4 and Release 5r are called Release 5r unless a specific configuration is required to differentiate between product offerings.
- Information in this book is applicable for G3V4 through Release 5, unless otherwise specified.
- DEFINITY Enterprise Communications Server is abbreviated DEFINITY ECS.

Related Books

The following books are useful for system-related information:

- *DEFINITY Enterprise Communications Server Release 5 System Description Pocket Reference*, 555-230-210
- *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*, 555-230-122
- *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5vs/sj*, 555-230-123
- *AT&T Network and Data Connectivity Reference*, 555-025-201
- *BCS Products Security Handbook*, 555-025-600
- *DEFINITY Wireless Business System Users Guide*, 555-232-105
- *DEFINITY Wireless Business System Installation and Test Guide*, 555-232-102
- *DEFINITY Wireless Business Systems System Interface*, 555-232-108
- *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Single-Carrier Cabinets*, 555-230-894
- *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, 555-230-112
- *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*, 555-230-522
- *DEFINITY Enterprise Communications Server Release 5 Upgrades and Additions for R5vs/sj*, 555-230-120
- *DEFINITY Enterprise Communications Server Release 5 Installation for Adjuncts and Peripherals*, 555-230-125

How to Order Books

In addition to this book, other description, installation and test, maintenance, and administration books are available. A complete list of DEFINITY books can be found in the *Business Communications System Publications Catalog*, 555-000-010.

This book and any other DEFINITY books can be ordered directly from the Lucent Technologies Business Communications System Publications Fulfillment Center at 1-317-361-5353 or toll free at 1-800-457-1235.

How to Comment on This Book

Lucent Technologies welcomes your feedback. Please fill out the reader comment card found at the front of this manual and return it. Your comments are of great value and help improve our documentation.

If the reader comment card is missing, FAX your comments to 1-303-538-1741 or to your Lucent Technologies representative, and mention this book's name and number, *DEFINITY Enterprise Communication Server Release 5 Upgrades and Additions for R5r*, 555-230-121.

Where to Call for Technical Support

Use the following telephone numbers for the region in which the system is being installed:

Region	Phone Number
Streamlined Implementation (for missing equipment)	1-800-772-5409
USA/Canada Technical Service Center	1-800-248-1234
Technical Service Center (INADS Database Administration)	1-800-248-1111
Asia/Pacific Regional Support Center	65-872-8686
Western Europe/South Africa/Middle East	441-252-391-889
Business Communications Europe	441-252-391-789
Eastern/Central Europe	361-270-5160
Latin/Central America & Caribbean - ITAC	1-303-538-4666
DEFINITY Helpline	1-800-225-7585
Lucent Technologies Toll Fraud Intervention	1-800-643-2353
Lucent Technologies Technical Service Center	1-800-242-2121
Lucent Technologies Corporate Security	1-800-822-9009

Trademarks

This document contains references to the following Lucent Technologies trademarked products:

- ACCUNET®
- AUDIX®
- Callmaster®
- CallVisor®
- CONVERSANT®
- DEFINITY®
- FORUM™
- MEGACOM®
- SYSTIMAX®
- TRANSTALK™

The following products are trademarked by their appropriate vendor:

- Audichron® is a registered trademark of Audichron Company
- LINX™ is a trademark of Illinois Tool Works, Inc.
- Music Mate® is a registered trademark of Harris Corporation
- PagePac® is a registered trademark of Harris Corporation, Dracon Division
- Shockwatch® is a registered trademark of Media Recovery, Incorporated
- Styrofoam® is a registered trademark of Styrofoam Corporation
- Tiltwatch® is a registered trademark of Media Recovery, Incorporated
- Zone Mate® is a registered trademark of Harris Corporation

Standards Compliance

The equipment presented in this book complies with the following (as appropriate):

- ITU-T (Formerly CCITT)
- ECMA
- ETSI
- IPNS
- DPNSS
- National ISDN-1
- National ISDN-2
- ISO-9000
- ANSI
- FCC Part 15 and Part 68
- EN55022
- EN50081
- EN50082
- CISPR22
- Australia AS3548 (AS/NZ3548)
- Australia AS3260
- IEC 825
- IEC 950
- UL 1459
- UL 1950
- CSA C222 Number 225
- TS001

LASER Product

The DEFINITY ECS may contain a Class 1 LASER device if single-mode fiber optic cable is connected to a remote Expansion Port Network (EPN). The LASER device operates within the following parameters:

Power Output: -5 dBm
Wavelength: 1310 nm
Mode Field Diameter: 8.8 microns
CLASS 1 LASER PRODUCT
IEC 825 1993

 **CAUTION:**

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Contact your Lucent Technologies representative for more information.

Electromagnetic Compatibility Standards

This product complies with and conforms to the following:

- Limits and Methods of Measurements of Radio Interference Characteristics of Information Technology Equipment, EN55022 (CISPR22), 1993
- EN50082-1, European Generic Immunity Standard
- FCC Parts 15 and 68
- Australia AS3548

 **NOTE:**

The system conforms to Class A (industrial) equipment. Voice terminals meet Class B requirements.

- Electrostatic Discharge (ESD) IEC 1000-4-2
- Radiated radio frequency field IEC 1000-4-3
- Electrical Fast Transient IEC 1000-4-4
- Lightning effects IEC 1000-4-5
- Conducted radio frequency IEC 1000-4-6
- Mains frequency magnetic field IEC 1000-4-8
- Low frequency mains disturbance

The system conforms to the following:

- Electromagnetic compatibility General Immunity Standard, part 1; residential, commercial, light industry, EN50082-1, CENELEC, 1991
- Issue 1 (1984) and Issue 2 (1992), Electrostatic discharge immunity requirements (EN5504, Part 2) IEC 1000-4-2
- Radiated radio frequency field immunity requirements IEC 1000-4-3
- Electrical fast transient/burst immunity requirements IEC 1000-4-4

European Union Standards

Lucent Technologies Business Communications Systems declares that the DEFINITY equipment specified in this book bearing the “CE” mark conforms to the European Union Electromagnetic Compatibility Directives.

The “CE” (Conformité Européenne) mark indicates conformance to the European Union Electromagnetic Compatibility Directive (89/336/EEC) Low Voltage Directive (73/23/EEC) and Telecommunication Terminal Equipment (TTE) Directive (91/263/EEC) and with i-CTR3 Basic Rate Interface (BRI) and i-CTR4 Primary Rate Interface (PRI) as applicable.

The “CE” mark is applied to the following Release 5 products:

- Global AC powered Multi-Carrier Cabinet (MCC)
- DC powered Multi-Carrier Cabinet (MCC) with 25 Hz ring generator
- AC powered Single-Carrier Cabinet (SCC) with 25 Hz ring generator
- AC powered Compact Single-Carrier Cabinet (CSCC) with 25 Hz ring generator
- Enhanced DC Power System

Federal Communications Commission Statement

Part 68: Statement

Part 68: Answer-Supervision Signaling. Allowing this equipment to be operated in a manner that does not provide proper answer-supervision signaling is in violation of Part 68 rules. This equipment returns answer-supervision signals to the public switched network when:

- Answered by the called station
- Answered by the attendant
- Routed to a recorded announcement that can be administered by the CPE user

This equipment returns answer-supervision signals on all DID calls forwarded back to the public switched telephone network. Permissible exceptions are:

- A call is unanswered
- A busy tone is received
- A reorder tone is received

This equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

This equipment complies with Part 68 of the FCC Rules. On the rear of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed 5.0. To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company.

 **NOTE:**

REN is not required for some types of analog or digital facilities.

Means of Connection

Connection of this equipment to the telephone network is shown in the following table.

Manufacturer's Port Identifier	FIC Code	SOC/REN/ A.S. Code	Network Jacks
Off/On Premises Station	OL13C	9.0F	RJ2GX, RJ21X, RJ11C
DID Trunk	02RV2-T	0.0B	RJ2GX, RJ21X
CO Trunk	02GS2	0.3A	RJ21X
CO Trunk	02LS2	0.3A	RJ21X
Tie Trunk	TL31M	9.0F	RJ2GX
1.544 Digital Interface	04DU9-B,C	6.0P	RJ48C, RJ48M
1.544 Digital Interface	04DU9-BN,KN	6.0P	RJ48C, RJ48M
120A2 Channel Service Unit	04DU9-DN	6.0P	RJ48C

If the terminal equipment (DEFINITY® System) causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, please contact the Technical Service Center at 1-800-248-1234. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

It is recommended that repairs be performed by Lucent Technologies certified technicians.

The equipment cannot be used on public coin phone service provided by the telephone company. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

This equipment, if it uses a telephone receiver, is hearing aid compatible.

G3r V2, V3, or V4 to Release 5r with Memory Addition

1

This chapter provides the information necessary to perform a hardware and software upgrade from a DEFINITY G3r V2, V3, or V4 to a DEFINITY Enterprise Communications Server Release 5r System. Also refer to the following documents:

- *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*
- *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*

Installation Requirements

If your system does not contain three TN1650B Memory circuit packs and a TN1657 Disk Drive Vintage 4 (or later), use this chapter for the hardware and software upgrade to Release 5.

If your system already has three TN1650B Memory circuit packs and a TN1657 Disk Drive Vintage 4 (or later), skip to Chapter 2, "G3r V4 to Release 5r without Memory Addition" for a software-only upgrade to Release 5.



CAUTION:

Before inserting or removing a circuit pack from a cabinet, wear a wrist strap and attach its plug or clip to the cabinet's metal frame.

Task Tables

Table 1-1 and Table 1-2 are the high-level tasks to perform the upgrades in this chapter.

Table 1-1. Tasks to Upgrade to Release 5r with Memory (Standard Reliability)

√	Task Description	Page
	Disable Scheduled Maintenance	1-6
	Insert Tape into Tape Drive	1-6
	Configure Tape Large (G3r V2 and G3r V3 Release 31.0 and Earlier Only)	1-7
	List Configuration Software Long	1-7
	Disable TTI	1-7
	Disable Alarm Origination to INADS	1-7
	Save Translations to Release 5 Tape	1-7
	Save Announcements to Disk	1-8
	Copy Announcements to Release 5 Tape	1-8
	Change Disk Drive (If not TN1657 Vintage 4 or Later)	1-9
	Restore Disk Full	1-9
	Power Down SPE	1-9
	Install Memory Circuit Pack	1-9
	Power Up the SPE	1-10
	List Configuration Software Long	1-10
	List Configuration Control	1-10
	Configure Tape 3-Mem (G3r V2 and G3r V3 Release 31.0 and Earlier Only)	1-10
	Enable TTI	1-11
	Enable Scheduled Maintenance	1-11
	Enable Customer Options	1-11
	Back Up Disk	1-11
	Resolve Alarms	1-12
	Contact INADS to Enable Customer Options and Alarm Origination	1-12

**Table 1-2. Tasks to Upgrade to Release 5r with Memory
(High or Critical Reliability)**

√	Task Description	Page
	Disable Scheduled Maintenance	1-12
	Insert Tapes into Tape Drives	1-12
	Configure Tape SPE-A Large (G3r V2 and G3r V3 Release 31.0 and Earlier Only)	1-13
	Configure Tape SPE-B Large (G3r V2 and G3r V3 Release 31.0 and Earlier Only)	1-13
	List Configuration Software Long	1-13
	Disable TTI	1-13
	Disable Alarm Origination to INADS	1-13
	Save Translations to Release 5 Tape (Both)	1-14
	Save Announcements to Disk	1-13
	Copy Announcement to Release 5 Tape (Both)	1-14
	Change Disk Drive(s) (If not TN1657 Vintage 4 or Later)	1-15
	Restore Disk Full (Both)	1-15
	Set Tone to Active SPE	1-15
	Lock to Active SPE	1-16
	Power Down Standby SPE	1-16
	Install Memory Circuit Pack	1-16
	Power Up Standby SPE	1-16
	Unlock Active SPE	1-16
	Status SPE (Wait for Handshake; Do Not Wait for Shadowing)	1-16
	Set Tone to Upgraded SPE	1-17
	Lock to Upgraded SPE	1-17
	Power Down Standby SPE	1-17
	Install Memory Circuit Pack	1-17
	Power Up Standby SPE	1-17
	Unlock Active SPE	1-18
	List Configuration Control	1-18

Continued on next page

Table 1-2. Tasks to Upgrade to Release 5r with Memory (High or Critical Reliability) — Continued

√	Task Description	Page
	Configure Tape SPE-A 3-Mem (G3r V2 and G3r V3 Release 31.0 and Earlier Only)	1-18
	Configure Tape SPE-B 3-Mem (G3r V2 and G3r V3 Release 31.0 and Earlier Only)	1-18
	Restore Disk Full (Both) (G3r V2 and G3r V3 Release 31.0 and Earlier Only)	1-19
	Set Vector f SPE-Maint	1-19
	Save Translations	1-19
	Enable TTI	1-19
	Enable Scheduled Maintenance	1-20
	Enable Customer Options	1-20
	Back Up Disk	1-20
	Resolve Alarms	1-20
	Contact INADS to Enable Customer Options and Alarm Origination	1-20

Service Interruption

The Release 5 upgrade requires a non-call preserving service interruption of about 15 to 20 minutes for a standard reliability system. Coordinate with the customer and the local account team.

Usable Circuit Packs

Every circuit pack used in the Release 5 system must conform to the minimum usable vintage requirements for that system. At a presale site inspection, the QPPCN process checks the vintages of existing circuit packs to be reused in the Release 5 system. Circuit packs with unusable vintages must be replaced.

Refer to *Technical Quarterly*, *Reference Guide for Circuit-Pack Vintages*, *Change Notices*, and to the *Software Release Letter*, for information about usable circuit pack vintages. For information about usable vintages of international circuit packs, refer to the ITAC's Tech Alert from your regional distributor.

Generic 3 — Management Applications (G3-MA)

As part of the QPPCN process, any G3-MAs being used to administer a Release 5 system may be upgraded to at least an R4.1.2 prior to upgrade to Release 5.

Call Management System (CMS)

You may upgrade existing CMS adjuncts (not BCMS) used to monitor call-center activity for a Release 5 system with a Release 5 Call Center package to CentreVu CMS R3V5 in conjunction with a Release 5 upgrade. Otherwise, the existing (R3V2) CMS is sufficient.

Return Replaced Equipment

Return replaced equipment to Lucent Technologies according to the requirements outlined in:

*BCS/Material Logistics, MSL/Attended Stocking Locations
Methods and Procedures for Basic Material Returns*

Required Hardware

Table 1-3 lists the equipment needed for the standard reliability Release 5 upgrade.

Table 1-3. Required Hardware for Standard Reliability

Equipment	Description	Quantity
106495120	TN1650B Memory circuit pack	1
105533780	Vintage 4 (or later) TN1657 Disk Drive circuit pack	1 (may already have)
J58890TF L9	Release 5 Tape	1 ¹

1. For a maintenance update, acquired from the Technical Service Center. For an upgrade, shipped from the factory.

Table 1-4 lists the equipment needed for the high or critical reliability Release 5 upgrade.

Table 1-4. Required Hardware for High or Critical Reliability

Equipment	Description	Quantity
106495120	TN1650B Memory circuit pack	2
105533780	Vintage 4 (or later) TN1657 Disk Drive circuit pack	2 (may already have)
J58890TF L9	DEFINITY ECS Release 5 Tape	2 ¹

1. For a maintenance update, acquire from the Technical Service Center. For an upgrade, ships from the factory.

Standard Reliability System

The following installation instructions are for Release 32.0. Release 31.0 and earlier installation instructions are identical to Release 32.0 and later instructions except where noted as “Release 31.0 and Earlier Only.” If a Release 32.0 and later system is installed, do not perform the Release 31.0 and Earlier Only steps.

Disable Scheduled Maintenance

Enter **change system-parameters maintenance**, and press Enter. Use this form to prevent scheduled daily maintenance from interfering with the update or upgrade.

⇒ NOTE:

If scheduled maintenance has begun, set the value of the “Stop Time” field to 1 minute after the current time. If scheduled maintenance has not yet begun, change the value of the “Start Time” field to a time after the upgrade will be finished.

Insert Tape into Tape Drive

Clean the tape drive with tape drive cleaning kit and insert new Release 5 tape.

Configure Tape Large (G3r V2 and G3r V3 Release 31.0 and Earlier Only)

Enter **configure tape large** and press Enter. This instructs the system to reconfigure the tape for two TN1650B Memory circuit packs. This command takes about 1 minute to complete.

 **NOTE:**

Do not issue the list configuration software long command before reconfiguring the tape.

List Configuration Software Long

Enter **list config soft long** and press Enter to verify the tape contains the required Release 5 software.

Disable TTI

Enter **change system-parameters features** and press Enter. Use Page 2 of the form to disable Terminal Translation Initialization (TTI) by changing the value to n.

Disable Alarm Origination to INADS

1. Enter **change system-parameters maintenance** and press Enter.
2. Enter n in the Alarm Origination field and press Enter.
3. For some releases of software, disable *Cleared Alarm Notification* and *Restart Notification* before submitting the form.

 **CAUTION:**

If Alarm Origination is not disabled, the system may generate alarms, resulting in unnecessary trouble tickets.

Save Translations to Release 5 Tape

1. Enter **list configuration control** and press Enter. Verify the system contains three TN1650B Memory circuit packs and a TN1657 Disk Drive Vintage 4 (or later) Disk Drive.
2. Enter **save translation tape** and press Enter. This command instructs the system to write all translation information from memory to the tape.

Save Announcements to Disk

1. If the PPN contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.

If administered recorded announcements are listed, enter **list configuration software-version**, and press Enter. Check Page 2 of the form to see when the announcements were last saved. To save the current announcements to the disk, enter **save announcements** and press Enter.

⇒ NOTE:

If multiple TN750/B Announcement circuit packs are installed, specify the slot location for the save announcements command. If only one announcement circuit pack is installed, the system defaults to the proper location.

⇒ NOTE:

The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is optional.

Copy Announcements to Release 5 Tape

1. If the PPN contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.

If administered recorded announcements are listed, enter **list configuration software-version**, and press Enter. Check Page 2 of the form to see when the announcements were last saved. To save the current announcements, enter **copy announce tape** and press Enter.

⇒ NOTE:

If multiple TN750/B Announcement circuit packs are installed, specify the slot location for the save announcements command. If only one announcement circuit pack is installed, the system defaults to the proper location.

⇒ NOTE:

The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is optional.

Change Disk Drive (If not TN1657 Vintage 4 or Later)

1. Enter **busyout host-adaptor** and press `Enter` to prevent other applications from accessing the disk or tape.
2. Replace the existing TN1657 Disk Drive circuit pack in the control carrier with a TN1657 Vintage 4 or later.
3. Enter **reset host-adaptor** and press `Enter` to allow the disk to spin up.
4. Enter **release host-adaptor** and press `Enter` to release the disk from the maintenance-busyout condition and to put it back into service.
5. Enter **status spe** and press `Enter` to verify the disk is in service.
6. Enter **test disk long** and press `Enter` to test the new disk drive.



NOTE:

If the disk fails to return to service, repeat Steps 1, 3, 4, and 5.

Restore Disk Full

1. Enter **restore disk full** and press `Enter`. This instructs the system to copy the entire tape to disk and takes about 30 minutes. Release 5 software with translations and announcements are now resident on the disk.



NOTE:

Until this command finishes, the system provides no user feedback on the management terminal. Do not press `Enter` when the command begins executing. Doing so causes the terminal screen to clear as the command finishes, erasing any success/failure messages the system may provide.

2. Enter **test stored-data** and press `Enter` to verify the files on every storage device are consistent.

Power Down SPE

Power down the control carrier by disconnecting the power cords (first from the left one and then the right) from the power supplies on both sides of the carrier.

Install Memory Circuit Pack

1. Remove the circuit pack blank from the "MEMORY 3" slot of the control carrier.
2. Install the new TN1650B Memory circuit pack into the "MEMORY 3" slot.

Power Up the SPE

1. Power up the standby control carrier by replacing the power cords (first to the right power supply and then the left).
2. Verify the SPE is up and cycling by watching the yellow LED on the UN331B Processor circuit pack flash with a regular cycle. Also, verify the red LED on the new TN1650B goes out and stays out.

Release 5 software is now running on the SPE. After 15 minutes, if the yellow LED is not flashing **or** if the red LED has not gone out, execute the SPE-down interface tests referring to *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*.

List Configuration Software Long

Enter **list config soft long** and press Enter. This is done again to verify the tape contains the saved announcements.

List Configuration Control

1. Enter **list configuration control** and press Enter to verify the system recognizes the third TN1650B Memory circuit pack.
2. Enter **test memory 3** and press Enter to test the new TN1650B.

Configure Tape 3-Mem (G3r V2 and G3r V3 Release 31.0 and Earlier Only)

1. Enter **configure tape 3-mem** and press Enter. This instructs the system to reconfigure the tape for a third TN1650B Memory circuit pack. This command takes about 1 minute to execute.
2. Enter **restore disk full** and press Enter. This instructs the system to copy the entire tape to disk. This takes about 30 minutes to execute.



NOTE:

Until this command finishes, the system provides no user feedback on the management terminal. Do not press Enter when the command begins executing. Doing so causes the terminal screen to clear as the command finishes, erasing any success/failure messages the system may provide.

3. Enter **list configuration software-versions** and press Enter. Verify the entry *3 mem* resides in the *file system* field on Page 2 of the form.

Enable TTI

Enter **change system-parameters features** and press Enter. Use this form to change the TTI field back to its previous value before the upgrade.

Enable Scheduled Maintenance

Enter **change system-parameters maintenance**, and press Enter. Use this form to enable scheduled daily maintenance.

Enable Customer Options

1. Enter **change system-parameters customer-options** and press Enter.
2. Use these forms to verify the customer options are properly set.

 **NOTE:**

In the `Basic Call Setup` field, if `ISDN-PRI?` was set to `y` before the upgrade, be sure to set the field back to `y`.

Save Translations

Enter **save translation** and press Enter to get upgraded translations onto disk. If the translations were corrupted during the upgrade, the following error message displays when logging in:

 **WARNING:**

Translation corruption detected; call Lucent Technologies distributor immediately.

 **NOTE:**

The **save translation** command cannot function if the translation corruption message appears.

 **NOTE:**

If the new load must be returned to the previous software load, use the backup tape to return to the old release. Remove the third memory circuit pack and boot the system from tape. Perform a full restore of the disk after rebooting.

Back Up Disk

1. Enter **backup disk** and press Enter to backup all changed files.
2. Enter **test stored-data long** and press Enter. This instructs the system to verify the consistency of the MSS files (on the disk and tape).

Resolve Alarms

Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*.

Contact INADS to Enable Customer Options and Alarm Origination

Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.

High or Critical Reliability System

The following installation instructions are for Release 32.0. Release 31.0 and earlier installation instructions are identical to Release 32.0 and later instructions except where noted as "Release 31.0 and Earlier Only." If a Release 32.0 and later system is installed, do not perform the Release 31.0 and Earlier Only steps.

Disable Scheduled Maintenance

Enter **change system-parameters maintenance**, and press Enter. Use this form to prevent scheduled daily maintenance from interfering with the update or upgrade.

⇒ NOTE:

If scheduled maintenance has begun, set the value of the "Stop Time" field to 1 minute after the current time. If scheduled maintenance has not yet begun, change the value of the "Start Time" field to a time after the update or upgrade will be finished.

Insert Tapes into Tape Drives

Clean the tape drives with the tape drive cleaning kit and insert new Release 5 system tapes.

Configure Tape SPE-A Large (G3r V2 and G3r V3 Release 31.0 and Earlier Only)

Enter **configure tape spe-a large** and press Enter. This instructs the system to reconfigure the tape in control carrier "A" for two TN1650B Memory circuit packs. This command takes about 1 minute to complete.

 **NOTE:**

Do not issue the list configuration software long command before reconfiguring the tape.

Configure Tape SPE-B Large (G3r V2 and G3r V3 Release 31.0 and Earlier Only)

Enter **configure tape spe-b large** and press Enter. This instructs the system to reconfigure the tape in control carrier "B" for two TN1650B Memory circuit packs. This command takes about 1 minute to complete.

 **NOTE:**

Do not issue the list configuration software long command before reconfiguring the tape.

List Configuration Software Long

Enter **list config soft long** and press Enter to verify the tape contains the required Release 5 software.

Disable TTI

Enter **change system-parameters features** and press Enter. Use Page 2 of this form to prevent activation of the Terminal Translation Initialization (TTI) feature by changing the value to `n`.

Disable Alarm Origination to INADS

1. Enter **change system-parameters maintenance** and press Enter.
2. Enter `n` in the Alarm Origination Activated field and press Enter.
3. For some releases of software, disable Cleared Alarm Notification and Restart Notification before submitting the form.



CAUTION:

If Alarm Origination is not disabled, the system may generate alarms, resulting in unnecessary trouble tickets.

Save Translations to Release 5 Tape (Both)

Enter **save translation tape** and press Enter. This instructs the system to write all translation information from memory to the tape.

Save Announcements to Disk

1. If the PPN contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.

If administered recorded announcements are listed, enter **list configuration software-version**, and press Enter. Check Page 2 of the form to see when the announcements were last saved. To save the current announcements to the disk, enter **save announcements** and press Enter.

⇒ NOTE:

If multiple TN750/B Announcement circuit packs are installed, specify the slot location for the save announcements command. If only one announcement circuit pack is installed, the system defaults to the proper location.

⇒ NOTE:

The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is optional.

Copy Announcement to Release 5 Tape (Both)

1. If the PPN contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.
2. If administered recorded announcements are listed, enter **list configuration software-version**, and press Enter. Save the current announcements by entering **copy announce spe-a tape** and press Enter, and **copy announce spe-b tape** and press Enter.

⇒ NOTE:

If multiple TN750/B circuit packs are present, specify the slot location for the save announcements command. If only one announcement circuit pack is present, the system defaults to the proper location.

⇒ NOTE:

The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is optional.

Change Disk Drive(s) (If not TN1657 Vintage 4 or Later)

1. Enter **busyout host-adaptor [a | b]** for the standby carrier and press Enter to prevent other applications from accessing the disk or tape.
2. Replace the existing TN1657 Disk Drive circuit pack in the control carrier with a TN1657 Vintage 4 or later.
3. Enter **reset host-adaptor spe [a | b]** for the standby carrier and press Enter to allow the disk to "spin up."
4. Enter **release host-adaptor spe [a | b]** for the standby carrier and press Enter to release the disk from the maintenance-busyout condition and put it back into service.
5. Enter **status spe** and press Enter to verify the disk is now in service.
6. Enter **test disk long [a | b]** for the standby disk and press Enter to test the new disk drive circuit pack.

⇒ NOTE:

If the disk fails to return to service, repeat Steps 1, 3, 4, and 5.

Restore Disk Full (Both)

1. Enter **restore disk full both** and press Enter. This instructs the system to copy the entire tape to disk. This takes about 30 minutes to complete.

⇒ NOTE:

Until this command finishes, the system provides no user feedback on the management terminal. Do not press Enter when the command begins executing. Doing so causes the terminal screen to clear as the command finishes, erasing any success/failure messages the system may provide.

2. If the active TN1657 Disk Drive circuit pack is Vintage 3 or less, enter **reset system interchange** and press Enter, and repeat steps for new standby disk drive.
3. Enter **test stored-data** and press Enter to verify the files on every storage device are consistent.

Set Tone to Active SPE

1. Enter **status port-network 1** and press Enter.
2. Enter **set tone SPE-a or SPE-b**, if needed.

Lock to Active SPE

1. Enter **status spe** and press Enter to determine which SPE is active and which is standby.
2. Lock the active SPE on-line one SPE-SELECT switch at a time (first in the *active* control carrier, then in the *standby* control carrier) to the designated position of the active control carrier.

Power Down Standby SPE

Power down the standby control carrier by disconnecting the power cords (first from the left and then the right) from the power supplies on both sides of the carrier.

Install Memory Circuit Pack

1. Remove the circuit pack blank from the "MEMORY 3" slot of the standby control carrier.
2. Install a new TN1650B Memory circuit pack into the "MEMORY 3" slot.

Power Up Standby SPE

1. Power up the standby control carrier by replacing the power cords (first to the right power supply and then the left).
2. Verify the standby SPE is up and cycling by watching the yellow LED on the UN331B Processor circuit pack flash with a regular cycle. Also, verify the red LED on the new TN1650 goes out and stays out.

Release 5 software is now running on the standby SPE. After 15 minutes, if the yellow LED is not flashing **or** if the red LED has not gone out, execute the SPE-down interface tests referring to *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*.

Unlock Active SPE

Unlock both SPEs from their current "active/standby" role one SPE-SELECT switch at a time (first in the *standby* control carrier, then in the *active* control carrier). Set the switch to the AUTO position.

Status SPE (Wait for Handshake; Do Not Wait for Shadowing)

Enter **status spe** and press Enter to confirm standby handshaking between SPEs is UP. This should occur within 5 to 10 minutes.

Set Tone to Upgraded SPE

1. Enter **status port-network 1** and press Enter.
2. Enter **set tone SPE-a or SPE-b**, if needed.

Lock to Upgraded SPE

1. Enter **status spe** and press Enter to determine which SPE is active and which is standby.
2. Lock the standby SPE on-line one SPE-SELECT switch at a time (first in the *active* control carrier, then in the *standby* control carrier) to the designated position of the active control carrier.

Power Down Standby SPE

Power down the standby control carrier by disconnecting the power cords (first from the left and then the right) from the power supplies on both sides of the carrier.

Install Memory Circuit Pack

1. Remove the circuit pack blank from the "MEMORY 3" slot of the standby control carrier.
2. Install a new TN1650B Memory circuit pack into the "MEMORY 3" slot.

Power Up Standby SPE

1. Power up the standby control carrier by replacing the power cords (first to the right power supply and then the left).
2. Verify the standby SPE is up and cycling by watching the yellow LED on the UN331B Processor circuit pack flash with a regular cycle.
3. Verify the red LED on the new TN1650 goes out and stays out. Release 5 software is now running on the standby SPE. After 15 minutes, if the yellow LED is not flashing **or** if the red LED has not gone out, execute the SPE-down interface tests referring to *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*.

Unlock Active SPE

1. Unlock both SPEs from their current “active/standby” role one SPE-SELECT switch at a time (first in the *standby* control carrier, then in the *active* control carrier). Set the switch to the AUTO position.
2. Enter status SPE and press Enter until both SPEs are in a fully functional state.

List Configuration Software Long

Enter **list config soft long** and press Enter. This is done again to verify the tape contains the saved announcements.

List Configuration Control

1. Enter **list configuration control** and press Enter to verify the system recognizes the third TN1650B in both control carriers.
2. Enter **test memory 3 a/b long** and press Enter to test the new memory circuit pack.

Configure Tape SPE-A 3-Mem (G3r V2 and G3r V3 Release 31.0 and Earlier Only)

Enter **configure tape spe-a 3-mem** and press Enter. This instructs the system to reconfigure the tape for a third TN1650B Memory circuit pack. This commands takes about 1 minute to complete.

Configure Tape SPE-B 3-Mem (G3r V2 and G3r V3 Release 31.0 and Earlier Only)

1. Enter **configure tape spe-b 3-mem** and press Enter for carrier B. This instructs the system to reconfigure the tape for a third TN1650B Memory circuit pack. This commands takes about 1 minute to complete.
2. Enter **list configuration software-versions** and press Enter. Verify the entry *3 mem* resides in the *file system* field on Page 2 of the form.

Restore Disk Full (Both) (G3r V2 and G3r V3 Release 31.0 and Earlier Only)

1. Enter **restore disk full both** and press Enter. This copies the entire tape to disk and takes about 30 minutes to execute. Release 5 system software with translations and announcements is now resident on the disk.

 **NOTE:**

Until this command finishes, the system provides no user feedback on the management terminal. Do not press Enter when the command begins executing. Doing so causes the terminal screen to clear as the command finishes, erasing any success/failure messages the system may provide.

2. Enter **test stored-data long** and press Enter to verify the files on every storage device are consistent.

Enable TTI

Enter **change system-parameters features** and press Enter. Use this form to change the TTI field back to its previous value before the upgrade.

Set Vector f SPE-Maint

Enter **set vector f spe-maint** and press Enter to set the core dump vector to perform a core dump on any system restart.

Save Translations

Enter **save translation** and press Enter to get upgraded translations onto disk. If the translations were corrupted during the upgrade, the following error message displays when logging in:

 **WARNING:**

Translation corruption detected; call Lucent Technologies distributor immediately.

 **NOTE:**

The **save translation** command cannot function if the translation corruption message appears.

 **NOTE:**

If the new load must be returned to the previous software load, use the backup tape to go back to the old release. Remove the third memory circuit pack in the control carrier and reboot the system from tape. Perform a full restore of the disk after rebooting.

Back Up Disk

1. Enter **backup disk** and press Enter to backup all changed files.
2. Enter **test stored-data long** and press Enter. This instructs the system to verify the consistency of the MSS files (on the disk and tape).

Enable Scheduled Maintenance

Enter **change system-parameters maintenance**, and press Enter. Use this form to enable scheduled daily maintenance.

Enable Customer Options

1. Enter **change system-parameters customer-options** and press Enter.
2. Use these forms to verify the customer options are properly set.

NOTE:

In the *Basic Call Setup* field, if *ISDN-PRI?* was set to *y* before the upgrade, be sure to set the field back to *y*.

Resolve Alarms

Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*.

Contact INADS to Enable Customer Options and Alarm Origination

Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.

G3r V4 to Release 5r without Memory Addition

2

This chapter provides the information necessary to perform a software only upgrade from a DEFINITY G3r V4 to a Release 5r System. There are many configurations of DEFINITY G3r V4 in the field. Each system can have a unique configuration. This book addresses the most common configurations. Also refer to the following books:

- *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*
- *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*

⇒ NOTE:

This upgrade procedure assumes each control carrier contains a TN1657 Disk Drive (Vintage 4 or higher) and a third TN1650B Memory circuit packs. If these items are not present in the system, use the upgrade procedures in Chapter 1, "G3r V2, V3, or V4 to Release 5r with Memory Addition" instead of the instructions in this chapter.

Task Tables

Table 2-1 and Table 2-2 provide the high-level tasks to perform the upgrades in this chapter.

Table 2-1. Tasks to Upgrade from G3r V4 to Release 5r (Standard Reliability)

√	Task Description	Page
	Disable Scheduled Maintenance	2-6
	Insert Tape into Tape Drive	2-6
	List Configuration Software Long	2-6
	Disable TTI	2-6
	Disable Alarm Origination to INADS	2-7
	Save Translations to Release 5 Tape	2-7
	Save Announcements to Disk	2-7
	Copy Announcement to Release 5 Tape	2-8
	List Configuration Software Long	2-8
	Restore Disk Full	2-9
	Enable TTI	2-9
	Enable Scheduled Maintenance	2-9
	Enable Customer Options	2-9
	Save Translations	2-10
	Back Up Disk	2-10
	Resolve Alarms	2-10
	Contact INADS to Enable Customer Options and Alarm Origination	2-10

Table 2-2. Tasks to Upgrade from G3r V4 to Release 5r (High or Critical Reliability)

√	Task Description	Page
	Disable Scheduled Maintenance	2-11
	Insert Tapes into Tape Drives	2-11
	List Configuration Software Long	2-11
	Disable TTI	2-11
	Disable Alarm Origination to INADS	2-12
	Save Translations to Release 5 Tape (Both)	2-12
	Save Announcements to Disk	2-12
	Copy Announcement to Release 5 Tape (Both)	2-13
	Restore Disk Full (Both))	2-13
	Set Vector f SPE-Maint	2-14
	Enable TTI	2-14
	Enable Scheduled Maintenance	2-14
	Enable Customer Options	2-14
	Save Translations	2-14
	Back Up Translations/Announcements to Spare Release 5 Tape	2-15
	Resolve Alarms	2-15
	Contact INADS to Enable Customer Options and Alarm Origination	2-15

Considerations

Service Interruption

The upgrade process requires a non-call preserving service interruption which occurs during a reboot with the Release 5 tapes. This service interruption of about 15 to 20 minutes for a simplex system must be closely coordinated with the customer and the local account team.

Changes to Run-Tape Compatible Update or Upgrade Procedures

The steps for a Release 5 upgrade of this chapter are subject to change. Although these steps are accurate for the Release 5 tape issue available at the book's publication date, the specific steps for a run-tape compatible update or upgrade can change as new tapes are issued. For the most current information, refer to the Quality Protection Plan Change Notice (QPPCN) Update Supplement provided with the new Release 5 tape.

Usable Circuit Packs

Every circuit pack used in the Release 5 system must conform to the minimum usable vintage requirements for that system. At a presale site inspection, the QPPCN process checks the vintages of existing circuit packs to be reused in the Release 5 system. Circuit packs with unusable vintages must be replaced.

Refer to *Technical Quarterly, Reference Guide for Circuit Pack Vintages, Change Notices*, and to the *Software Release Letter*, for information about usable circuit pack vintages. For information about usable vintages of international circuit packs, refer to the ITAC's Tech Alert from your regional distributor.

Generic 3 — Management Applications (G3-MA)

As part of the QPPCN process, any G3-MAs being used to administer a Release 5 system may be upgraded to at least an R4.1.2 prior to upgrade to Release 5.

Call Management System (CMS)

Existing CMS adjuncts (not BCMS) used to monitor call center activity for a Release 5 system with a Release 5 Call Center package may be upgraded to CentreVu CMS R3V5 in conjunction with a Release 5 upgrade. Otherwise, the existing (R3V2) CMS is sufficient.

Software Upgrade

Release 5 software and translations are saved on the TN1656 Tape Drive circuit pack. Although the G3r V4 translations automatically update or upgrade to a Release 5, several features require special attention because of form changes or potential naming conflicts in the process.

Between customer confirmation and the actual update or upgrade, the Software Specialist and Associate should check these forms to ensure the translations are appropriate for the customer's needs. After rebooting the system, enter these translations either locally by the Software Associate or remotely at the FSAC (with possible assistance from the upgrade technician). For information to make the required changes, refer to:

- *DEFINITY Enterprise Communications Server Release 5.4 Transition Reference*
- *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*

Required Hardware

The J58890TF L9 Tape is needed for the Release 5 upgrade. For a maintenance update, the tape is acquired from the Technical Service Center. For an upgrade, the tape ships from the factory.

Standard Reliability System

The following installation instructions are for Release 32.0. Release 31.0 and earlier installation instructions are identical to Release 32.0 and later instructions except where noted as “Release 31.0 and Earlier Only.” If a Release 32.0 and later system is installed, do not perform the Release 31.0 or Earlier Only steps.

Disable Scheduled Maintenance

Enter **change system-parameters maintenance**, and press Enter. Use this form to prevent scheduled daily maintenance from interfering with the update or upgrade.

 **NOTE:**

If scheduled maintenance has begun, set the value of the “Stop Time” field to 1 minute after the current time. If scheduled maintenance has not yet begun, change the value of the “Start Time” field to a time after the upgrade will be finished.

Insert Tape into Tape Drive

Clean the tape drive with the tape drive cleaning kit and insert the new Release 5 system tape.

List Configuration Software Long

Enter **list config soft long** and press Enter to verify the tape contains the required Release 5 software.

Disable TTI

Enter **change system-parameters features** and press Enter. Use Page 2 of this form to prevent activation of the Terminal Translation Initialization (TTI) feature by changing the value to n.

Disable Alarm Origination to INADS

1. Enter **change system-parameters maintenance** and press Enter.
2. Enter `n` in the Alarm Origination Activated field and press Enter.
3. For some releases of software, disable Cleared Alarm Notification and Restart Notification before submitting the form.



CAUTION:

If Alarm Origination is not disabled, the system may generate alarms, resulting in unnecessary trouble tickets.

Save Translations to Release 5 Tape

1. Enter **list configuration control** and press Enter to verify the system contains three TN1650B Memory circuit packs and a TN1657 Disk Drive Vintage 4 (or later).
2. Enter **save translation tape** and press Enter. This instructs the system to write all translation information from memory to the disk.

Save Announcements to Disk

1. If the PPN contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.

If administered recorded announcements are listed, enter **list configuration software-version**, and press Enter. Check Page 2 of the form to see when the announcements were last saved. To save the current announcements to the disk, enter **save announcements** and press Enter.



NOTE:

If multiple TN750/B Announcement circuit packs are installed, specify the slot location for the save announcements command. If only one announcement circuit pack is installed, the system defaults to the proper location.



NOTE:

The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is optional.

Copy Announcement to Release 5 Tape

1. If the system contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.

If administered recorded announcements are listed, enter **list configuration software-version**, and press Enter. Check Page 2 of this form to see when the announcements were last saved. To save the current announcements, enter **copy announce tape** and press Enter.

⇒ NOTE:

If multiple TN750/B circuit packs are present, specify the slot location for the save announcements command. If only one announcement circuit pack is present, the system defaults to the proper location.

⇒ NOTE:

The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is optional.

List Configuration Software Long

Enter **list config soft long** and press Enter. This is done again to verify the tape contains the saved announcements.

Restore Disk Full

1. Enter **restore disk full** and press Enter. This instructs the system to copy the entire tape to disk and takes about 30 minutes to complete. Release 5 system software with translations and announcements are now resident on the disk.

⇒ NOTE:

Until this command finishes, the system provides no user feedback on the management terminal. Do not press Enter when the command begins executing. Doing so causes the terminal screen to clear as the command finishes, erasing any success/failure messages the system may provide.

2. Enter **upgrade software** (entire alphanumeric string of target software version) and press Enter. This takes about 15 minutes to complete. For standard reliability, this is *not* call preserving.
3. Log in as "craft" at the login: prompt.

Enable TTI

Enter **change system-parameters features** and press Enter. Use this form to change the TTI field back to its previous value before the upgrade.

Enable Scheduled Maintenance

Enter **change system-parameters maintenance**, and press Enter. Use this form to enable scheduled daily maintenance.

Enable Customer Options

1. Enter **change system-parameters customer-options** and press Enter.
2. Use these forms to verify the customer options are properly set.

⇒ NOTE:

In the `Basic Call Setup` field, if `ISDN-PRI?` was set to `y` before the upgrade, be sure to set the field back to `y`.

Save Translations

Enter **save translation** and press Enter to get upgraded translations onto disk. If the translations were corrupted during the upgrade, the following error message displays when logging in:



WARNING:

Translation corruption detected; call Lucent Technologies distributor immediately.



NOTE:

The **save translation** command cannot function if the translation corruption message appears.



NOTE:

If the new load must be returned to the previous software load, use the backup tape to go back to the old release. Remove the third memory circuit pack and boot the system from tape. Perform a full restore of the disk after rebooting.

Back Up Disk

1. Enter **backup disk** and press Enter to backup all changed files.
2. Enter **test stored-data long** and press Enter. This instructs the system to verify the consistency of the MSS files (on the disk and tape).

Resolve Alarms

Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*.

Contact INADS to Enable Customer Options and Alarm Origination

Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.

High or Critical Reliability Systems

The following installation instructions are for Release 32.0. Release 31.0 and earlier installation instructions are identical to Release 32.0 and later instructions except where noted as “Release 31.0 and Earlier Only.” If a Release 32.0 and later system is installed, do not perform the Release 31.0 or Earlier Only steps.

Disable Scheduled Maintenance

Enter **change system-parameters maintenance**, and press Enter. Use this form to prevent scheduled daily maintenance from interfering with the update or upgrade.

 **NOTE:**

If scheduled maintenance has begun, set the value of the “Stop Time” field to 1 minute after the current time. If scheduled maintenance has not yet begun, change the value of the “Start Time” field to a time after the upgrade will be finished.

Insert Tapes into Tape Drives

Clean the tape drives with the tape drive cleaning kit and insert the new Release 5 system tapes.

List Configuration Software Long

Enter **list config soft long** and press Enter to verify the tape contains the required Release 5 software.

Disable TTI

Enter **change system-parameters features** and press Enter. Use Page 2 of this form to prevent activation of the Terminal Translation Initialization (TTI) feature by changing the value to n.

Disable Alarm Origination to INADS

1. Enter **change system-parameters maintenance** and press Enter.
2. Enter `n` in the Alarm Origination Activated field and press Enter.
3. For some releases of software, disable Cleared Alarm Notification and Restart Notification before submitting the form.



CAUTION:

If Alarm Origination is not disabled, the system may generate alarms, resulting in unnecessary trouble tickets.

Save Translations to Release 5 Tape (Both)

Enter **save translation tape both** and press Enter. This instructs the system to write all translation information from memory to the disk.

Save Announcements to Disk

1. If the PPN contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.

If administered recorded announcements are listed, enter **list configuration software-version**, and press Enter. Check Page 2 of the form to see when the announcements were last saved. To save the current announcements to the disk, enter **save announcements** and press Enter.



NOTE:

If multiple TN750/B Announcement circuit packs are installed, specify the slot location for the save announcements command. If only one announcement circuit pack is installed, the system defaults to the proper location.



NOTE:

The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is optional.

Copy Announcement to Release 5 Tape (Both)

1. If the PPN contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.
2. If administered recorded announcements are listed, enter **list configuration software-version**, and press Enter. Check Page 2 of this form to see when the announcements were last saved. To save the current announcements, enter **copy announce spe-a tape** and press Enter, and **copy announce spe-b tape** and press Enter.



NOTE:

If multiple TN750/B circuit packs are present, specify the slot location for the save announcements command. If only one announcement circuit pack is present, the system defaults to the proper location.



NOTE:

The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is optional.

Restore Disk Full (Both)

1. Enter **restore disk full both** and press Enter. For both SPEs, this instructs the system to copy the entire tape to disk and takes about 30 minutes to complete.



NOTE:

Until this command finishes, the system provides no user feedback on the management terminal screen. Do not press Enter once the command begins executing. Doing so causes the terminal screen to clear as the command finishes; erasing any success/ failure messages the system may provide.



CAUTION:

*For a software-only upgrade from an earlier release, the “upgrade software” command modified by the “no-calls” object is not call preserving. The service outage is about 2 minutes. **Failure to specify no-calls in the next step will result in system restart problems.***

2. Enter **upgrade software** (entire alphanumeric string of target software version) **no-calls** and press Enter. This process takes about 15 minutes to complete.
3. Log in as “craft” at the login: prompt.

Set Vector f SPE-Maint

Enter **set vector f spe-maint** and press Enter to set the core dump vector to perform a core dump on any system restart.

Enable TTI

Enter **change system-parameters features** and press Enter. Use this form to change the TTI field back to its previous value before the upgrade.

Enable Scheduled Maintenance

Enter **change system-parameters maintenance**, and press Enter. Use this form to enable scheduled daily maintenance.

Enable Customer Options

1. Enter **change system-parameters customer-options** and press Enter.
2. Use these forms to verify the customer options are properly set.



NOTE:

In the `Basic Call Setup` field, if `ISDN-PRI?` was set to `y` before the upgrade, be sure to set the field back to `y`.

Save Translations

Enter **save translation** and press Enter to get upgraded translations onto disk. If the translations were corrupted during the upgrade, the following error message displays when logging in:



WARNING:

Translation corruption detected; call Lucent Technologies distributor immediately.



NOTE:

The **save translation** command cannot function if the translation corruption message appears.

If the new load must be returned to the previous software load, use the backup tape to go back to the old release. Remove the third memory circuit pack and boot the system from tape. Perform a full restore of the disk after rebooting.

Back Up Translations/Announcements to Spare Release 5 Tape

1. Remove the Release 5 system tape and install the spare Release 5 tape.
2. Enter **backup disk** and press Enter. This instructs the system to backup the current information on disk to the spare Release 5 tape.

NOTE:

This command takes 20 to 50 minutes to execute. Until this command finishes, the system provides no user feedback on the management terminal. Do not press Enter while the command is executing. Doing so causes the terminal screen to clear as the command finishes, erasing any success/failure messages the system may provide.

3. Enter **test stored-data long** and press Enter. This instructs the system to verify the consistency of the MSS files (on the disk and tape).

Resolve Alarms

Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*.

Contact INADS to Enable Customer Options and Alarm Origination

Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.

Release 5si TN790 to Release 5r

3

This chapter provides the information necessary to upgrade a Release 5si system to a Release 5r system.

DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description lists Release 5 features and functions and provides the commands, procedures, and forms to initialize and administer the Release 5.

Task Tables

Table 3-1 provides the high-level tasks to perform the upgrades in this chapter.

Table 3-1. Tasks to Upgrade to Release 5r System

✓	Task Description	Page
	Save Translations and Announcements	3-8
	Make Source Tape (Translation Card) and Mail to STS for Upgrade	3-8
	Follow Routine Preventive Maintenance	3-11
	Label Cables	3-11
	Shut Down DEFINITY LAN Gateway System	3-12
	Shut Down DEFINITY AUDIX System	3-12
	Power Down System	3-12
	Disconnect Power and Ground	3-13
	Install Emergency Transfer Ground Wire	3-13
	Disconnect Equipment and Cables	3-13
	Remove Circuit Packs	3-13
	Disconnect TDM/LAN Cables and ICC Cables	3-14
	Remove the Existing Control Cabinet	3-14
	Unpack and Install Expansion Control Cabinet	3-14
	Install Port Cabinets	3-14
	Install Circuit Packs	3-15
	Change Cabinet Address Plugss	3-16
	Install TDM/LAN Bus Terminators	3-17
	Connect TDM/LAN Cables and ICC Cables	3-19
	Interconnect Port Networks with Fiber Optic Cabling — Standard Reliability Release 5r	3-21
	Interconnect Port Networks with Fiber Optic Cabling — High Reliability Release 5r	3-27
	Interconnect Port Networks with Fiber Cabling — Critical Reliability Release 5r	3-34
	Connect Power and Ground	3-47
	Verify Usable Circuit Pack Vintages	3-48

Continued on next page

Table 3-1. Tasks to Upgrade to Release 5r System — Continued

✓	Task Description	Page
	Install System Access Ports	3-48
	Reseat DEFINITY LAN Gateway System	3-48
	Reseat DEFINITY AUDIX System	3-48
	Remove Emergency Transfer Ground Wire	3-49
	Reboot the System	3-49
	Restart DEFINITY LAN Gateway System	3-50
	Relabel Main Distribution Frame	3-50
	Reconnect Cables	3-50
	Install Cable Clamps	3-51
	Power Up the EPN Cabinets	3-51
	Retranslate Port Circuits	3-52
	Re-record Announcements	3-52
	Enable Customer Options	3-52
	Resolve Alarms	3-52
	Contact INADS to Enable Customer Options and Alarm Origination	3-52

Considerations

Service Interruption

The upgrade process requires a service interruption and must be closely coordinated with the customer and the local account team.

Communication Between Equipment Rooms

For an upgrade where some of the equipment resides at a remote location, the upgrade activity will be much easier if temporary communications are established between the equipment rooms.

Contact Network Technicians

The technician for each public and private network accessed by the switch must be contacted before the upgrade begins. Otherwise, if these technicians are not aware of the service interruption caused by the upgrade, it is possible that network-access trunk facilities will be busied out at the far end.

Relocation of Port Circuit Packs

With the possible exception of a port circuit pack in slot "01" of carrier "A" that must be moved for a TN570 Expansion Interface, an upgrade to Release 5 *does not* cause port circuit packs from the Release 5si control cabinet to be moved and manually retranslated. This is because a Release 5si PPN is always upgraded to an EPN. So, during the PPN upgrade to a Release 5r EPN, a Release 5r expansion control cabinet (with 14 to 16 available port slots) always replaces the Release 5si control cabinet (with 10 available port slots), providing a net gain of from 4 to 6 port slots.

If a port circuit pack does reside in slot "01" of control cabinet "A," the STS software upgrade retranslates this circuit pack to reside in an empty port slot in the new expansion control cabinet.

For an upgrade to a critical reliability Release 5r, if a port circuit pack resides in slot "02" of port cabinet "B," the STS software upgrade retranslates this circuit pack to occupy another empty port slot in the new expansion control cabinet.

Also, to provide maximum holdover for a TN750/B Announcement circuit pack that did not reside in the control carrier, the STS software upgrade relocates this circuit pack to occupy another empty port slot in the new expansion control cabinet.

Also, to ensure reliable DS1 timing in the upgraded Release 5r system, the STS software upgrade relocates the DS1 circuit packs serving as the primary and secondary timing sources to occupy two empty port slots in the new multi-carrier PPN.

Finally, when connecting adjuncts to an upgraded Release 5r, STS locates any new interface circuit packs (including TN577 Packet Gateway, TN553 Packet Data, and TN726B Data Line) in the first available slots of the first PPN port carrier.

 **NOTE:**

To find out where STS relocated these circuit packs, refer to the annotated "list configuration all" that STS provides with the new Release 5r tape.

Usable Circuit Packs

Every circuit pack used in the upgraded Release 5r system must conform to the minimum usable vintage requirements for Release 5r. Those circuit packs shipped in the new Release 5r PPN or shipped loose with the new EPN equipment should always meet the usable vintage specifications. In addition, at a presale site inspection, the Quality Protection Plan Change Notice (QPPCN) process must check the vintages of every Release 5si circuit pack that will be reused in the upgraded Release 5r and, if necessary, replace those circuit packs that have unusable vintages. Refer to *Technical Quarterly*, Reference Guide for Circuit-Pack Vintages and Change Notices, for current information about usable vintages in a Release 5r system.

Site Inspections

For the purposes of a Release 5r upgrade, most Release 5si systems are already equipped with the correct lightwave transceivers. Any older versions of these components must be replaced. The earlier versions of lightwave transceivers included the 4-series transceivers (4A through 4F). These transceivers supported fiber connections up to 7,000 feet (2133 m). Order the correct transceivers according to a separate PEC.

Power and Ground

The new multi-carrier PPN cabinet or any EPN cabinet added for the upgrade can be either AC or DC powered. If an added cabinet is powered differently from the existing cabinets, the existing cabinets do not have to be converted since mixed power configurations are allowed. However, the system's power and ground must be modified so the AC powered cabinets are grounded to the same single-point ground bar as the DC powered cabinets.

DC Isolator

Each management terminal connected to a DC-powered cabinet, by the asynchronous EIA RS-232 interface, requires a 116A isolator. The isolator is inserted at the RS-232 interface between the terminal and the interface connector to isolate ground between the system and external adjuncts.

Emergency Transfer Stations

During routine operation, the ground for the emergency transfer stations is derived from the system's auxiliary cable. Disconnect this ground during the upgrade to disable the stations. A ground strap is run to the emergency transfer panel. Connect this strap shortly after removing power and disconnect it just before restoring power to the upgraded system.

System Upgrades

There are many configurations of Release 5si in the field. Each system can have a unique configuration. To simplify upgrades, the existing PPN is always upgraded to an EPN, and an existing EPN is always upgraded to an EPN. A new Multi-Carrier Cabinet would always serve as the PPN.

Upgrading a Release 5si EPN to a Release 5r EPN requires changing, and often restructuring, the expansion interface circuit packs. Hardware changes (including carrier replacement) is required.

Software

The Release 5r software and translations are saved on the TN1656 Tape Drive circuit pack. This tape format is not compatible with the format of the Release 5si TN774 Tape Drive circuit pack.

The translations in the Release 5si system must be copied to a spare tape and sent to Software Technical Support (STS) to be converted and written to a Release 5r tape. This process takes two weeks. The Release 5r tapes (including one with translations) must be on-site before the upgrade begins. For each Release 5r processor, two tapes (one system tape and one backup tape) must always be retained on site with the system.

After a software upgrade, several features require special attention because of form changes or potential naming conflicts in the upgrade process. Most of these changes and conflicts are related either to a software upgrade from standard ACD to Call Vectoring or to changes in the ARS/AAR features to compensate for increasing uncertainty in the North American numbering plan. Also, if ARS is enabled (when upgrading from IR1 Release 5 to GD-91 software), it may be necessary to modify the Call Type field on the ARS Analysis form to "unk" for all call types except "iop" or "int."

After the upgrade, the Software Associate should check these forms to ensure the upgraded translations are appropriate for the customer's needs. Refer to *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*, for information to make any required changes.

ISDN Gateway

When upgrading from a previous system to a Release 5r, upgrade the ISDN Gateway (if installed) to the correct software release. Call progress messages to the ISDN Gateway may be intermittently lost, therefore, this upgrade must occur at the same time as the system upgrade.

Contact your Lucent Technologies representative for the correct software release.

Software Translation Upgrade

During an upgrade, STS must convert the Release 5si translations and write them to a Release 5r tape or Mass-Storage Translation Card. To make a tape conversion, replace the system tape with a spare Release 5si tape. Acquire spare tape cartridges (or translation cards) from the QPPCN before the upgrade. Then, copy the current Release 5si translations to the spare tape or translation card, and overnight mail this tape to STS. Also, put the original system tape or translation card back into the system.

If possible, the customer should put a freeze on any new translations while the spare tape is being converted. If not, be sure the customer's switch administrator keeps detailed records of any translation changes made during that interval. These records will facilitate the reassignment of any changes on the Release 5r tapes after the upgrade.

The new Release 5r tapes (one with the converted translations, two if duplicated and the rest blank) must be on-site before the upgrade begins.

Since a new Release 5r PPN is installed during the upgrade, STS tape conversion must change the port network number of the Release 5si PPN to be converted to a Release 5r EPN. To minimize the renumbering of port networks during the software upgrade and to minimize the rewiring and relabeling of the wall field during the hardware upgrade, the tape conversion assigns the next port network number (after the highest numbered PN in the system) to the Release 5si PPN to become a Release 5r EPN. For example, if a Release 5si system with two PNs (a PPN and an EPN) were upgraded to a Release 5r, the tape conversion software assigns PN "1" to the new PPN and PN "3" to the additional EPN derived from the old Release 5si PPN.

Save Translations and Announcements

1. Log in at the management terminal on the Release 5si.
2. If the system is duplex, enter **status system** and press Enter to verify the system is in the "active/standby" mode.
3. Enter **save translation**. Press Enter. This command instructs the system to write all translation information from memory to the tape(s).
4. If the system is equipped with a TN750/B Announcement circuit pack, enter **display announcements** and press Enter. If administered recorded announcements are listed, enter **list configuration software-version** and press Enter. Check Page 2 of this form to see when the announcements were last saved. To save the current announcements, enter **save announcements** and press Enter.
5. Remove the system tape(s) and install the backup tape(s).
6. If the system is duplex, enter **status system** and press Enter to verify the system is in the "active/standby" mode.
7. Enter **save translation**. Press Enter.
8. Enter **save announcements** if appropriate. Press Enter.

Make Source Tape (Translation Card) and Mail to STS for Upgrade

A spare Release 5si tape or translation card must be acquired from the QPPCN before performing the following steps. For each processor, there must always be two tapes or translation cards on site with the system. Do not send a system or backup tape or translation card to STS.

After performing the previous procedures, copy the Release 5si translations to the spare tape or translation card to be used to make the Release 5r tapes. Perform the following:

1. Install the spare tape or translation card.
2. Enter **save translation**. Press Enter. This instructs the system to write all translation information from memory to the tape or translation card.



NOTE:

The off-site STS translation upgrade does not preserve the content of recorded announcements. Therefore, during the upgrade, any announcements stored on a TN750/B circuit pack must be rerecorded.

3. Remove the source tape or translation card and insert the system tape or translation card.
4. Mail the tape or translation card to STS (with next-day delivery) for making the Release 5r tapes or translation cards.

Release 5si to Release 5r

During the wiring of the PPN installation, relabel the Main Distribution Frame (MDF) with the new PN number of the Release 5si PPN. The STS software upgrade assigned the next PN number (after the highest numbered PN in the Release 5si system) to the upgraded Release 5r EPN.

Required Hardware

The equipment in Table 3-2 must be on-site before the upgrade begins.

Table 3-2. Required Hardware

Equipment	Description	Quantity
PEC 6300-07X	Processor Port Network	1
J58890N	Expansion Control Cabinet	1
106495120	TN1650B Memory circuit pack	3
105533780	Vintage 4 TN1657 Disk Drive circuit pack	1
106647985	TN775B Maintenance	1
103281788	TN570 Expansion Interface	Depends on reliability type and number of PNs
103281812	TN573B Switched Node Interface	Depends on reliability type and number of PNs
63300	Fiber Optic Cable	1 to 12
106455348 or 106455363 107731853	9823-A Lightwave Transceiver 9823-B Lightwave Transceiver 300A Lightwave Transceiver	2 to 12 ¹ 2 to 12 2 to 12 ²
J58890TF L9	Release 5 Tape Cartridge	2 or 4 ³
106689516	TN771D Maintenance Test circuit pack	1 or 2 ⁴
846307817	Lower Rear Cover	1 ⁵
846307809	Ground Plate	1
H600-248 G1	ICC Cables	2 ⁶
846408268	Earthquake Front Panel (earthquake protection only)	1
846408386	Earthquake Ground Plate (earthquake protection only)	1
846408250	Stiffener (earthquake protection only)	1
846408243	Earthquake Front Mounting Angle (earthquake protection only)	1

1. For each fiber connection, one lightwave transceiver is installed in one port network, and a like transceiver in the adjacent port network. 4E transceivers cannot be reused. Additional transceivers, ordered separately, ship loose with the EPN equipment.
2. The 300A is connected using two fiber optic cables. 5 or 10 dB attenuators may be required. Contact your Lucent Technologies Representative for more information.
3. Depending on the reliability type of the Release 5r system. Two tapes are required for a standard reliability system; four for a high or critical reliability system.
4. Depending on the number of EPNs in a critical reliability Release 5r system.
5. Required for the "B" port cabinet of a critical reliability Release 5r EPN. (May not have been installed during R1V3-to-G1 or -G3i upgrade.)
6. Required for a critical reliability Release 5r EPN.

Required Tools

The following tools and items may be required during the upgrade:

- 1/4-inch flat blade screwdriver
- 1/4-inch socket with ratchet (optional)
- Long-nose pliers to straighten backplane pins
- Static-proof or original circuit pack packaging for transporting circuit packs
- Labels for identifying the port circuit packs and cables attached to the rear of cabinets
- One dozen #8 self-tapping screws
- Repair kit for backplane pins (KS-22876 L2 or equivalent)
- One copy of each of the following manuals:
 - *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*
 - *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*

Follow Routine Preventive Maintenance

During the upgrade, follow routine preventive maintenance procedures on the system to be upgraded. For information about the procedures and necessary equipment, refer to the “Preventive Maintenance” section in *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*.

Label Cables

To make reconnecting the cables simpler and more reliable, label every connector cable associated with the system.

Shut Down DEFINITY LAN Gateway System

 **WARNING:**
Neglecting to shut down a DEFINITY LAN Gateway assembly before powering down the system cabinet can damage the LAN Gateway disk.

1. Log onto the DEFINITY LAN Gateway. See the *DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, 555-230-223, for the procedure to log on.
2. When the main menu appears, select *Maintenance*.
3. Select *Reset System* from the *Maintenance* menu.
4. Select *Shutdown* from the *Reset System* menu.
5. Unseat the LAN Gateway assembly from its backplane connectors.

Shut Down DEFINITY AUDIX System

1. If a DEFINITY AUDIX System resides in the system to be upgraded, shut down the AUDIX assembly and allow the disk to completely spin down.

 **WARNING:**
Neglecting to shut down an AUDIX assembly before powering down the system cabinet where it resides can damage the AUDIX disk.

2. Unseat the AUDIX assembly from its backplane connectors.

Power Down System

1. At each PPN cabinet power supply, set the main circuit breaker to OFF.

 **CAUTION:**
*Powering down the PPN will cause important system data, such as BCMS data, records of queued ACD calls, Automatic Wakeup requests, and Do Not Disturb requests to be lost. Refer to *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*, for information about preparing the system for a power down.*

2. At each EPN cabinet power supply, set the main circuit breaker to OFF.

Disconnect Power and Ground

1. Disconnect the cabinet power cords from the rear of each cabinet.
2. Disconnect the 10 AWG (#25) (2.588 mm) coupled bonding conductor wire.
3. Disconnect the 6 AWG (#40) (4.115 mm) cabinet ground wire from the ground bar in the cabinet.

Install Emergency Transfer Ground Wire



CAUTION:

To avoid contaminating single-point ground, do not connect the ground strap while the system is powered up.

1. Connect a 10 AWG (#25) (2.588 mm) wire either to pin 49 of the connecting block or to pin 49 of the CAP (cable access panel) associated with the emergency transfer panel.
2. Route the other end of the wire to an approved ground and connect.

Disconnect Equipment and Cables

1. Disconnect the connector cables attaching to the PPN.
2. Disconnect the management terminal from the TERM connector.
3. Remove the ground plate(s) from between all of the PPN cabinets.
4. Remove the top and bottom rear covers from all of the PPN cabinets.

Remove Circuit Packs

1. Label each port circuit pack in the control cabinet with its slot number.
2. Remove all circuit packs and power units from the control cabinet. Store the circuit packs in the static-proof packaging.



NOTE:

If a TN756 tone-detector/generator was removed from the Release 5si control cabinet, a new Release 5r tone clock (TN2182) should replace this circuit pack. The TN2182 Tone-Clock serves to replace the tone detector circuits on the old TN756. If a TN2182 is used, no TN748B is required.

Disconnect TDM/LAN Cables and ICC Cables

1. Remove and retain all of the TDM/LAN cables.
2. If the Release 5si system being upgraded is standard reliability, remove and retain the ICC cables.
3. If the Release 5si system being upgraded is duplicated, remove the ICC cables. They are replaced with new ICC cables (H600-248 G1).

Remove the Existing Control Cabinet

Since the control cabinet is at the bottom of the port network, dismantle the cabinet stack. Disconnect all the power, ground, TDM, ICC, and connector cables.

1. Remove the cabinet clip between each cabinet or front earthquake plate as provided.
2. Remove the rear ground plate.
3. Remove the port cabinets from the stack.



CAUTION:

A port cabinet may weigh as much as 125 pounds. Use lifting precautions.

4. If the system is duplicated, remove the control cabinet in position "B." It is not reused.
5. If the basic control cabinet in position "A" is earthquake mounted, remove the hardware securing the cabinet to the floor.
6. Remove the basic control cabinet. It is not reused.

Unpack and Install Expansion Control Cabinet

1. Unpack and inspect the J58890N Expansion Control Cabinet.
2. Position the expansion control cabinet at the desired location.
3. Reinstall the earthquake mounting hardware, if required.

Install Port Cabinets

Replace the port cabinets into their proper positions.



NOTE:

If a duplicated Release 5si PPN is being upgraded to a Release 5r EPN, the J58890M Control Cabinet can be replaced by a J58890H Port Cabinet in position "B."

Install Circuit Packs

1. Replace the circuit packs and power supplies in port cabinets "C" and "D" if they were previously removed.
2. Using the label on the front of the carrier and the annotated "list configuration all" (provided with the Release 5r tape), install the control circuit packs into the new expansion control cabinet.



NOTE:

If a TN756 Tone-Detector/Generator was removed from the Release 5si control cabinet, a new Release 5r tone clock (TN2182) replaces this circuit pack. When a TN2182 is used, no TN748B Tone Detector is required.

3. Install the port circuit packs into the "A" cabinet using the label on the front of the carrier and the annotated "list configuration all" as a guide.



NOTE:

Since the new Release 5r expansion control carrier has six more port slots than the removed control carrier, there should be no need to retranslate these circuit packs.

4. For an EPN in a critical reliability system, install a TN2182 Tone-Clock and a TN570 EI in slots "1" and "2" of port cabinet "B." See Table 3-3.

Table 3-3. TN570 Expansion Interface Requirements

Cabinet	2 Port Networks w/o Critical Reliability	2 Port Networks w/Critical Reliability	3 Port Networks w/o Critical Reliability	3 Port Networks w/Critical Reliability
PPN	1	2	2	4
EPN 1	1	2	2	4
EPN 2	N/A	N/A	2	4

Change Cabinet Address Plugs

If a duplicated control cabinet was removed from position “B” and was not replaced with a new port cabinet, the upgraded EPN’s port cabinets occupy different positions in the cabinet stack. If so, change the location of each port cabinet address plug to reflect the cabinet’s current position. See Figure 3-1.

Behind each port cabinet, find the address plug attached to two of the six backplane pins to the right of the pin-field block for slot “00.”

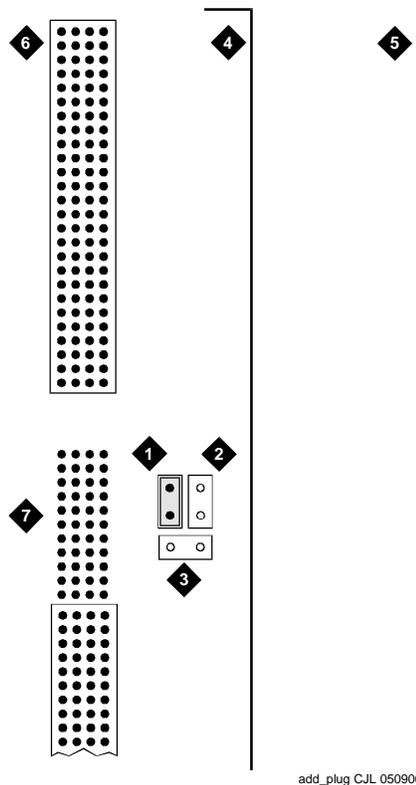


Figure Notes

- | | |
|------------------------------------------|--------------------------|
| 1. Address Plug (Shown Set to Carrier D) | 5. Right Edge of Cabinet |
| 2. Carrier B Jumper Location (Default) | 6. Backplane Slot 00 |
| 3. Carrier C Jumper Location | 7. To Connector Panel |
| 4. Right Edge of Backplane | |

Figure 3-1. Cabinet Address Plug Location

Install TDM/LAN Bus Terminators

1. If the Release 5si PPN has only one cabinet, install the two AHF110 TDM/LAN bus terminators per Figure 3-2.

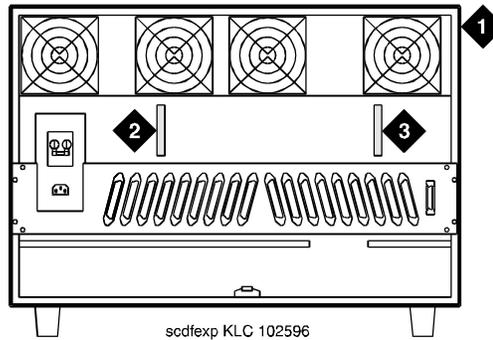


Figure Notes

- | | |
|--------------------------------------------|--------------------------------------------|
| 1. Control Cabinet ("A" Position) | 3. AHF110 TDM LAN/Bus Terminator (Slot 01) |
| 2. AHF110 TDM LAN/Bus Terminator (Slot 18) | |

Figure 3-2. TDM/LAN Bus Terminators for Single-Carrier Cabinet EPN

2. If the Release 5si PPN has more than one cabinet, perform the following:
 - a. Install the AHF110 TDM/LAN bus terminator in Slot 03 on the right side of the expansion control cabinet as shown in Figure 3-3.
 - b. Install the AHF110 TDM/LAN bus terminator on the top port cabinet, at the end of the daisy chain of the bus.

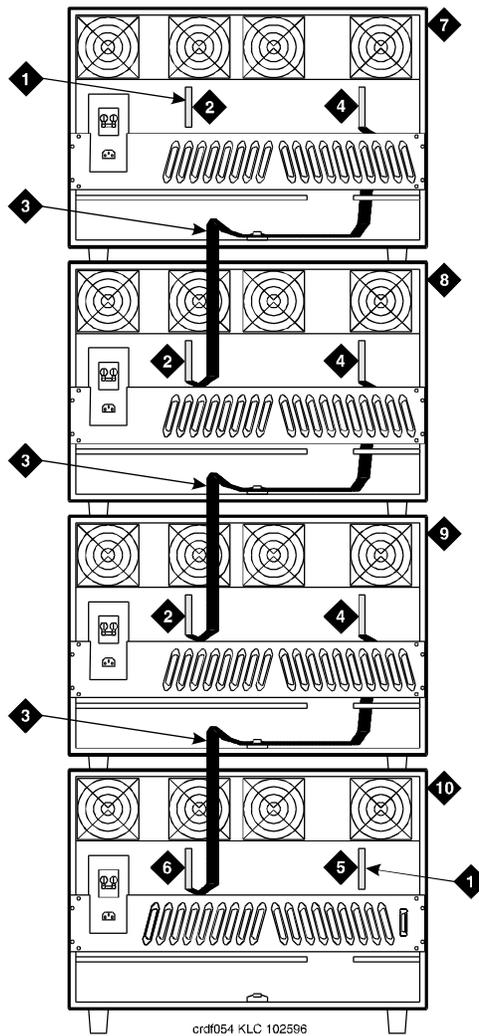


Figure Notes

- | | |
|----------------------------------|-----------------------------------------------------|
| 1. AHF110 TDM LAN/Bus Terminator | 6. Slot 18 |
| 2. Slot 17 | 7. J58890H Port Cabinet ("D" Position) |
| 3. TDM/LAN Cable (WP91716 L3) | 8. J58890H Port Cabinet ("C" Position) |
| 4. Slot 00 | 9. J58890H Port Cabinet ("B" Position) |
| 5. Slot 03 | 10. J58890NExpansion Control Cabinet ("A" Position) |

Figure 3-3. TDM/LAN Connections for Release 5 EPN

Connect TDM/LAN Cables and ICC Cables

1. Route and connect the TDM/LAN cables. If any of the Release 5si port cabinets (being upgraded to Release 5r cabinets) were originally R1V3 port cabinets, use the following steps to route a cable between an R1V3 upper cabinet and cabinet beneath it. Do not run a new cable through the existing slot in the rear shelf of the upper cabinet.
 - a. Loosen the two left connector panel screws, then remove the other two connector panel screws.
 - b. Attach the TDM/LAN cable to the backplane and slide the cable between the connector panel and the rear shelf (not through the existing slot in the shelf). Route the cable along the bottom of the cabinet.
 - c. Replace and tighten the connector panel screws.
2. For a critical reliability system, connect the ICC cables as shown in Table 3-4 and Figure 3-4 and Figure 3-5.



NOTE:

For a duplicated cabinet, do not use the ICC cables (H600-259 G1) removed from the duplicated Release 5si PPN. Use the new ICC cables (H600-248 G1)

Table 3-4. Intercabinet Cable Connections

Connect ICC Cables				
	From		To	
	Carrier	Pin-Field Block	Carrier	Pin-Field Block
EPN	J58890N	ICCA ICCB	J58890H	ICCA ICCB

3. On the "A" carrier, verify the CFY1 current limiter (CURL) connects to pinfield block "00" (see Figure 3-4).

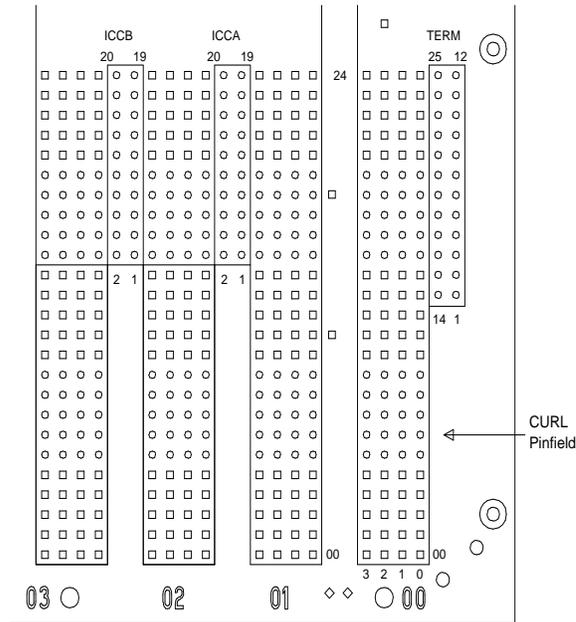


Figure 3-4. ICC Pinfield Blocks on J58890N Expansion Control Cabinet

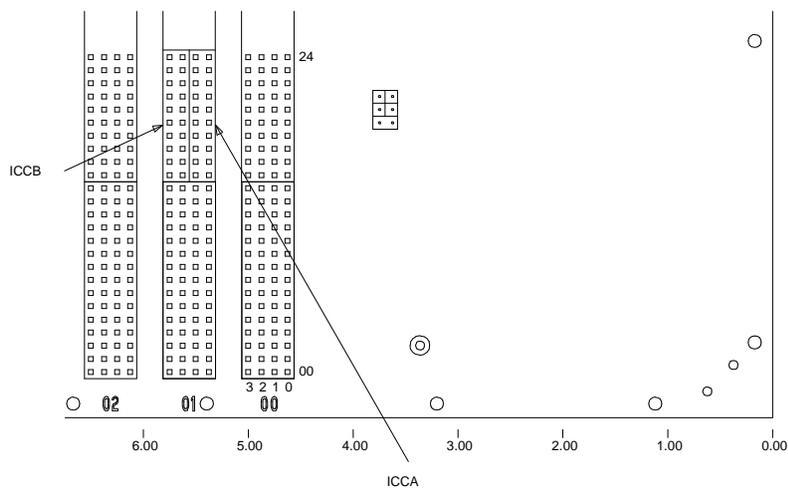


Figure 3-5. ICC Pinfield Blocks on J58890H Port Cabinet

Interconnect Port Networks with Fiber Optic Cabling — Standard Reliability Release 5r

Keep track of which fiber attaches to which connector on each lightwave transceiver. Label every cable installed. This section provides figures showing typical examples of these connections.

The connectors on the lightwave transceivers are labeled “TX” (transmit) or “RX” (receive), while the fibers attaching to each connector are numbered either “1” or “2.” See Figure 3-7.

Collocated Port Networks

For a standard reliability system with one collocated EPN, use 1 fiber optic cable and 2 lightwave transceivers to directly connect the networks.

For a standard reliability system with 2 collocated EPNs, use 3 fiber optic cables and 6 lightwave transceivers to directly connect the networks.

⇒ NOTE:

Based on floor plan considerations, the length of these cables may vary. 20 foot (6.1 m) cables are normally adequate for a Release 5r with two PNs.

For collocated cabinets, route the fiber optic cables directly from the PPN to each EPN cabinet. Since a “DEFINITY style” PPN cabinet is collocated with a Single-Carrier Cabinet stack, the preferred routing is to run the cables *down* the cable tray and out the bottom of the PPN cabinet. The cables are then run to the EPN cabinet and up the outside of the rear panels to the desired carrier level.

If a “DEFINITY style” PPN cabinet is also collocated with another “DEFINITY style” multi-carrier EPN cabinet, the preferred routing is *up* the cable tray and out the top of the PPN cabinet. The cables are then run to the other cabinet, through the top of the cabinet, and down the cable tray to the desired carrier level.

Fiber Remoted Port Networks

For a standard reliability system with one fiber-remoted EPN, use 2 fiber optic cables, 2 lightwave transceivers, and 2 lightguide interface units (provided by the PSC).

For a standard reliability system with 2 fiber-remoted EPNs, use 6 fiber optic cables, 6 lightwave transceivers, and 6 lightguide interface units (provided by the PSC).

DS1 CONV-Remoted Port Networks

For a standard reliability system with one DS1 CONV-remoted EPN, use two DS1 CONV circuit packs (TN1654), two DS1 Conv-to-EI cables (846448637 and/or 846448645), two H-600-348 cables, from one to four pairs of Channel Service Units (CSUs), and from one to four pairs of MDF cables (provided with the CSUs).

⇒ NOTE:

The TN1654 requires the use of a TN573B Switched Node Interface circuit pack

For a standard reliability system with two DS1 CONV-remoted EPNs, this arrangement requires:

- Six DS1 CONV circuit packs (TN1654)
- Six DS1 CONV-to-EI cables (846448637 and/or 846448645)
- Six H-600-348 cables
- Three, six, nine, or twelve pairs of CSUs
- Three, six, nine, or twelve pairs of wall-field cables (provided with CSUs)

For One or Two Collocated Expansion Port Networks

1. Behind port carrier B of the multi-carrier PPN. See Figure 3-6 and Figure 3-7:
 - a. Install a lightwave transceiver on the connector at slot 1B02.

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- b. Connect one end of the appropriate fiber optic cable to the lightwave transceiver at slot 1B02.
 - c. Route the fiber optic cable from the lightwave transceiver to the cabinet's cable tray and down out of the cabinet to the EPN stack.
 - d. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control cabinet A of EPN stack 2:
 - a. Install a lightwave transceiver on the connector at slot 2A01.
 - b. Connect the other end of the fiber optic cable from the PPN to the lightwave transceiver at slot 2A01.
 - c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.

- d. Coil up the surplus length of fiber optic cable, and place the coil either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

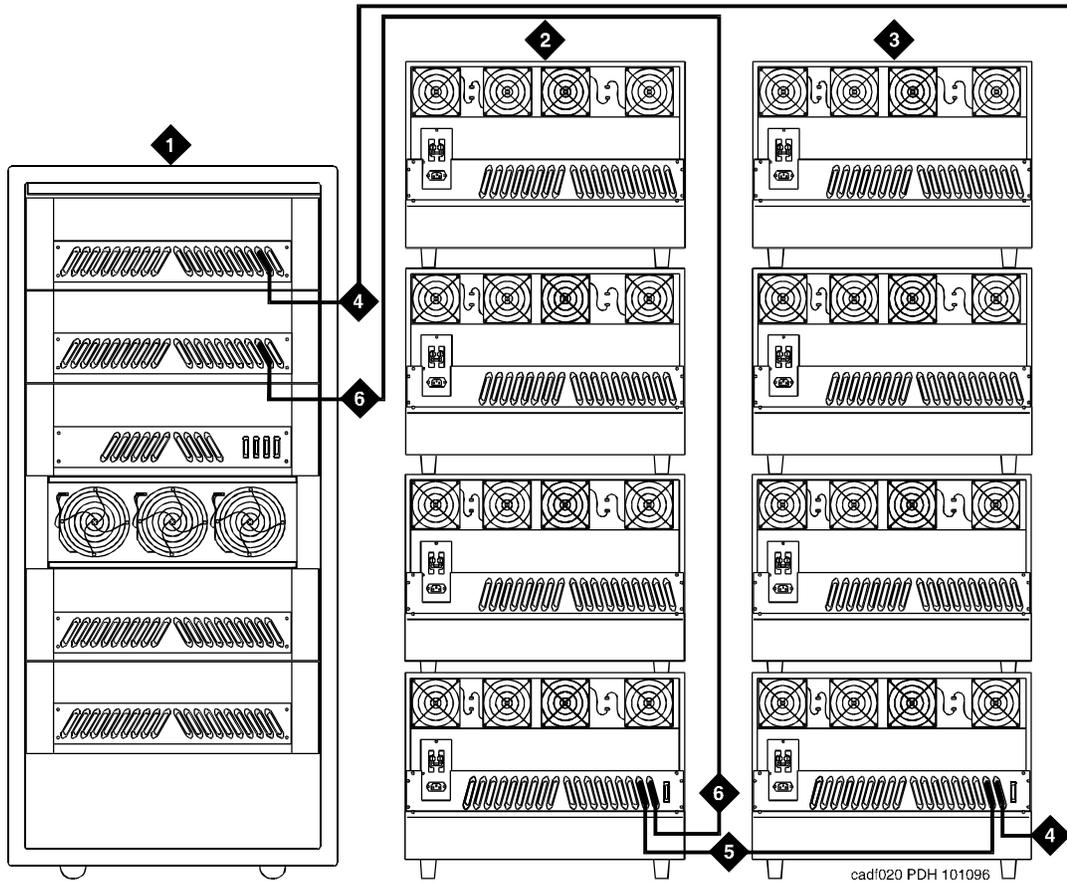


Figure Notes

- | | |
|---------------------------|---------------------------------------|
| 11. Cabinet 1 PPN | 14. From Cabinet 3 A1 to Cabinet 1 C2 |
| 12. Cabinet Stack 2 EPN 1 | 15. From Cabinet 2 A2 to Cabinet 3 A2 |
| 13. Cabinet Stack 3 EPN 2 | 16. From Cabinet 1 B2 to Cabinet 2 A1 |

Figure 3-6. Standard Reliability Release 5r with Two or Three Port Networks

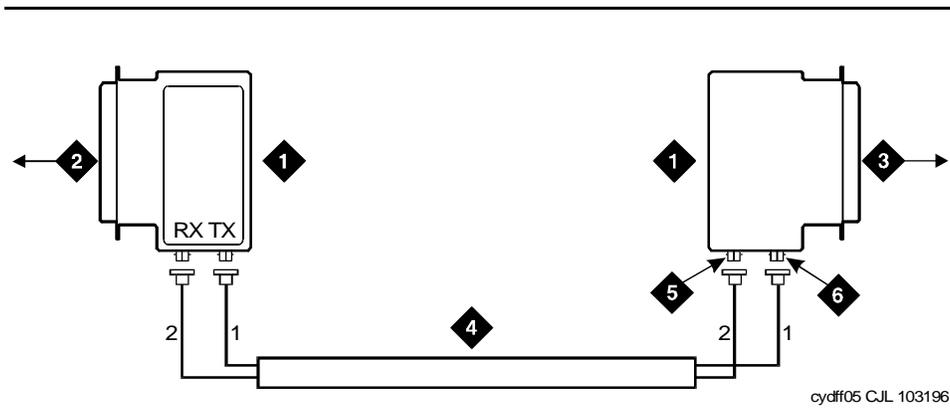


Figure Notes

- | | |
|------------------------------------------------------|----------------------|
| 1. Lightwave Transceiver | 4. Fiber Optic Cable |
| 2. To PPN Carrier B Slot 1B02 | 5. TX Connector |
| 3. To EPN 1 Carrier A Slot 2A01
(Cabinet Stack 2) | 6. RX Connector |

Figure 3-7. Typical Fiber Optic Connections

For One or Two Fiber-Remoted Expansion Port Networks

1. Behind port carrier B of the multi-carrier PPN. See Figure 3-6 and Figure 3-8:

- a. Install a lightwave transceiver on the connector at slot 1B02.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- b. Connect a fiber optic cable to the transceiver just installed.
 - c. Route the cable to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
 - d. Connect the fiber cable to the lightguide interface unit provided.
 - e. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control cabinet A of EPN stack 2:
 - a. Install a lightwave transceiver on the connector at slot 2A01.
 - b. Connect a fiber optic cable to the transceiver just installed.
 - c. Route the cable down the outside of the rear covers and through the cable manager to the PDS cross-connect facility.
 - d. Connect the fiber optic cable to the lightguide interface unit.
 - e. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
 - f. Coil up the surplus fiber optic cable and place the coil it in the cable manager.

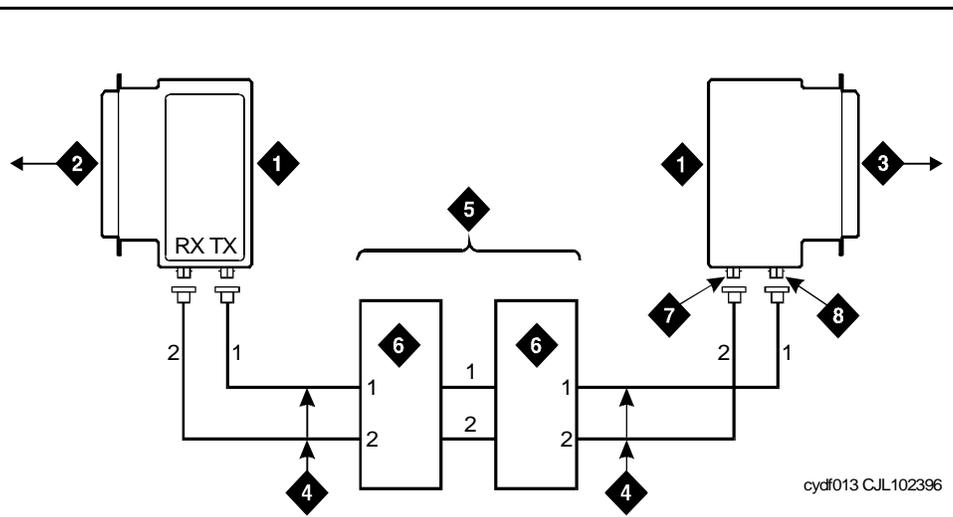


Figure Notes

- | | |
|------------------------------------------------|-----------------------------------------|
| 1. Lightwave Transceiver | 5. Cross-Connect Facility |
| 2. PPN Carrier B Slot 1B02 | 6. 100A Lightguide Interface Unit (LIU) |
| 3. EPN 1 Carrier A Slot 2A01 (Cabinet Stack 2) | 7. TX Connector |
| 4. Fiber Optic Cable | 8. RX Connector |

Figure 3-8. Fiber Optic Connections PPN to EPN1

Interconnect Port Networks with Fiber Optic Cabling — High Reliability Release 5r

Keep track of which fiber attaches to which connector on each lightwave transceiver. This section provides figures showing typical ways of making these connections. The connectors on the lightwave transceivers are labeled “TX” (transmit) or “RX” (receive), while the fibers attaching to each connector are numbered “1” or “2.” See Figure 3-10.

Collocated Port Networks

For a high reliability system with one collocated expansion port network, use one fiber optic cable and two lightwave transceivers, or one single-mode fiber optic cable and two single-mode lightwave transceivers to directly connect the networks.

For a high reliability system with 2 collocated expansion port networks, use 3 fiber optic cables and 6 lightwave transceivers, or 3 single-mode fiber optic cables and 6 single-mode lightwave transceivers to directly connect the networks.

⇒ NOTE:

Based on floor plan considerations, the length of these cables may vary. 20-foot (6.1 m) cables are normally adequate for a Release 5r with 2 port networks.

For collocated cabinets, route the fiber optic cables directly from the PPN to each EPN cabinet. Since a “DEFINITY style” PPN cabinet is collocated with a Single-Carrier Cabinet stack, the preferred routing is to run the cables *down* the cable tray and out the bottom of the PPN cabinet. The cables are then run to the EPN cabinet and up the outside of the rear panels to the desired carrier.

If a “DEFINITY style” PPN cabinet is also collocated with another “DEFINITY style” multi-carrier EPN cabinet, the preferred routing is to run the cables *up* the cable tray and out the top of the PPN cabinet. The cables are then run to the other cabinet, through the top of the cabinet, and down the cable tray to the desired carrier.

Fiber-Remoted Port Networks

For a high reliability system with 1 fiber-remoted EPN, use 2 fiber optic cables, 2 lightwave transceivers, and 2 lightguide interface units (provided by the PSC).

For a high reliability system with 2 fiber-remoted EPNs, use 6 fiber optic cables, 6 lightwave transceivers, and 6 lightwave-interface units (provided by the PSC).

DS1 CONV-Remoted Port Networks

For a high reliability system with one DS1 CONV-remoted expansion port network, use two DS1 CONV circuit packs (TN1654), two DS1 CONV-to-EI cables (846448637 and/or 846448645), two H-600-348 cables, from one to four pairs of channel service units (CSUs), and from one to four pairs of wall-field cables (provided with the CSUs).

 **NOTE:**

The TN1654 requires the use of a TN573B Switched Node Interface circuit pack

For a high reliability system with two DS1 Conv-remoted expansion port networks, this arrangement requires:

- Six DS1 Converter circuit packs (TN1654)
- Six DS1 Converter-to-EI cables (846448637 and/or 846448645)
- Six H-600-348 cables
- Three, six, nine, or twelve pairs of CSUs
- Three, six, nine, or twelve pairs of wall-field cables (provided with CSUs)

For One or Two Collocated Expansion Port Networks

1. Behind port carrier C of the multi-carrier PPN. See Figure 3-9 and Figure 3-10:
 - a. Install a lightwave transceiver on the connector at slot 1C02.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- b. Connect one end of the appropriate fiber optic cable to the lightwave transceiver at slot 1C02.
- c. Route the fiber optic cable from the lightwave transceiver to the cabinet's cable tray and down, out of the cabinet, to the EPN stack.
- d. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control cabinet A EPN stack 2:

- a. Install a lightwave transceiver on the connector at slot 2A01.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- b. Connect the other end of the fiber optic cable from the PPN to the lightwave transceiver at slot 2A01.

- c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
- d. Coil up the surplus fiber optic cable, and place the coil either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

For Two Collocated Expansion Port Networks

1. Behind port carrier D of the multi-carrier PPN:

- a. Install a lightwave transceiver on the connector at slot 1D02.

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- b. Connect one end of the appropriate fiber optic cable to the lightwave transceiver at slot 1D02.
- c. Route the cable to the cabinet's cable tray and down, out of the cabinet, to the EPN stack.
- d. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control cabinet A of EPN stack 3:

- a. Install a lightwave transceiver on the connector at slot 3A01.

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- b. Connect the other end of the fiber optic cable from the PPN to the lightwave transceiver at slot 3A01.
- c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
- d. Coil the surplus fiber optic cable and place it either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

3. Behind control cabinet A of EPN stack 2:

- a. Install a lightwave transceiver on the connector at slot 2A02.

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- b. Connect a fiber optic cable to the transceiver just installed.
- c. Route the cable down the outside of the rear covers to the other EPN stack.

- d. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
4. Behind control cabinet A of EPN stack 3:
 - a. Install a lightwave transceiver on the connector at slot 3A02.

 **NOTE:**
Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver
 - b. Connect the other end of the fiber optic cable from the PPN to the lightwave transceiver at slot 3A02.
 - c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
 - d. Coil the surplus fiber optic cable and attach it (with a cable tie) to a leg of an EPN cable clamp.

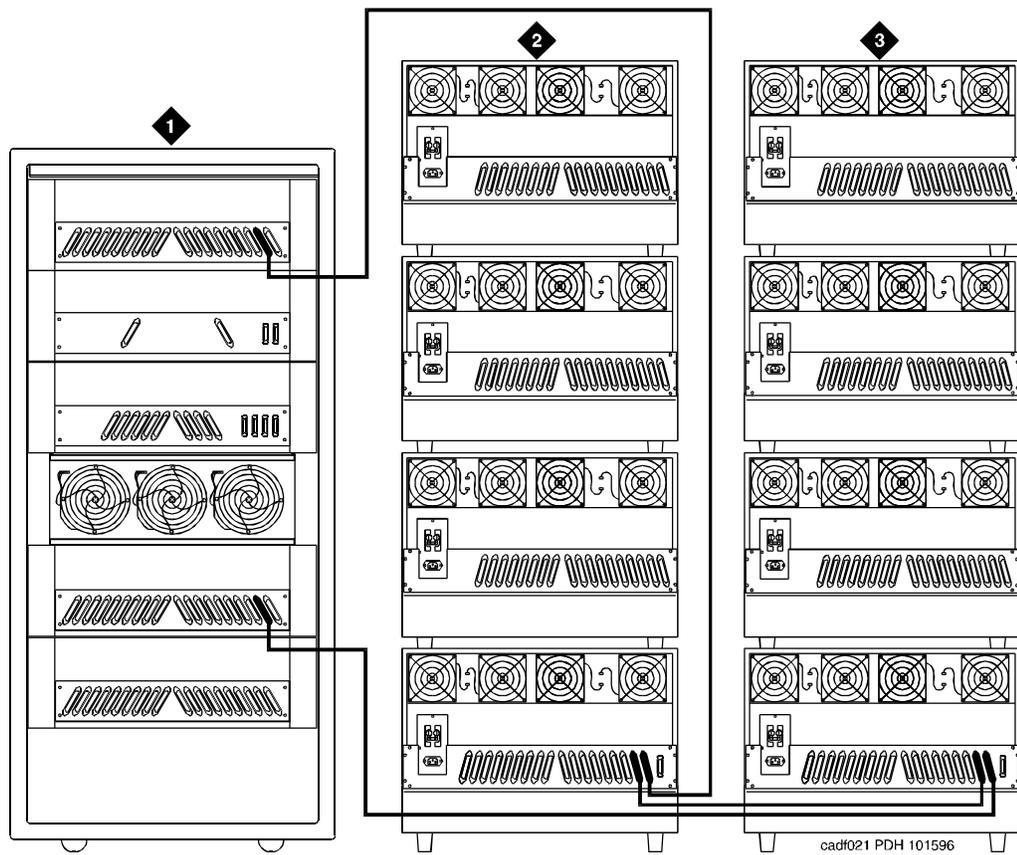


Figure Notes

1. Cabinet 1 PPN

3. Cabinet Stack 3 EPN 2

2. Cabinet Stack 2 EPN 1

Figure 3-9. High Reliability Release 5r with Two or Three Port Networks

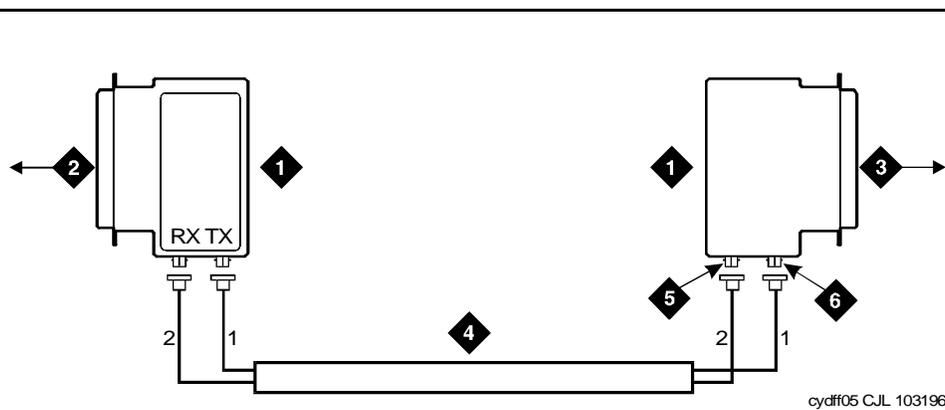


Figure Notes

- | | |
|------------------------------------------------------|----------------------|
| 1. Lightwave Transceiver | 4. Fiber Optic Cable |
| 2. To PPN Carrier C Slot 1C02 | 5. TX Connector |
| 3. To EPN 1 Carrier A Slot 2A01
(Cabinet Stack 2) | 6. RX Connector |

Figure 3-10. Fiber Optic Connections PPN to EPN1

For One or Two Fiber-Remoted Expansion Port Networks

1. Behind port carrier C of the multi-carrier PPN. See Figure 3-9 and Figure 3-11:
 - a. Install a lightwave transceiver on the connector at slot 1C02.

NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- b. Connect a fiber optic cable to the transceiver just installed.
- c. Route the fiber cable to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
- d. Connect the fiber cable to the lightguide interface unit provided.
- e. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

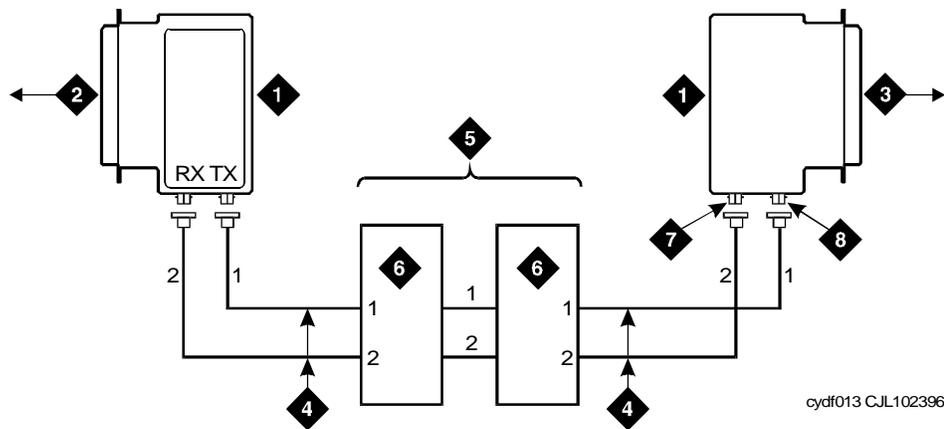
2. Behind control cabinet A of EPN stack 2:

- a. Install a lightwave transceiver on the connector at slot 2A01.

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- b. Connect a fiber cable to the transceiver just installed.
- c. Route the fiber cable down the outside of the rear covers and through the cable manager to the PDS cross-connect facility.
- d. Connect the fiber cable to the lightguide interface unit provided.
- e. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
- f. Coil the surplus fiber optic cable and place it in the cable manager.



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Figure Notes

- | | |
|---------------------------------------------------|-----------------------------------------|
| 1. Lightwave Transceiver | 5. Cross-Connect Facility |
| 2. To PPN Carrier B Slot 1C02 | 6. 100A Lightguide Interface Unit (LIU) |
| 3. To EPN 1 Carrier A Slot 2A01 (Cabinet Stack 2) | 7. TX Connector |
| 4. Fiber Optic Cable | 8. RX Connector |

Figure 3-11. Fiber Optic Connections PPN to EPN1

Interconnect Port Networks with Fiber Cabling — Critical Reliability Release 5r

Keep track of which fiber attaches to which connector on each lightwave transceiver. This section provides figures showing typical ways of making these connections.

The connectors on the lightwave transceivers are labeled “TX” (transmit) or “RX” (receive), while the fibers attaching to each connector are numbered “1” or “2.” See Figure 3-13.

Collocated Port Networks

For a critical reliability system with one collocated expansion port network, use two fiber optic cables and four lightwave transceivers to directly connect the networks.

For a critical reliability system with two collocated expansion port networks, use six fiber optic cables and twelve lightwave transceivers to directly connect the networks.

NOTE:

Based on floor plan considerations, the length of these cables may vary. 20-foot (6.1 m) cables are normally adequate for a Release 5r with two port networks.

For collocated cabinets, route the fiber optic cables directly from the PPN to each EPN cabinet. Since a “DEFINITY style” PPN cabinet is collocated with a Single-Carrier Cabinet stack, the preferred routing is to run the cables *down* the cable tray and out the bottom of the PPN cabinet. The cables are then run to the EPN cabinet and up the outside of the rear panels to the desired carrier level.

If a “DEFINITY style” PPN cabinet is also collocated with another “DEFINITY style” multi-carrier EPN cabinet, the preferred routing is *up* the cable tray and out the top of the PPN cabinet. The cables are then run to the other cabinet, through the top of the cabinet, and down the cable tray to the desired carrier level.

Fiber-Remoted Port Networks

For a critical reliability system with 1 fiber-remoted EPN, use 4 fiber optic cables, 4 lightwave transceivers, and 4 lightguide interface units (provided by the PSC).

For a critical reliability system with 2 fiber-remoted EPN, use 12 fiber optic cables, 12 lightwave transceivers, and 12 lightguide interface units (provided by the PSC).

DS1 CONV-Remoted Port Networks

For a critical reliability system with one DS1 CONV-remoted EPN, this arrangement requires:

- Four DS1 CONV circuit packs (TN1654)
- Four DS1 CONV-to-EI cables (847245750 and/or 847245768)
- Four H-600-348 cables
- Two, four, six, or eight pairs of channel service units (CSUs)
- Two, four, six, or eight pairs of wall-field cables (provided with the CSUs)

For a critical reliability system with two DS1 CONV-remoted EPNs, this arrangement requires:

- 12 DS1 CONV circuit packs (TN1654)
- 12 DS1 CONV-to-EI cables (847245750 and/or 847245768)
- 12 H-600-348 cables
- 6, 12, 18, or 24 pairs of CSUs
- 6, 12, 18, or 24 pairs of wall-field cables (provided with CSUs)

For One or Two Collocated Expansion Port Networks

1. Behind port carrier C of the multi-carrier PPN. See Figure 3-12 and Figure 3-13:

- a. Install a lightwave transceiver on the connector at slot 1C02.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- b. Connect one end of the appropriate fiber optic cable to the lightwave transceiver just installed.
- c. Route the fiber optic cable from the lightwave transceiver to the cabinet's cable tray and down, out of the cabinet, to the EPN stack.
- d. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind port cabinet B of EPN stack 2:

- a. Install a lightwave transceiver on the connector at slot 2B02.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- b. Connect the other end of the fiber optic cable coming from the PPN to the lightwave transceiver just installed.

- c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
 - d. Coil the surplus fiber cable and place it either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.
3. Behind port carrier D of the multi-carrier PPN:
- a. Install a lightwave transceiver on the connector at slot 1D02.



NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- b. Connect a fiber optic cable to the transceiver just installed.
 - c. Route the fiber cable to the cabinet's cable tray and down, out of the cabinet, to the EPN stack.
 - d. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
4. Behind control cabinet A of EPN stack 2:
- a. Install a lightwave transceiver on the connector at slot 2A01.



NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- b. Connect the other end of the fiber optic cable coming from the PPN to the lightwave transceiver at slot 2A01.
- c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
- d. Coil the surplus fiber cable and place it either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

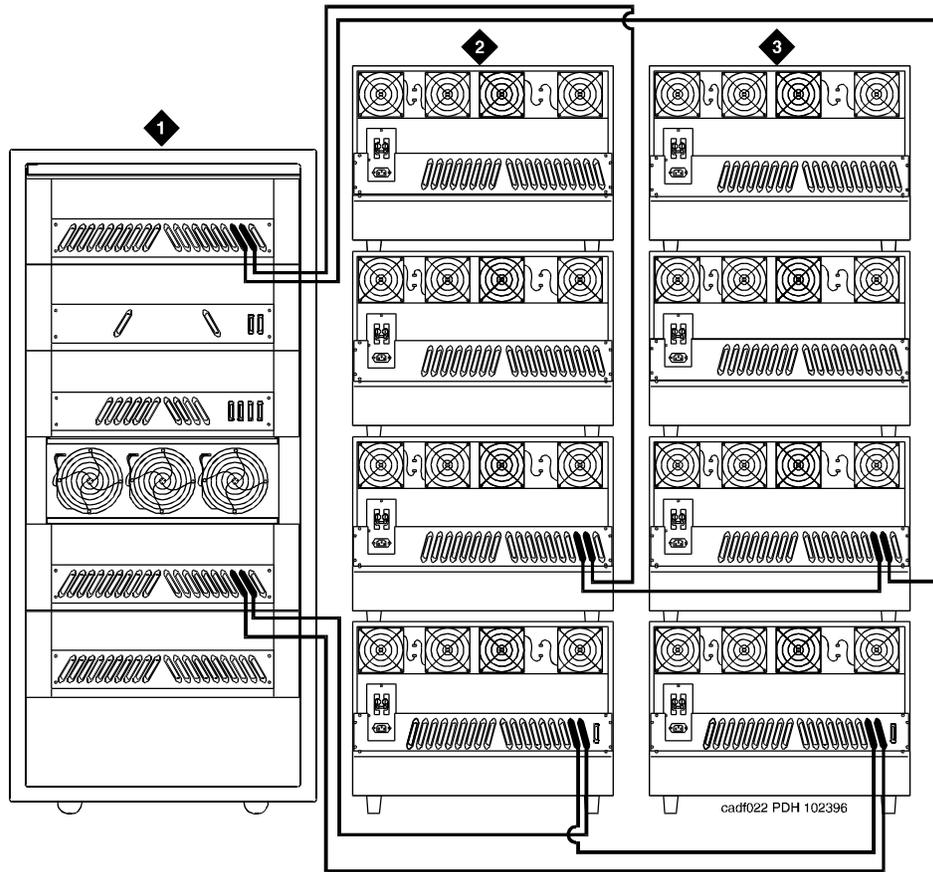


Figure Notes

- 1. Cabinet 1 PPN
- 2. Cabinet Stack 2 EPN 1
- 3. Cabinet Stack 3 EPN 2

Figure 3-12. Critical Reliability Release 5r with Two or Three Port Networks

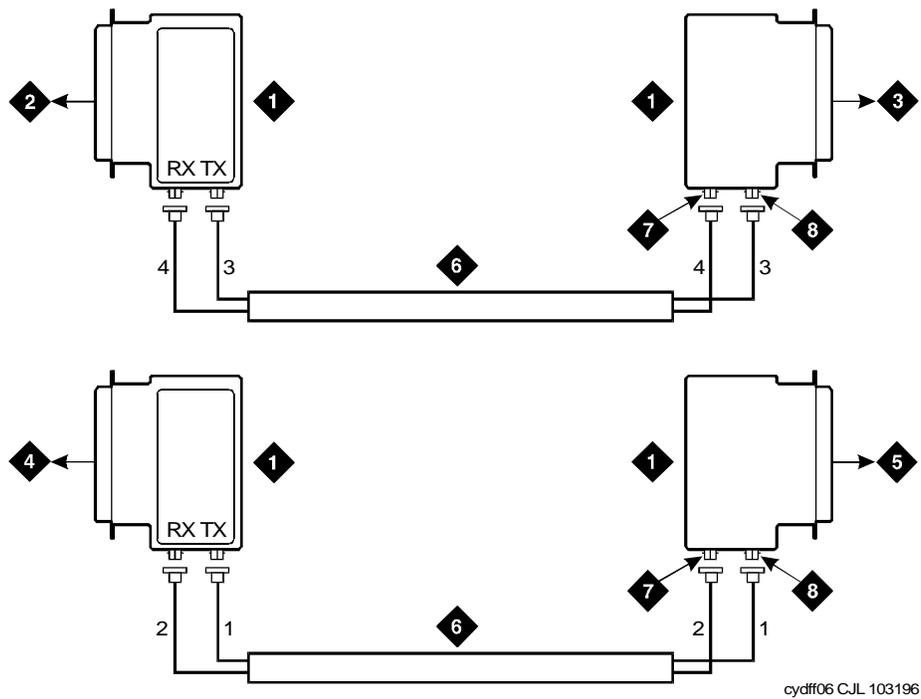


Figure Notes

- | | |
|------------------------------------------------------|-----------------------------|
| 1. Lightwave Transceiver | 5. EPN1 Cabinet B Slot 2B02 |
| 2. To PPN Carrier D Slot 1D02 | 6. Fiber Optic Cable |
| 3. To EPN 1 Carrier A Slot 2A01
(Cabinet Stack 2) | 7. TX Connector |
| 4. PPN Carrier C Slot 1C02 | 8. RX Connector |

Figure 3-13. Fiber Optic Connections PPN to EPN1

Switch-Connected Port Networks

For One to Fifteen Standard Reliability EPNs.

1. Behind the PPN cabinet. See Figure 3-14:
 - a. Install a lightwave transceiver on cable connector at slot 1E02.
 - b. Install a lightwave transceiver on cable connector at slot 1B02.
 - c. Connect one end of the metallic intercarrier cable to the lightwave transceiver at slot 1E02.
 - d. Route the intercarrier cable from the lightwave transceiver to the cabinet cable tray and upward to carrier "B."
 - e. Connect the other end of the intercarrier cable to the lightwave transceiver at slot 1B02.
 - f. Attach the intercarrier cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind switch node carrier E of PPN cabinet 1. See Figure 3-14:
 - a. For each EPN, install one lightwave transceiver on a cable connector with the following order of slots: 1E20, 1E03, 1E19, 1E04, 1E18, 1E05, and so forth.
 - b. Connect one end of each fiber optic cable to each lightwave transceiver, just installed.
 - c. Carefully attach the fiber optic cables (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
3. Behind control cabinet A of each single-carrier EPN:
 - a. Install a lightwave transceiver on cable connector at slot A01.
 - b. Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot A01.
 - c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
 - d. Coil up the surplus length of fiber optic cable, and place the coil either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

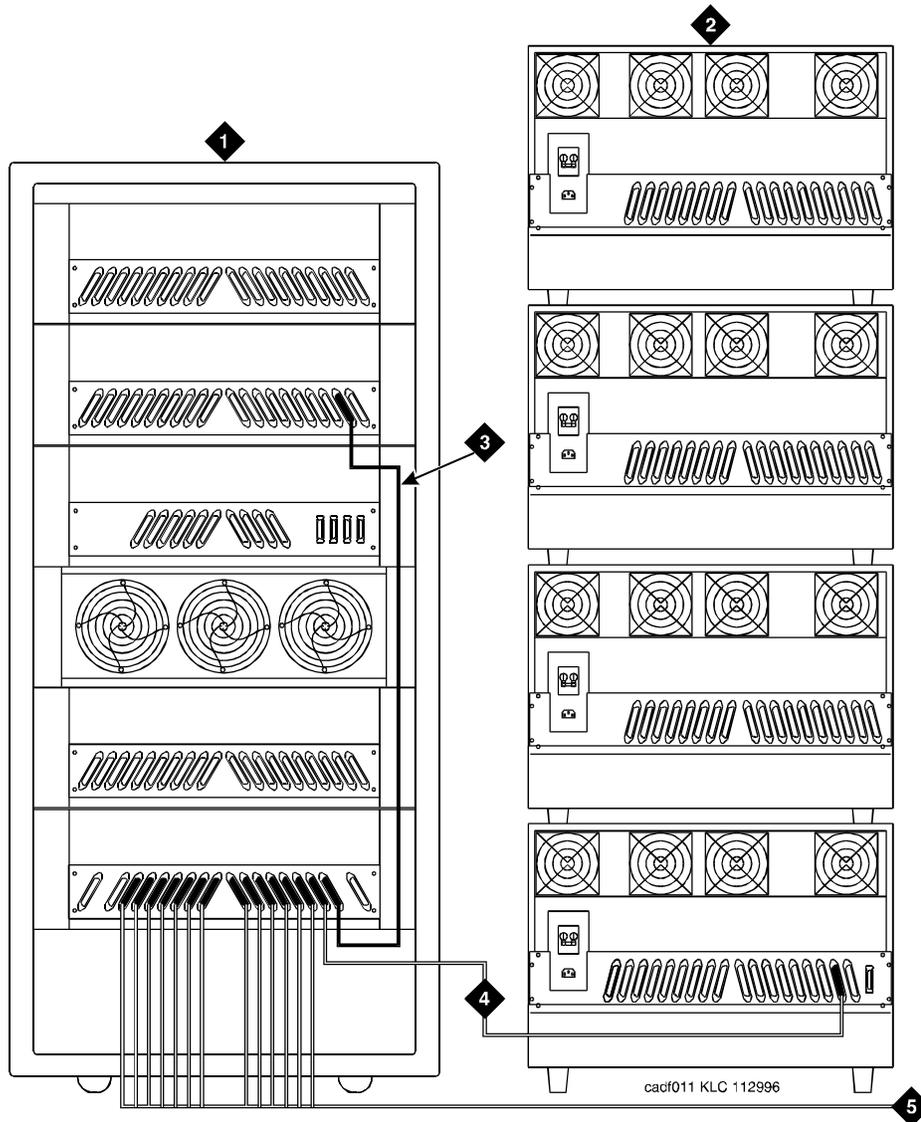


Figure Notes

1. Cabinet 1 PPN with 1 Switch Node
2. Cabinet Stack 2-16 EPN
3. Metallic Cable (H600-278)
4. Add Links to EPNs in Alternating Order (20, 3, 19, 4, 18, 5, and so forth)
5. To additional EPNs

Figure 3-14. Fiber Optic Connections Through Center Stage Switch

For One to Fifteen High Reliability EPNs.

1. Behind the PPN cabinet. See Figure 3-15:
 - a. Install a lightwave transceiver on cable connector at slot 1E02.
 - b. Install a lightwave transceiver on cable connector at slot 1C02.
 - c. Connect one end of the metallic intercarrier cable to the lightwave transceiver at slot 1E02.
 - d. Route the intercarrier cable from the lightwave transceiver to the cabinet's cable tray and upward to carrier "C."
 - e. Connect the other end of the intercarrier cable to the lightwave transceiver at slot 1C02.
 - f. Install a lightwave transceiver on cable connector at slot 1E20.
 - g. Install a lightwave transceiver on cable connector at slot 1D02.
 - h. Connect one end of the metallic intercarrier cable to the lightwave transceiver at slot 1E20.
 - i. Route the intercarrier cable from the lightwave transceiver to the cabinet's cable tray and upward to carrier "D."
 - j. Connect the other end of the intercarrier cable to the lightwave transceiver at slot 1D02.
 - k. Attach the intercarrier cables (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind switch node carrier E of PPN cabinet 1. See Figure 3-15:
 - a. For each EPN, install one lightwave transceiver on a cable connector with the following order of slots: 1E03, 1E19, 1E04, 1E18, 1E05, 1E17, and so forth.
 - b. Connect one end of each fiber optic cable to each lightwave transceiver, just installed.
 - c. Carefully attach the fiber optic cables (with cable ties) to the wall of the cable tray at the built-in cable-tie positions.
 - d. Behind control cabinet A of each single-carrier EPN:
 - e. Install the same kind of lightwave transceiver on cable connector at slot A01.
 - f. Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot A01.
 - g. Coil the surplus length of fiber optic cable, and place the coil either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

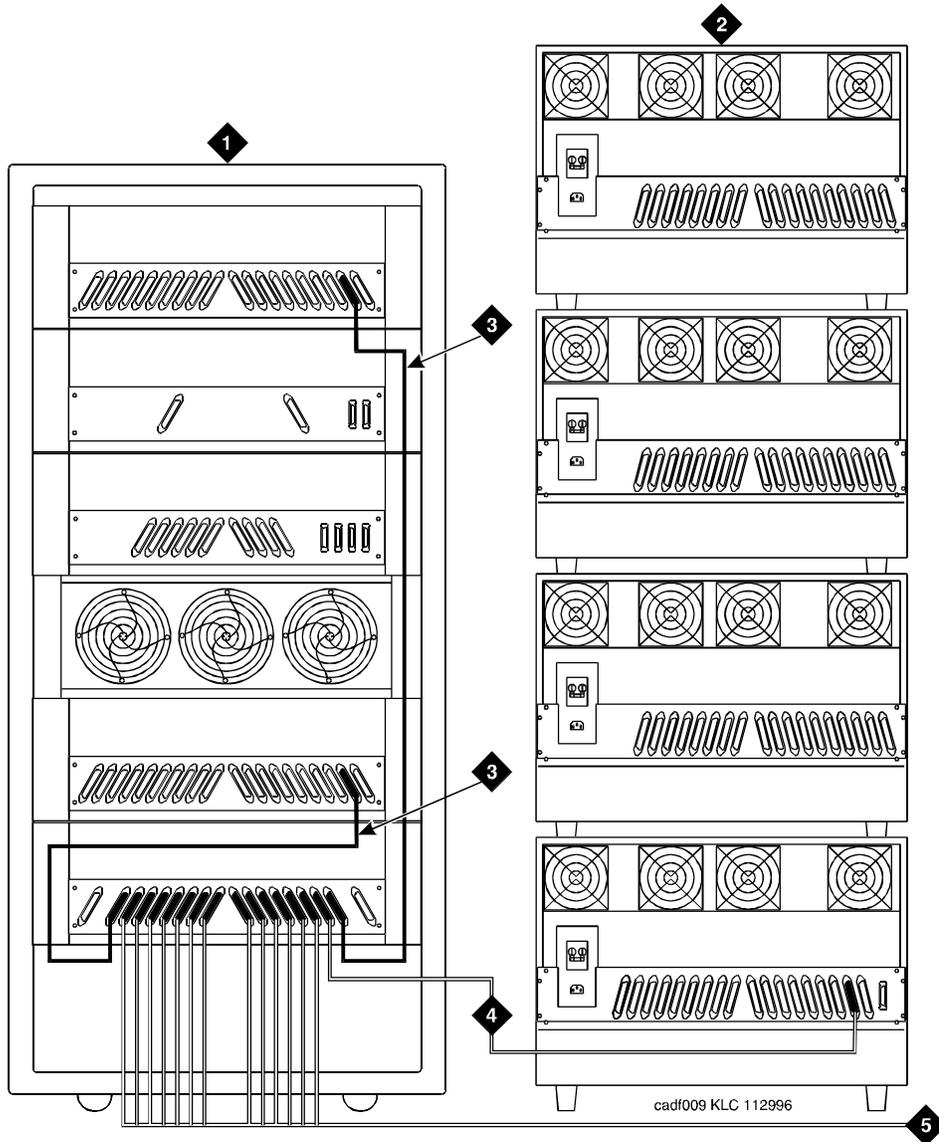


Figure Notes

- 1. Cabinet 1 PPN with 1 Switch Node
- 2. Cabinet Stack 2-16 EPN
- 3. H600-278 Metallic Cable
- 4. Add Links to EPNs in Alternating Order (3, 19, 4, 18, 5, 17, and so forth)
- 5. To Additional EPNs

Figure 3-15. Fiber Optic Connections Through Center Stage Switch

For One to Fifteen Critical Reliability EPNs.

1. Behind the PPN cabinet. See Figure 3-16:
 - a. Install a lightwave transceiver on cable connector at slot 1E01.
 - b. Install a lightwave transceiver on cable connector at slot 1E02.
 - c. Connect the metallic intracarrier cable to the lightwave transceivers at slots 1E01 and 1E02.
 - d. Install a lightwave transceiver on cable connector at slot 1D01.
 - e. Install a lightwave transceiver on cable connector at slot 1D02.

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceivers

- f. Connect the metallic intracarrier cable to the lightwave transceivers at slots 1D01 and 1D02.
2. Behind switch node carrier E of PPN cabinet 1:
 - a. For each EPN, install one lightwave transceiver on a cable connector with the following order of slots: 1E20, 1E03, 1E19, 1E04, 1E18, 1E05, and so forth.
 - b. Connect one end of each fiber optic cable to each lightwave transceiver, just installed.
 - c. Carefully attach the fiber optic cables (with cable ties) to the wall of the cable tray at the built-in cable-tie positions.
3. Behind control cabinet A of each single-carrier EPN:
 - a. Install a lightwave transceiver on cable connector at slot A01.

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- b. Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot A01.
 - c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
 - d. Coil the surplus length of fiber optic cable, and place the coil either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

4. Behind switch node carrier D of PPN cabinet 1:
 - a. For each EPN, install one lightwave transceiver on a cable connector with the following order of slots: 1E20, 1E03, 1E19, 1E04, 1E18, 1E05, and so forth.
 - b. Connect one end of each fiber optic cable to each lightwave transceiver, just installed.
 - c. Carefully attach the fiber optic cables (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
5. Behind port cabinet B of each single-carrier EPN:
 - a. Install a lightwave transceiver on cable connector at slot B02.



NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- b. Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot B02.
- c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
- d. Coil up the surplus length of fiber optic cable, and place the coil either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

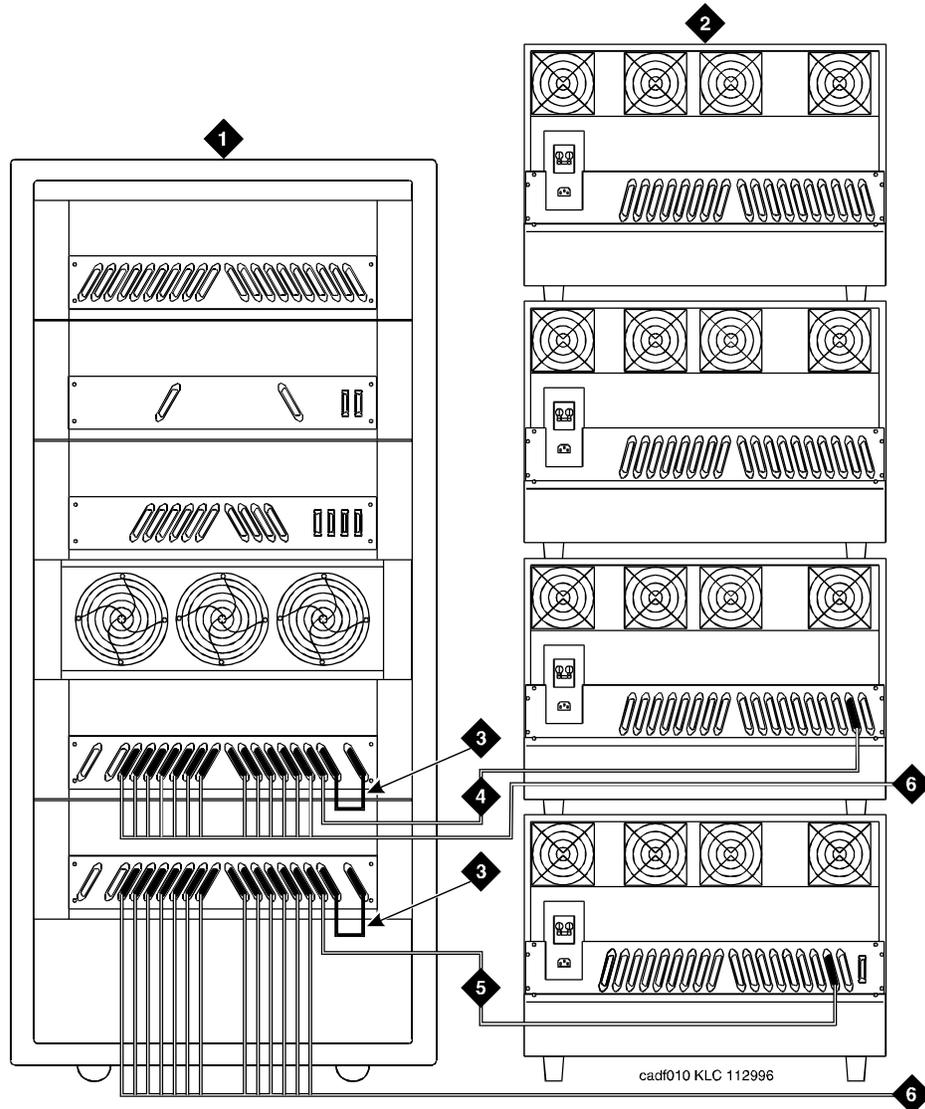


Figure Notes

- 6. Cabinet 1 with 1 Duplex Switch Node
- 7. Cabinet Stack 2-16 EPN
- 8. H600-278 Metallic Cable
- 9. Add Links to EPNs in Alternating Order (20, 3, 19, 4, 18, 5, and so forth)
- 10. Add Links to EPNs in Alternating Order (20, 3, 19, 4, 18, 5, and so forth)
- 11. To additional EPNs

Figure 3-16. Fiber Optic Connections Through Center Stage Switch

DS1 CONV-Remoted Cabinets

The distance between the DS1 facilities and associated equipment room hardware and cabling is a maximum of approximately 200 circuit miles (322 km) for analog voice and 500 circuit miles (805 km) for digital (no analog voice stations).

⇒ NOTE:

These limits for DS1 remoting is the maximum distance between *any* two port networks in a Release 5r system with either direct or switched port network connections with a TN1654 DS1 Converter Circuit pack.

Digital public network tie trunk facilities provide the end-to-end connectivity between the port networks. For either type of port network (PPN or EPN), a TN1654 DS1 Converter circuit pack serves as the port network interface to the DS1 facilities. As a PPN interface, a TN1654 DS1-CONV can reside in either:

- A port carrier (in any port slot)
- A switch-node carrier (in port slot "1" or "21")

As an EPN interface, a TN1654 DS1 CONV can reside in an expansion control carrier (in any port slot).

DS1 Cabling within the Local Port Networks. Use the running list that accompanies the upgrade equipment to determine which cable connects where. The following paragraphs only provide conceptual information about wiring a DS1 Converter interface either to an expansion interface or to a switch node interface, not step-by-step procedures for wiring a specific Release 5r system.

⇒ NOTE:

It is important to label every cable installed.

A cable connects each DS1 CONV either to the appropriate TN570 expansion interface (for a direct connection to another port network) or to the appropriate TN573B SN Interface (for a switched connection to another port network).

⇒ NOTE:

These cables usually connect to TN570 expansion interfaces (already installed) for direct connections between the new PPN and either one or two EPNs.

On the DS1 CONV side, a 4C retainer binds this shielded cable to the DS1 CONV port connector. On the EI/SNI side, a 4B retainer binds the cable to the EI/SNI port connector. The DS1 CONV-to-EI/SNI cable also provides a piggy-back connector enabling subsequent access to the public network.

Table 3-5 lists the cable numbers and lengths for the possible connections.

Table 3-5. Numbers and Lengths of DS1 CONV-to-EI/SNI Cables

Connection Type	Comcode Number	Length
Within same carrier	847245750	1 foot
Between two carriers in same port network	846448768	5.5 feet
Between two carriers in adjacent networks	846448776, and one 846885259 bracket	1 foot (used with two 9823As, & one 20-foot fiber optic cable)

DS1 CONV Cabling to the Public Network. Use the running list that accompanies the upgrade equipment to determine which cable connects where. The following paragraphs only provide conceptual information about wiring a DS1 CONV interface to a wall-field block, not step-by-step procedures for wiring a specific Release 5r system.

If already connected to either an expansion or switch node interface, a DS1 CONV circuit pack already resides either in an EPN expansion control carrier or in a PPN port carrier or switch node carrier.

Depending on the traffic requirements between the two port networks, a 25-foot H600-348 cable extends from the piggy-back connector (on each DS1 CONV-to-EI/SNI cable) to from one to four CSUs. This cable branches to four 15-pin subminiature D-type connectors (labeled "01" to "04") to make the CSU connections. Then, in turn, the CSUs connect to the wall-field block (corresponding to the equipment location of the DS1 CONV) at port connections "8," "7," "6," and "5" (in descending order).

Neglecting overhead, this wiring arrangement can provide PN-to-PN communication at the bandwidth of up to four DS1 CONV spans (1.544 Mbps each). Between each port network's wall field, the port networks communicate across leased lines in the public network.

Connect Power and Ground

1. Reconnect the 6 AWG (4.115 mm) cabinet ground wire to the single-point ground bar on the cabinet.
2. Reconnect the 10 AWG (2.588 mm) coupled bonding conductor wire.
3. Reconnect the cabinet power cords at the rear of each cabinet.

Verify Usable Circuit Pack Vintages

Verify every circuit pack reused in the upgrade conforms to the usable vintage requirements for a Release 5r system (see *Reference Guide for Circuit Pack Vintages and Change Notices*).

Install System Access Ports

As a prerequisite for connecting various endpoints that use EIA interfaces to the system, install up to eight loop-around connections for Mode 2-to-Mode 3 (and vice versa) data conversion.

From the *outgoing* perspective of the system communicating with an EIA endpoint, these loop-around connections convert Mode 3 data (circuit-switched packet data, with undefined bit rates and packet specifications) to Mode 2 data (low-speed, usually asynchronous, data at rates of 300 to 19,200 bps) by:

- Accepting Mode 3 data off the LAN bus (from the SPE) at a TN553 Packet Data Line circuit pack, where Mode 3-to-Mode 2 conversion is done
- Routing the converted data through the cross-connect field and back to a TN726B Data Line where the equivalent Mode 2 data can access the TDM bus, for subsequent routing to an EIA endpoint

The endpoints that use these EIA interfaces and, therefore, require the Mode 2-to-Mode 3 conversion include:

- Generic 3 Management Applications (G3-MA)
- Remote Generic 3 Management Terminal (G3-MT)
- Basic Call Management System (BCMS) terminal
- Call Detail Recording Unit (CDRU)/Centralized Attendant Service Plus (CAS+)
- Property Management System (PMS)
- Printers

Reseat DEFINITY LAN Gateway System

Reseat the DEFINITY LAN Gateway assembly into its backplane connectors.

Reseat DEFINITY AUDIX System

Reseat the AUDIX assembly to its backplane connectors.

Remove Emergency Transfer Ground Wire

Remove the 10 AWG (#25) (2.588 mm) ground wire from the emergency transfer unit.

Reboot the System

1. Connect the management terminal to the TERMINAL connector on the rear of PPN control carrier "A," or install the G3-MA according to *DEFINITY Communications System Generic 3 Management Applications — Operations*, 585-229-202.
2. Insert the new Release 5r system tape in the tape drive.
3. Behind each EPN cabinet, set the circuit breaker to ON.
4. At the PPN power distribution unit, set the main circuit breaker to ON.
5. The system performs a reset level 4 rebooting process, loading blank translations from the disk. Rebooting takes 5 to 11 minutes.
6. Enter **reset system 4 tape**. Press Enter. This instructs the system to go through the reset level 4 rebooting process, loading the upgraded STS translations from the new tape. Rebooting takes 5 to 11 minutes.
7. Log in at the `login:` prompt on the terminal and set the time to ensure the system is booted properly.
8. If the system is high or critical reliability, enter **status spe** and press Enter to verify the standby SPE is refreshed and the standby disk is in service.
9. Enter **restore disk [spe-a or both] full**. Press Enter. This instructs the system to write the upgraded STS translation information from memory to the disk(s).
10. Enter **reset system 4**. Press Enter. This instructs the system to perform a reset level 4 rebooting process, loading the upgraded STS translations from the disk. Rebooting takes 5 to 11 minutes.

NOTE:

Certain forms have changed for Release 5r. Upgraded Release 5si translations may appear on a different form, fields may move within a form, and the names assigned to particular fields may change.

Restart DEFINITY LAN Gateway System

1. Log onto the DEFINITY LAN Gateway.
2. When the main menu appears, select *Maintenance*.
3. Select *Reset System* from the *Maintenance* menu.
4. Select *Restart System* from the *Reset System* menu.

Relabel Main Distribution Frame

Relabel the MDF with the new port network number of the upgraded Release 5r EPN. The STS software upgrade assigned the next port network number, after the highest numbered port network in the Release 5si system, to the upgraded EPN.

Reconnect Cables

1. Behind each EPN cabinet power supply, set the circuit breaker to OFF.



NOTE:

Powering down an EPN cabinet without powering down the PPN will set off alarms. However, these alarms should clear after power is restored to the EPN.

2. Replace all cables that were labeled and removed.
3. Install the top and bottom rear covers. Be sure the correct rear covers are installed on the new J58890N Expansion Control Cabinet. Do not use these rear covers on the port cabinets.



NOTE:

The rear covers for Release 5r control carriers may need two detents (one for the TDM/LAN cable and another for the ICC cables). Therefore, if the Release 5si being upgraded to a critical reliability Release 5r's EPN was originally an R1V3, verify the lower rear cover of the port cabinet in position "B" (serving as the duplicate expansion control cabinet) has been replaced with a new cover (846307817) so the ICC cables and the new ground plate can be properly installed between cabinets "A" and "B." If not, replace this cover with the new cover.

Install Cable Clamps

Behind the cabinets, using screws provided, install two cable clamps on each ground plate (see Figure 3-17). These clamps are used to hold the port cables.

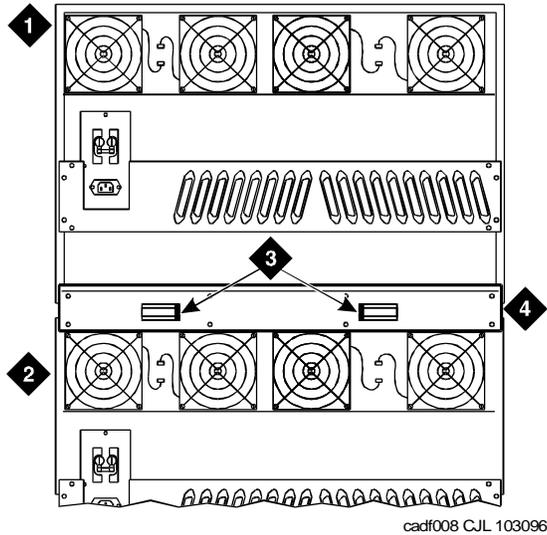


Figure Notes

- | | |
|---------------------|------------------|
| 12. Port Cabinet | 14. Cable Clamps |
| 13. Control Cabinet | 15. Ground Plate |

Figure 3-17. Location of Ground Plate and Cable Clamps

Power Up the EPN Cabinets

1. Behind each EPN cabinet power supply, set the circuit breaker to ON.
After about 40 seconds, EPN power and PPN/EPN communications return.
2. After power returns to the EPN and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

Retranslate Port Circuits

If port circuit packs in the Release 5si control cabinet were relocated in order to:

- Use a TN748B to replace the tone detector circuits on a TN756
- Put a critical port circuit pack, requiring longer nominal battery holdover (a DS1 or an Announcement circuit pack), in a port slot
- Put a TN570 Expansion Interface in port slot “1” or in port slot “2” (for a second EPN)
- Put a TN755B power supply in port slots “16” and “17”

verify they were retranslated during the off-site software upgrade. If not, retranslate them now. Refer to *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*.

Re-record Announcements

The off-site STS translation upgrade did not preserve the contents of recorded announcements. Therefore, if a TN750/B Announcement circuit pack resides in the system, any announcements that were stored on the circuit pack must be re-recorded.

Enable Customer Options

1. Enter **change system-parameters customer-options** and press Enter.
2. Use these forms to verify the customer options are properly set.



NOTE:

In the *Basic Call Setup* field, if *ISDN-PRI?* was set to *y* before the upgrade, be sure to set the field back to *y*.

Resolve Alarms

Examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*.

Contact INADS to Enable Customer Options and Alarm Origination

Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.

Multi-Carrier G2 Universal Module to Release 5si + Memory EPN

4

This chapter provides the information necessary to upgrade a DEFINITY G2 universal module to a multi-carrier EPN of a R5si + memory system.

DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description lists Release 5 features and functions, and provides the commands, procedures, and forms to initialize and administer the system.

Task Tables

Table 4-1, Table 4-2, and Table 4-3 provide the high-level tasks to perform the upgrades detailed in this chapter. Refer to the appropriate page for detailed instructions for each step.

Table 4-1. Tasks to Upgrade to Release 5si + m — Standard Reliability

✓	Task Description	Page
	Contact Network Technicians	4-5
	Save Translations	4-11
	Make Source Tape for TRACS Report	4-11
	Required Hardware	4-13
	Follow Routine Preventive Maintenance	4-14
	Label Cables	4-14
	Power Down G2 System	4-14
	Install Power-Failure Transfer Ground Wire	4-15
	Disconnect Cables	4-15
	Remove Circuit Packs from Module Control Carrier A	4-15
	Remove CURL from Module Control Carrier A	4-15
	Remove Module Control Carrier A	4-16
	Unpack and Inspect Expansion Control Carrier	4-20
	Install New Expansion Control Carrier A	4-20
	Install Circuit Packs	4-23
	Interconnect Port Networks	4-23
	Verify Usable Circuit Pack Vintages	4-32
	Remove Power-Failure Ground Wire	4-32
	Boot the Release 5 System	4-33
	Reconnect Cables to Upgraded EPN Cabinet	4-34
	Power Up the EPN Cabinets	4-34
	Retranslate Port Circuits	4-34
	Enable Customer Options	4-35
	Resolve Alarms	4-35
	Contact INADS to Enable Customer Options and Alarm Origination	4-35
	Return Replaced Equipment	4-35

Table 4-2. Tasks to Upgrade to Release 5si + m — High Reliability

✓	Task Description	Page
	Required Hardware	4-36
	Follow Routine Preventive Maintenance	4-37
	Label Cables	4-37
	Power Down G2 System	4-37
	Install Power-Failure Transfer Ground Wire	4-38
	Disconnect Cables	4-38
	Remove Circuit Packs from Module Control Carrier A	4-38
	Remove CURL from Module Control Carrier A	4-38
	Remove Module Control Carrier A	4-39
	Unpack and Inspect Expansion Control Carrier	4-43
	Install New Expansion Control Carrier A	4-43
	Install Circuit Packs	4-47
	Interconnect Port Networks — High Reliability	4-48
	Verify Usable Circuit Pack Vintages	4-59
	Remove Power-Failure Ground Wire	4-59
	Boot the Release 5 System	4-60
	Reconnect Cables	4-61
	Power Up the EPN Cabinets	4-61
	Retranslate Port Circuits	4-61
	Enable TTI	4-62
	Enable Scheduled Maintenance	4-62
	Enable Customer Options	4-62
	Resolve Alarms	4-62
	Contact INADS to Enable Customer Options and Alarm Origination	4-62
	Return Replaced Equipment	4-62

Table 4-3. Tasks to Upgrade to Release 5si + Memory — Critical Reliability

✓	Task Description	Page
	Upgrade Cabinets	4-63
	Follow Routine Preventive Maintenance	4-64
	Label Cables	4-64
	Power Down G2 System	4-64
	Install Power-Failure Transfer Ground Wire	4-65
	Disconnect Cables	4-65
	Remove Circuit Packs from Module Control Carriers A and B	4-65
	Remove CURL from Module Control Carrier A	4-66
	Remove Module Control Carriers A and B	4-66
	Prepare the New A and B Position Carriers	4-70
	Install the New A and B Position Carriers	4-71
	Test the CURL	4-76
	Install Circuit Packs	4-77
	Interconnect Port Networks — Critical Reliability	4-77
	Verify Usable Circuit Pack Vintages	4-91
	Remove Power-Failure Ground Strap	4-91
	Boot the Release 5 System	4-92
	Close Upgraded EPN Cabinet and Reconnect Cables	4-93
	Power Up the EPN Cabinets	4-93
	Retranslate Port Circuits	4-93
	Enable TTI	4-94
	Enable Scheduled Maintenance	4-94
	Enable Customer Options	4-94
	Resolve Alarms	4-94
	Contact INADS to Enable Customer Options and Alarm Origination	4-94
	Return Replaced Equipment	4-94

Considerations

Contact Network Technicians

Contact the technician for each public and private network accessed by the system before the upgrade begins. Otherwise, if these technicians are not aware of the service interruption caused by the upgrade, it is possible that network-access trunk facilities will be busied out at the far end.

Service Interruption

The upgrade process requires a service interruption. Coordinate this service interruption with the customer and the local account team.

Communication Between Equipment Rooms

For an upgrade where some of the equipment resides at a remote location, the upgrade activity is much easier if temporary communication is established between the equipment rooms.

Relocation of Port Circuit Packs

An upgrade to Release 5 *does not* cause G2 port circuit packs to be moved and manually retranslated. This is because a G2 universal module is always upgraded to an EPN. So, during the upgrade, a Release 5 expansion control carrier (with 18 available port slots) always replaces the G2 module control carrier (with no port slots), providing a net gain of 18 port slots.

Usable Circuit Packs

Each circuit pack used in the upgraded Release 5 system must conform to the minimum usable vintage requirements for Release 5. Those circuit packs shipped in the new Release 5 PPN or shipped loose with the new EPN equipment should always meet the usable vintage specifications. In addition, at a presale site inspection, the Quality Protection Plan Change Notice (QPPCN) process must check the vintages of every G2 circuit pack (including any CFY1 current limiters) that will be reused in the upgraded Release 5 and, if necessary, replace those circuit packs that have unusable vintages. Refer to *Technical Monthly*, "Reference Guide for Circuit-Pack Vintages and Change Notices," for current information about usable vintages in a Release 5 system.

In most configurations, the two- or three-board combination of a tone generator pack, tone detector pack, and/or call classifier pack can be replaced with the TN2182 circuit pack, freeing up one or two port slots.

Since Release 5 supports international call-processing applications, a wide variety of non-United States circuit packs can be used. Contact your Lucent Technologies representative for more information.

Site Inspections

For the purposes of a Release 5 upgrade, most G2 systems are already equipped with the correct TDM/LAN cables (WP-91716 L6 and L7) and the correct lightwave transceivers (9823A or 9823B). However, some G2 systems contain earlier versions of these components, and (based on a site inspection) these older components must be replaced.

The two earlier versions of the TDM/LAN cable included the WP-91112 (L1 and L2) and the WP-91716 (L1 and L2). Both of these versions, had white labels. In contrast, the correct cables (WP-91716 L6 and L7) have blue labels. If a QPPCN site inspection reveals that the older cables reside in the system, replace the older cables under the QPPCN process.

Earlier versions of lightwave transceivers include the 4-series transceivers (4A through 4F). These transceivers support fiber connections up to 7,000 feet (2134 m) apart; whereas the 9823A supports connections up to 5,000 feet (1524 m), and the 9823B supports connections up to 25,000 feet (7620 m). A single mode fiber transceiver (300A) supports distances of up to 115,000 feet (21.7 miles, 35 km). If the site inspection reveals that the older 4-series transceivers reside in the system, Order the correct transceivers according to a separate PEC.

⇒ NOTE:

Using the 300A may require 5 or 10 dB attenuators which are available. Contact your Lucent Technologies representative for more information.

⇒ NOTE:

The 9823A transceiver is *not* a direct replacement for the 4-series transceiver (since a pair of 9823A transceivers *cannot* replace a pair of 4-series transceivers supporting a connection of between 5,000 feet (1524 m) and 7,000 feet (2134 m)).

Power and Ground

The new multi-carrier PPN cabinet or any EPN cabinet added for the upgrade can be either AC- or DC-powered. If an added cabinet is powered differently from the existing cabinets, the existing cabinets do not have to be converted since mixed power configurations are allowed. However, the system's power and grounding must be modified so that the AC-powered cabinets are grounded to the same single-point ground bar as the DC-powered cabinets.

If a new AC-powered cabinet is to be added, provide a separate AC receptacle to support the new cabinet. This AC receptacle must not be shared with any other equipment and must not be controlled by a wall switch. For the

convenience and safety of equipment-room personnel, the receptacle should not be located under the MDF.

⇒ NOTE:

In contrast to the AC power that is likely in a G2 equipment room, the new AC-powered PPN added for a Release 5 upgrade uses 3-wire, 50A, 115 VAC power. Whereas, G2 traditional cabinets use 4-wire, 20A, 208 VAC power and G2 universal cabinets use 3-wire, 30A, 208 VAC power.

DC Isolator

Each G3-MT connected to a DC-powered cabinet, from the asynchronous EIA RS-232 interface, requires a 116A isolator. Insert the isolator at the RS-232 interface between the G3-MT and the interface connector to isolate ground between the system and external adjuncts.

Power-Failure Stations

During routine system operation, the ground for the power-failure stations is derived from the system's auxiliary cable. This ground is disconnected during the upgrade, thus disabling the power-failure stations. Therefore, a ground strap must be run to the power-failure transfer panel. Connect this strap shortly after removing power and disconnect it just before restoring power to the system.

To minimize downtime, power-failure transfer equipment should be tested and, if need be, repaired before the hardware upgrade begins.

Software

Save the Release 5 translations on a translation card installed in the new TN777B Netcon circuit pack. The format of this translation card is not compatible with the format of the G2 disk/tape system (DTS). If the customer plans to emulate existing G2 translations in the upgraded Release 5, then these translations must be copied to a spare tape and sent to Software Technical Support (STS) so that reports of the current G2 translations and a G3-MA diskette with basic station translations can be generated. After STS receives the spare tape, this process takes one week. STS must return the G2 reports and the diskette to the Project Manager before the upgrade can begin. For each G2 processor, retain two tapes (one system tape and one backup tape) on site with the G2 system.

After the reports arrive, many features require special attention because of feature differences, form changes, and potential naming conflicts in the upgrade process.

During the upgrade, the Software Specialist should implement DEFINITY ECS Release 5 translations that are appropriate for the customer's needs. For information to make the required changes, refer to:

- DEFINITY Enterprise Communications Server Release 5.4 Transition Reference
- DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description

Alarm Connection

The D6 connector on G2 systems had 31 alarm-monitor appearances (Unit 1 to Unit 31) for external equipment. The AUXILIARY connector on a R5si + memory PPN only has appearances for 1M (major alarm) and 1m (minor alarm). If the G2 system being upgraded used more than one major or more than one minor alarm-monitor appearance, these extra appearances, they can either be distributed to the AUXILIARY connector on a DEFINITY ECS Release 5 EPN, or "ganged" so that several external devices share the same appearance. The alarms can also be accommodated by paralleling them to the above connections.

NOTE:

When several external devices are ganged to the same appearance, each device loses its individual identity. An alarm on a shared appearance only denotes that one of several devices reported a problem. Subsequent maintenance effort is needed to determine which device reported the problem and the nature of the problem.

The control circuit pack behind the AUXILIARY connector detects external alarms with a ground-detector chip. Therefore, to gang several external devices, every device must be able to return a true relay ground closure to the AUXILIARY connector. Alternatives, such as a TTL low driver, are inadequate.

The following tables correlate wall-field terminal numbers, connector pin numbers, lead colors, and lead designations for the G2 D6 and DEFINITY ECS Release 5 AUXILIARY connectors.

Table 4-4. Pinouts for D6 Connector on G2 System

Terminal Number	Pin #	Color	Designation	Terminal #	Pin #	Color	Designation
1	26	W-BL	UNIT20	2	01	BL-W	UNIT19
3	27	W-O	UNIT22	4	02	O-W	UNIT21
5	28	W-G	UNIT24	6	03	G-W	UNIT23
7	29	W-BR		8	04	BR-W	UNIT25
9	30	W-S	UNIT27	10	05	S-W	UNIT26
11	31	R-BL	UNIT29	12	06	BL-R	UNIT28
13	32	R-O	UNIT31	14	07	O-R	UNIT30
15	33	R-G	AUXCTMP	16	08	G-R	UNIT32
17	34	R-BR	EXTEQMN	18	09	BR-R	EXTEQMJ
19	35	R-S	AUXCRCT	20	10	S-R	AUXCHO
21	36	BK-BL	AUXCCB	22	11	BL-BK	AUXCFRQ
23	37	BK-O	AUXCFAN	24	12	O-BK	
25	38	BK-G	EXTPRMJ	26	13	G-BK	EXTPRMN
27	39	BK-BR	UNIT2	28	14	BR-BK	UNIT1
29	40	BK-S	UNIT4	30	15	S-BK	UNIT3
31	41	Y-BL	UNIT6	32	16	BL-Y	UNIT5
33	42	Y-O	UNIT8	34	17	O-Y	UNIT7
35	43	Y-G	UNIT10	36	18	G-Y	UNIT9
37	44	Y-BR		38	19	BR-Y	UNIT11
39	45	Y-S	UNIT13	40	20	S-Y	UNIT12
41	46	V-BL	UNIT15	42	21	BL-V	UNIT14
43	47	V-O	UNIT17	44	22	O-V	UNIT16
45	48	V-G		46	23	G-V	UNIT18
47	49	V-BR	RING0	48	24	BR-V	TIP0
49	50	V-S	RING1	50	25	S-V	TIP1

Table 4-5. Pinouts for Auxiliary Connector on Release 5 Systems

Terminal Number	Pin #	Color	Designation	Terminal Number	Pin #	Color	Designation
1	26	W-BL	AUXMJ	2	01	BL-W	GRD
3	27	W-O	AUXMN	4	02	O-W	GRD
5	28	W-G		6	03	G-W	GRD
7	29	W-BR		8	04	BR-W	GRD
9	30	W-S		10	05	S-W	GRD
11	31	R-BL		12	06	BL-R	GRD
13	32	R-O		14	07	O-R	GRD
15	33	R-G		16	08	G-R	
17	34	R-BR		18	09	BR-R	
19	35	R-S		20	10	S-R	
21	36	BK-BL	XFER48	22	11	BL-BK	GRD
23	37	BK-O	XFER48	24	12	O-BK	GRD
25	38	BK-G	XFER48	26	13	G-BK	GRD
27	39	BK-BR	XFER48	28	14	BR-BK	GRD
29	40	BK-S	XFER48	30	15	S-BK	GRD
31	41	Y-BL	XFER48	32	16	BL-Y	GRD
33	42	Y-O	XFER48	34	17	O-Y	GRD
35	43	Y-G		36	18	G-Y	
37	44	Y-BR	GRD	38	19	BR-Y	ACC48A
39	45	Y-S	GRD	40	20	S-Y	ACC48B
41	46	V-BL	GRD	42	21	BL-V	ACC48C
43	47	V-O		44	22	O-V	
45	48	V-G	EXT_ALM	46	23	G-V	EXT_ALM_RT
47	49	V-BR		48	24	BR-V	
49	50	V-S	INADS TIP	50	25	S-V	INADS RING

Software Translation Upgrade

Save the Release 5 translations on a translation card installed in the new TN777B Netcon circuit pack. The format of this translation card is not compatible with the format of the G2 disk/tape system (DTS).

During an upgrade, STS generates TRACS reports (that show the current software translations) and G3-MA diskettes (with basic station translations) in the G2 system and sends the reports to the project manager. To enable these activities, replace the system tape with a spare G2 tape. Spare G2 tape cartridges can be acquired from the QPPCN. Then, copy the current G2 translations to the spare tape and overnight mail to STS. Also, put the original system tape back into the system.

If possible, the customer should avoid adding any new translations while the spare tape is being converted. If not, be sure the customer's system administrator keeps detailed records of any translation changes made during that interval. These records will supplement the TRACS reports to facilitate the transition from G2 to Release 5 software translations.

The TRACS reports with the current G2 translations must be on-site before the upgrade begins.

Save Translations

1. Log in at the Manager II on the G2.
2. Enter **rtx** (run tape, execute). Press Enter. This command instructs the system to write all translation information from memory to the tape.
3. Remove the system tape and install the backup tape.
4. Enter **rtx**. Press Enter.

Make Source Tape for TRACS Report

A spare G2 tape must be acquired from the QPPCN before performing the following steps. For each processor, there must always be two tapes on site with the G2 system. Do not send a system or backup tape to STS. After performing the previous procedures, copy the G2 translations to the spare tape used to make the TRACS report. Perform the following procedures:

1. Remove the backup tape and install the spare tape.
2. Enter **rtx**. Press Enter. This command instructs the system to write all translation information from memory to the tape.
3. Remove the source tape.
4. Insert the system tape.
5. Mail the source tape (next-day delivery) to STS for use in making the G2 TRACS report.

System Upgrades

There are many configurations of DEFINITY G2 in the field. Each system can have a unique configuration. However, to simplify Release 5 upgrades:

- The existing common control is always replaced by a multi-carrier PPN.
- Existing traditional modules are replaced by EPNs ¹.
- Existing universal modules are upgraded to EPNs.

A new multi-carrier cabinet would then always serve as the PPN.

If a G2 universal module is upgraded to a DEFINITY ECS Release 5 EPN, hardware changes (including carrier replacement) are required.

This section gives a sequential list of the steps required to upgrade the system.

1. There is not necessarily a one-to-one correspondence between DEFINITY ECS Release 5 EPNs and G2 modules. With careful hardware and traffic engineering, an upgraded DEFINITY ECS Release 5 can have fewer EPNs than the G2 had modules.

Standard Reliability

Required Hardware

The equipment in Table 4-6 must be on-site before the upgrade begins. To place a claim for missing equipment, as part of the Streamlined Implementation process, call 1-800-772-5409, or the number provided by your Lucent Technologies representative.

Table 4-6. Required Hardware

Equipment	Description	Quantity
PEC 6300-05X	Processor Port Network	1
J58890AF-1	Expansion Control Carrier	1
106647985	TN775B Maintenance	1
103557294 or 103281788	TN776 Expansion Interface TN570 Expansion Interface	2 or 6 ¹ 2 or 6 ^{1,2}
406809889	J58890TG L10 4 Mbyte Translation Card	1 ³
407439975	Fiber Cable	1 or 3 ⁴
106455348 or 106455363	9823A Lightwave Transceiver 9823B Lightwave Transceiver	2 or 6 ⁵ 2 or 6 ⁵

1. Depending on the number of Release 5 EPNs. Two are required for a standard reliability system with two port networks; six with three port networks. Either one or four Expansion Interfaces (EIs) are shipped loose with the EPN equipment. The factory has installed either one or two EIs in the new PPN.
2. Required port network interfaces in a Release 5 system with the optional packet bus.
3. A 4 Mbyte translation card is required for a system that uses recorded announcements. A 10 Mbyte translation card is required for DEFINITY Wireless Business Systems.
4. Depending on the number of DEFINITY ECS Release 5 EPNs. Two or six are required if the PPN and EPN(s) are remotely located. Assuming acceptable lengths, the fiber that previously connected an upgraded G2 universal module (not a traditional module) to the G2 TMS has the correct transceiver connectors and can be reused.
5. One pair for each fiber connection. For each connection, either one lightwave transceiver is installed in an EPN and one in the PPN. A transceiver can be reused from each upgraded G2 universal module. Additional transceivers, ordered separately, are also shipped loose with the EPN equipment.

Required Tools

The following tools and items may be required during the upgrade:

- High-intensity flashlight or AC drop light
- 3/8-inch flat-blade screwdriver with a 10-inch shank (minimum)
- 5/16-inch and 1/4-inch sockets with a ratchet and 10-inch extension
- Long-nose pliers to disconnect ground straps and straighten backplane pins
- Static-proof or original circuit pack packaging for transporting circuit packs
- Labels for identifying the port circuit packs and cables attached to the rear of cabinets
- Twelve spare #12 and #10 self-tapping screws
- Four spare carrier ground straps
- Wrist ground strap
- Repair kit for backplane pins (KS-22876 L2 or equivalent)
- One copy of each of the following manuals:
 - *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5vs/si or DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*
 - *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*

Follow Routine Preventive Maintenance

During the upgrade, follow routine preventive maintenance procedures on the system to be upgraded. For information about the procedures and necessary equipment, refer to the "Preventive Maintenance" section in *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*.

Label Cables

To make reconnecting the cables simpler and more reliable, label both ends of the connector cables associated with the carrier to be removed.

Power Down G2 System

1. At the common control's power distribution unit, set the main circuit breaker to OFF.
2. At the universal module's power distribution unit, set the main circuit breaker to OFF.

Install Power-Failure Transfer Ground Wire



CAUTION:

To avoid contaminating single-point ground, do not connect the ground wire while the system is powered up.

1. Connect a 10 AWG (#25) (2.588 mm) wire to pin 49 of the connecting block or to pin 49 of the CAP (cable access panel) on the power-failure transfer panel.
2. Route the opposite end of the wire to an approved ground and connect.

Disconnect Cables

1. With the cable retainer in front of you and the part number visible (4B or 4C), locate the slot that is almost vertical. This slot is adjacent to the part number. Insert a #2 flat blade screwdriver into the slot and twist. The retainer will snap open easily. Remove the cable.
2. Disconnect the cables associated with the carrier to be removed.
3. Remove the rear doors from the cabinet.
4. Behind a previously upgraded cabinet, remove all of the rear panels. Two different types of screws hold the back panels to the cabinet. Remove the #10 screws with a screwdriver or a 1/4-inch socket. Remove the #12 screws with a screwdriver or a 5/16-inch socket.

Remove Circuit Packs from Module Control Carrier A

1. To ensure that power units in the "A" carrier are properly replaced, label each power unit with its slot number.
2. Disconnect the power cords from the power units in the "A" carrier.
3. Remove all circuit packs and power units from carrier "A." Store the circuit packs in the static-proof packaging.
4. Remove all circuit pack blanks.
5. Remove the front trim plate from the "A" carrier by pulling straight off.

Remove CURL from Module Control Carrier A

Remove the CFY1 current limiter (CURL) from the pin-field block marked "CURL" on the "A" carrier. The CURL is reused in the Release 5 EPN.



NOTE:

Verify the CURL meets the minimum usable vintage requirements.

Remove Module Control Carrier A

Disconnect TDM/LAN Cables

 **NOTE:**

Note the position of the TDM/LAN cables before disconnecting.

1. Disconnect one end of the TDM/LAN cable (between the "A" and "C" carriers) from the "A" carrier. See Figure 4-1.
2. Disconnect one end of the TDM/LAN cable (between the "A" and "D" carriers) from the "A" carrier.

 **WARNING:**

When removing the TDM/LAN cables from a previously upgraded carrier, be careful that none of the short pieces of shrink tubing come off the four corner pins of the pin-field block. Otherwise, when the new equipment is connected, -48 volts could short to ground.

3. On port carrier J58890BB-1, connect the TDM cable or TDM terminator to Slot 02. On port carriers J58890BB-2 and J58890BB-3, connect the TDM cables to Slot 01.

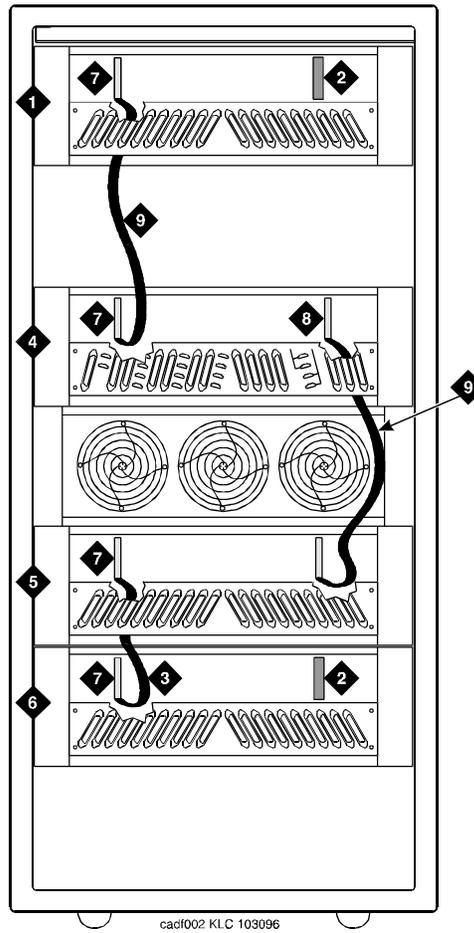


Figure Notes

- | | |
|------------------------------------------|--------------------------------|
| 1. Port Carrier (“C” Position) | 6. Port Carrier (“E” Position) |
| 2. ZAHF4 TDM/LAN Terminator | 7. Slot 21 |
| 3. TDM/LAN Cable (WP91716 L6) | 8. Slot 01 |
| 4. Module Control Carrier (“A” Position) | 9. TDM/LAN Cable (WP91716 L7) |
| 5. Port Carrier (“D” Position) | |

Figure 4-1. TDM/LAN Connections for Standard Reliability Module

Remove Carrier Ground Straps

4. Disconnect the top and bottom ground straps from the "A" carrier. See Figure 4-2. These straps will reconnect to the new "A" carrier.

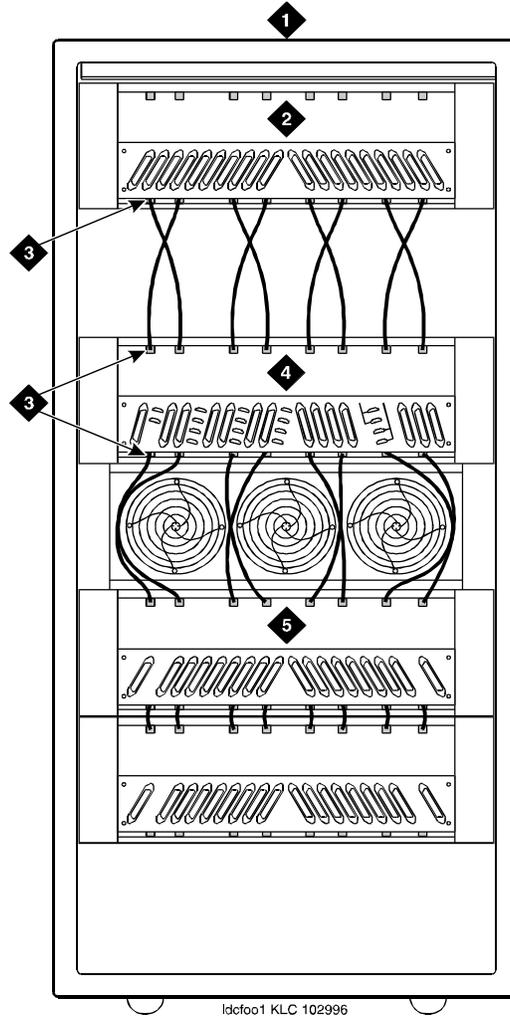


Figure Notes

- | | |
|--------------------------------|------------------------------------------|
| 1. Rear of Cabinet | 4. Module Control Carrier ("A" Position) |
| 2. Port Carrier ("C" Position) | 5. Port Carrier ("D" Position) |
| 3. Ground Jumpers | |

Figure 4-2. Location of Ground Jumpers

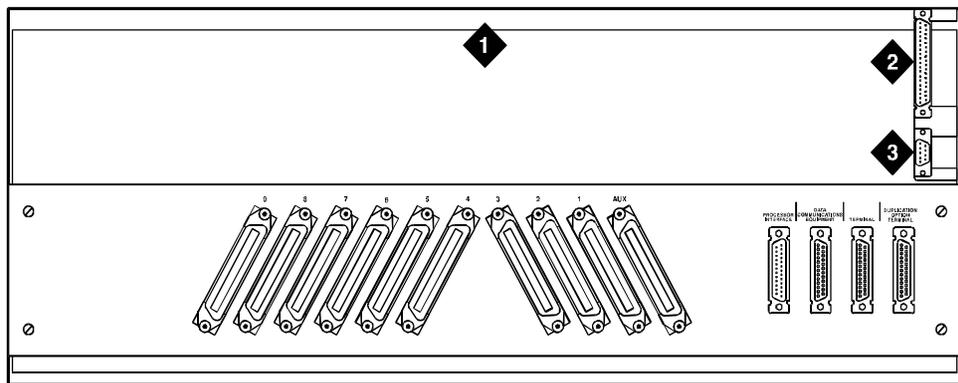
5. Disconnect the "P1" and "P2" cables from the "A" carrier. See Figure 4-3.
6. Remove the fan trim plate by pulling it straight off.
7. Clean or replace the air filter (403326820) if necessary.
8. In front of the carrier, remove the four screws (top two first) holding the "A" carrier to the cabinet frame. Use a long-handle screwdriver or 5/16-inch socket with a 10-inch extension.
9. Behind the carrier, remove the two screws holding the "A" carrier's rear connector panel to the cabinet frame.
10. Slide the carrier forward 1 to 2 inches. Be sure that no cables or wiring harnesses are caught on the cabinet/carrier framework.



CAUTION:

Cables and wiring harnesses can be damaged if they catch on the framework and if too much pressure is applied in removing the carrier.

11. Remove the carrier by sliding it out the front of the cabinet.



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Figure Notes

- | | |
|----------------------------|-----------------|
| 1. Rear of Control Carrier | 3. P1 Connector |
| 2. P2 Connector | |

Figure 4-3. Location of P1 and P2 Connectors

Unpack and Inspect Expansion Control Carrier

1. Inspect the new J58890AF Expansion Control Carrier for any damage. Also verify that the backplane pins are not bent.
2. Place the expansion control carrier on the floor so that the rear of the carrier faces up.
3. Install the CFY1 current limiter (CURL) on the "A" carrier to the pin-field block labeled "CURL" Install the CURL with the components on the left.
4. At the rear connector panel, determine which connectors will have a cable attached, and install a 4B cable retainer on each of these connectors.

Install New Expansion Control Carrier A

1. Install the carrier in position "A" by aligning the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips support the carrier while installing the screws. Ensure that the power cords are properly placed in the slots at the sides of the carrier.
2. Fasten the carrier into position with 4 self-tapping screws saved from the removal of the old carrier.



NOTE:

Carefully realign the threads on the self-tapping screws by turning them counterclockwise one turn before tightening them to avoid stripping the threads out of the framework.

3. Connect the "P2" and "P1" cables to the "A" carrier. See Figure 4-3. Snap the connector lock into place to ensure the connection is properly made.
4. Connect the eight ground straps from the "C" carrier to the new "A" carrier. See Figure 4-2.
5. Connect the 8 ground straps from the "D" carrier to the new "A" carrier.
6. For AC-powered systems, install the 2 new ground straps. One strap connects ground point "1" to the "A" carrier frame (right side), and the other connects ground point "8" to the "A" carrier frame (left side).



NOTE:

DC-powered systems do not use these carrier ground straps.

7. Connect the remaining end of the TDM/LAN cable (between the "A" and "D" carriers) to the pin-field block marked "TDM" on the right side of the "A" carrier. See Figure 4-4 and Table 4-7.
8. Connect the remaining end of the TDM/LAN cable (between the "A" and "C" carriers) to the pin-field block marked "TDM" on the left side of the "A" carrier.

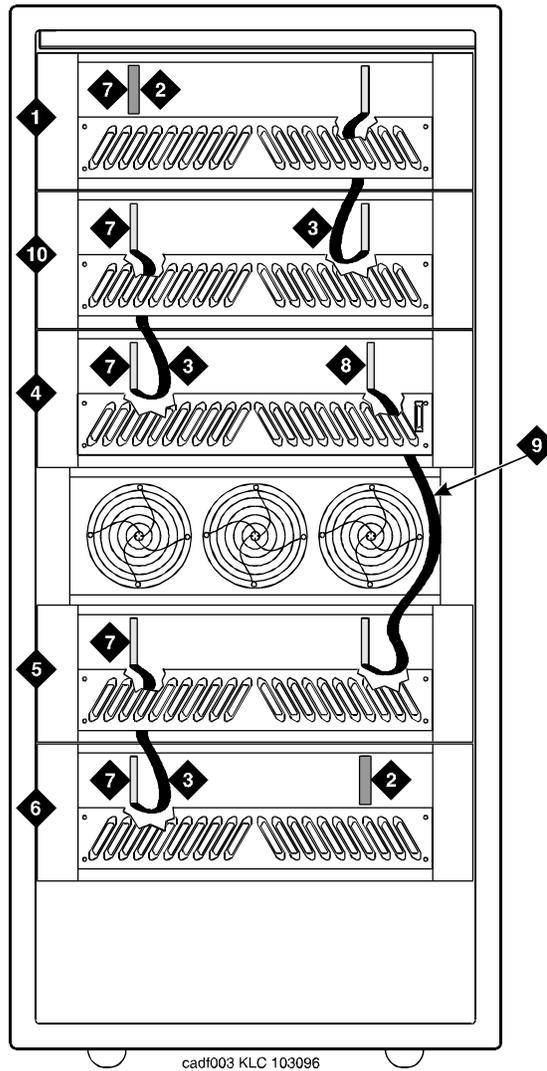


Figure Notes

- | | |
|------------------------------------------|------------------------------------|
| 1. Port Carrier ("C" Position) | 6. Port Carrier ("E" Position) |
| 2. ZAHF4 TDM/LAN Terminator | 7. Slot 21 |
| 3. TDM/LAN Cable (WP91716 L6) | 8. Slot 01 |
| 4. Module Control Carrier ("A" Position) | 9. TDM/LAN Cable (WP91716 L7) |
| 5. Port Carrier ("D" Position) | 10. Control Carrier ("B" Position) |

Figure 4-4. TDM/LAN Connections for Standard Reliability Release 5 EPN

9. On port carrier J58890BB-1, connect the TDM cable or TDM terminator to Slot 02. On port carriers J58890BB-2 and J58890BB-3, connect the TDM cables to Slot 01.

Table 4-7. TDM/LAN Connections

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890BB-1	Port	21	02
J58890BB-2	Port	21	01
J58890BB-3	Port	21	01
J58890AF	EPN Control "A"	21	02

10. Install the front trim plate on the "A" carrier. Install the fan trim plate.
11. Install the power units (removed from G2 universal module) into the "A" carrier. Do not interchange the physical locations of the units. The 631AR1, 631WA1, 631DA1, or 644A install in the left side, while the 631BR1, 631WB1, 631DB1, or 645B install in the right side.



NOTE:

In most cases, the new Release 5 carrier will contain the same power supplies as in the existing system. However, a Release 5 carrier may contain a 649A Power Unit. If so, re-use the power units from the G2 power module.

12. If the expansion control carrier contains a 631BR1, 631WB1, or 645B power unit, install the previously removed TN736 power unit in port slots "18" and "19" of the carrier (adjacent to the 631BR1, 631WB1, or 645B). If the system is equipped for neon message waiting, a TN752 or TN755 power unit must be used.



NOTE:

The TN736 is not required when the 631DB1 or 645B power unit is used in the J58890AF-1 expansion control carrier or the J58890BB-2 or J58890BB-3 port carriers. It is required in the J58890BB-1 port carrier, regardless of which 631 power unit is provided. Use the TN752 or TN755 if the system contains neon message waiting.

13. Connect the white power cords to the power units.

Install Circuit Packs

1. Install the new Release 5 control circuit packs into carrier "A." Use the new label and the annotated "list configuration all" (provided with the Release 5 tape) as a guide.

⇒ NOTE:

Currently, the TN768 Tone-Clock circuit pack resides in a port slot of the universal module being upgraded. Relocate this circuit pack to the "TONE CLOCK" slot of carrier "A." Lucent Technologies recommends upgrading to the TN2182 Tone-Clock.

2. Install circuit pack blanks in slots not equipped with circuit packs.
3. For a directly-connected standard reliability Release 5 system with two PNs, ensure the PPN and this EPN both contain a TN776 or TN570 Expansion Interface circuit pack.

For a directly-connected system with three PNs, ensure the PPN and each EPN have two TN776s or TN570s.

Interconnect Port Networks

Fiber optic cabling terminated to 9823A lightwave transceivers can interconnect PNs up to 4,900 feet (1493 m) apart. Fiber optic cabling terminated to 9823B lightwave transceivers can interconnect PNs up to 25,000 feet (7620 m) apart. The 300A fiber optic lightwave transceiver can interconnect PNs up to 115,000 feet (21.7 miles, 35 km) apart.

⇒ NOTE:

These distance limits are approximate measurements of the *actual* fiber right-of-way (not of the shortest linear distance) between the two endpoints.

⇒ NOTE:

It is important to label every cable that you install.

⇒ NOTE:

Keep track of which fiber attaches to which connector on each lightwave transceiver. This section provides figures offering suggested ways of making these connections.

The connectors on the lightwave transceivers are labeled either "TX" (transmit) or "RX" (receive), while the fibers attaching to each connector are numbered either "1" or "2." A viable fiber connection is only made when both fibers in each cable ("1" and "2") route from the "TX" connector of a port network to the "RX" connector of its adjacent port network. See Figure 4-6.

⇒ NOTE:

For administration details, refer to the “Fiber Link Administration” sections of *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*.

Collocated Port Networks

For a standard reliability system with one collocated EPN, use 1 fiber optic cable and 2 lightwave transceivers to directly connect the networks.

For a standard reliability system with 2 collocated EPNs, use 3 fiber optic cables and six lightwave transceivers to directly connect the networks.

⇒ NOTE:

Based on floor-plan considerations, the length of these cables may vary. 20 foot (6.1 m) cables are normally adequate for a Release 5 with 2 port networks.

For collocated cabinets, route the fiber optic cables directly from the PPN to the EPN cabinet. If a “DEFINITY style” PPN cabinet is collocated with another “DEFINITY style” EPN cabinet, the preferred routing is to run the cables *up* the cable tray and out the top of the PPN cabinet. The cables are then run to the other cabinet, through the top of the cabinet, and down the cable tray to the desired carrier level.

If a “DEFINITY style” PPN cabinet is collocated with either a small cabinet, medium cabinet, or single-carrier cabinet stack, the preferred routing is to run the cables *down* the cable tray and out the bottom of the PPN cabinet. The cables are then run to the EPN cabinet and up the outside of the rear panels to the desired carrier level.

Fiber-Remoted Port Networks

For a standard reliability system with 1 fiber-remoted EPN, use 2 fiber optic cables, 2 lightwave transceivers, and 2 lightguide interconnect units (provided by the PSC).

For a standard reliability system with 2 fiber-remoted EPNs, use 6 fiber optic cables, 6 lightwave transceivers, and 6 lightguide interconnect units (provided by the PSC).

For fiber-remoted cabinets, route the cables down the cable tray and out the bottom of the cabinet to the MDF where the lightguide interconnect units are located.

In either case, use cable ties to secure the cable against the walls of the cable tray at the cable tie positions built into the trays.

For Either One or Two Collocated Expansion Port Networks

1. Behind control carrier A of PPN cabinet 1 (see Figure 4-5, Figure 4-6, and Figure 4-7):

- Install a lightwave transceiver on the cable connector at slot 1A01.

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect one end of the fiber optic cable to the lightwave transceiver, just installed, at slot 1A01.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control carrier A of EPN cabinet 2:

- Install a lightwave transceiver on cable connector at slot 2A01.

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot 2A01.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
- At the top of the cabinet, coil up the surplus fiber optic cable and attach it to the wall of the cable tray.

For Two Collocated Expansion Port Networks

1. Behind control carrier A of PPN cabinet 1:

- Install a lightwave transceiver on cable connector at slot 1A02.

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect one end of the fiber optic cable to the lightwave transceiver, just installed, at slot 1A02.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control carrier A of EPN cabinet 3:

- Install a lightwave transceiver on cable connector at slot 3A01.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot 3A01.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
- At the top of the cabinet, coil up the surplus fiber optic cable and attach it to the wall of the cable tray.

3. Behind control carrier A of EPN cabinet 2:

- Install a lightwave transceiver on cable connector at slot 2A02.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect one end of the fiber optic cable to the lightwave transceiver, just installed, at slot 2A02.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

4. Behind control carrier A of EPN cabinet 3:

- Install a lightwave transceiver on cable connector at slot 3A02.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot 3A02. See Figure 4-8.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
- At the top of the cabinet, coil up the surplus fiber optic cable and attach it to the wall of the cable tray.

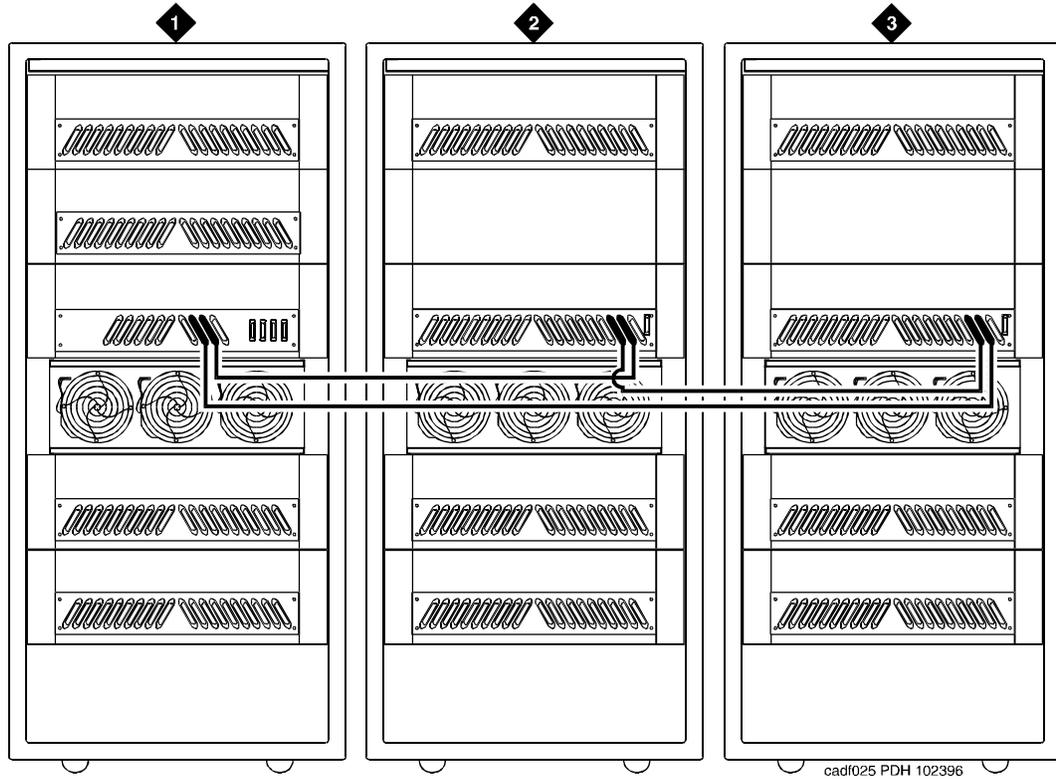


Figure Notes

- 1. Cabinet 1 Processor Port Network
- 2. Cabinet 2 Expansion Port Network 1
- 3. Cabinet 3 Expansion Port Network 2

Figure 4-5. Standard Reliability Release 5 with Two or Three Port Networks

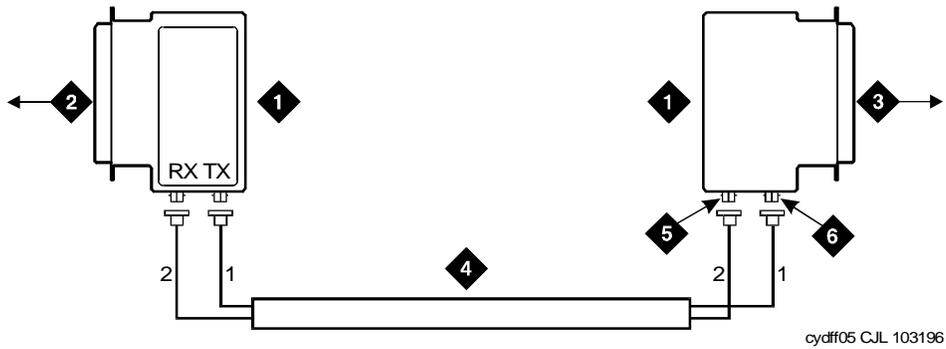


Figure Notes

- | | |
|---------------------------------|----------------------|
| 1. Lightwave Transceiver | 4. Fiber Optic Cable |
| 2. To PPN Carrier A Slot 1A01 | 5. TX Connector |
| 3. To EPN 1 Carrier A Slot 2A01 | 6. RX Connector |

Figure 4-6. Fiber Optic Connections PPN to EPN1

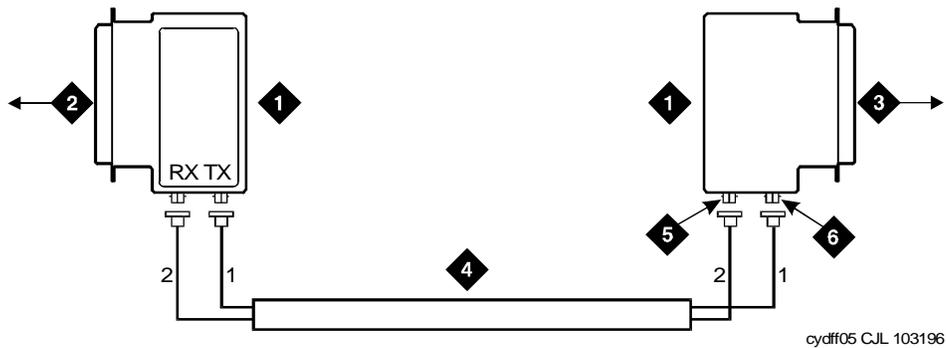
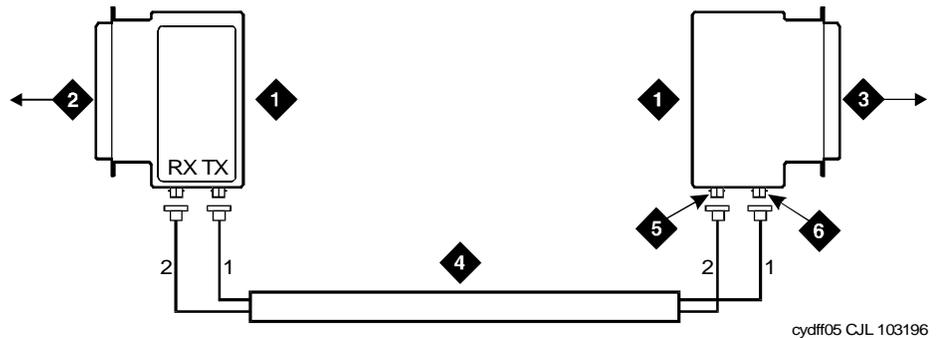


Figure Notes

- | | |
|---------------------------------|----------------------|
| 1. Lightwave Transceiver | 4. Fiber Optic Cable |
| 2. To PPN Carrier A Slot 1A02 | 5. TX Connector |
| 3. To EPN 1 Carrier A Slot 3A01 | 6. RX Connector |

Figure 4-7. Collocated Fiber Optic Connections PPN to EPN2



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Figure Notes

- | | |
|---------------------------------|----------------------|
| 1. Lightwave Transceiver | 4. Fiber Optic Cable |
| 2. To PPN Carrier A Slot 2A02 | 5. TX Connector |
| 3. To EPN 1 Carrier A Slot 3A02 | 6. RX Connector |

Figure 4-8. Collocated Fiber Optic Connections EPN1 to EPN2

For Either One or Two Fiber-Remoted Expansion Port Networks

1. At control carrier A of PPN cabinet 1. See Figure 4-5 through Figure 4-9.
 - Install a lightwave transceiver on the cable connector at slot 1A01.

NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect a fiber optic cable to the transceiver just installed.
- Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
- Connect the fiber cable to the lightguide interconnect unit provided.
- Carefully attach the cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control carrier A of EPN cabinet 2:

- Install a lightwave transceiver on cable connector at slot 2A01.

NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect a fiber optic cable to the transceiver just installed.
- Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
- Connect the fiber cable to the lightguide interconnect unit provided.
- Carefully attach the fiber cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
- Coil up the surplus fiber cable and place it in the cable manager.

For Two Fiber-Remoted Expansion Port Networks

1. Behind control carrier A of PPN cabinet 1:

- Install a lightwave transceiver on cable connector at slot 1A02.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect a fiber optic cable to the transceiver just installed.
- Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
- Connect the fiber cable to the lightguide interconnect unit provided.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control carrier A of EPN cabinet 3:

- Install a lightwave transceiver on cable connector at slot 3A01.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect a fiber optic cable to the transceiver just installed.
- Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
- Connect the fiber cable to the lightguide interconnect unit provided.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
- Coil up the surplus fiber cable and place it in the cable manager.

3. Behind control carrier A of EPN cabinet 2:

- Install a lightwave transceiver on cable connector at slot 2A02.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect a fiber optic cable to the transceiver just installed.
- Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
- Connect the fiber cable to the lightguide interconnect unit provided.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

4. Behind control carrier A of EPN cabinet 3:

- Install a lightwave transceiver on cable connector at slot 3A02.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect a fiber optic cable to the transceiver just installed.
- Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
- Connect the fiber cable to the lightguide interconnect unit provided.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
- Coil up the surplus fiber cable and place it in the cable manager.

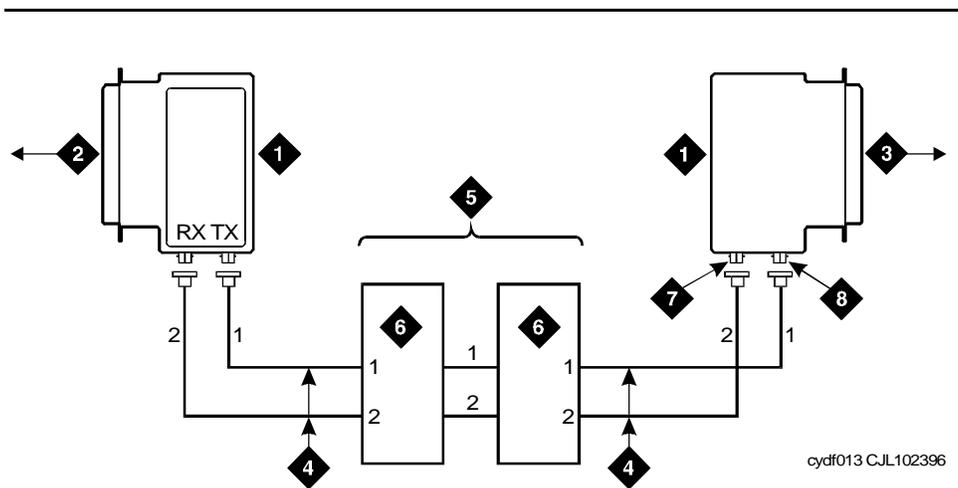


Figure Notes

- | | |
|--------------------------------|--------------------------------------|
| 1. Lightwave Transceiver | 5. Optical Cross-Connect Facility |
| 2. To EPN1 Carrier A Slot 2A02 | 6. 100A Lightguide Interconnect Unit |
| 3. To EPN2 Carrier A Slot 3A02 | 7. TX Connector |
| 4. Fiber Optic Cable | 8. RX Connector |

Figure 4-9. Fiber Optic Connections EPN1 to EPN2

Verify Usable Circuit Pack Vintages

Verify that each G2 circuit pack reused in the upgrade conforms to the usable vintage requirements for a Release 5 system (see *Reference Guide for Circuit Pack Vintages and Change Notices*).

Remove Power-Failure Ground Wire

Remove the 10 AWG (#25) (2.588 mm) ground wire from the power-failure transfer unit.

Boot the Release 5 System

1. Connect the management terminal to the "TERMINAL" connector behind PPN control carrier "A," or install the G3-MA according to the "Set Up G3-MA" chapter of *DEFINITY Communications System Generic 3 Management Applications — Operations*, 585-229-202.
2. Insert the translation card in the TN777B faceplate.
3. Behind each EPN, set the main circuit breaker to ON.
4. Behind each PPN, set the main circuit breaker to ON.
5. The system performs the reset level 4 rebooting process, loading default system translations from the translation card. This takes 8 to 11 minutes.
6. Get the order number of the upgrade, and call the regional CSA to request an "init" login so that the right-to-use options can be enabled on the upgraded system.
7. Enter **set time**, and press Enter to set the time and ensure that the system is booted properly.
8. Enter **list configuration software-version**, and press Enter to compare the version number of the Release 5 software program (displayed on the terminal) with the TN786B version number (written on a label on the TN786B's faceplate). If the version numbers are not the same, change the version number on the TN786B label so that they agree.
9. Enter **change system-parameters customer-options**. Press Enter. Use this form to enable the customer's right-to-use options on the G2-to-Release 5 upgrade order. See *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*, for details.
10. Enter **change site-data** and press Enter. Use this form to assign system-specific information (such as building, floor, stations, and so forth).
11. Enter **save translation** and press Enter. This instructs the system to write all translation information from memory to the translation card.



CAUTION:

If the terminal screen displays "translation corruption detected; call Lucent Technologies distributor immediately", an error was detected in the translations. Call your Lucent Technologies representative.

Reconnect Cables to Upgraded EPN Cabinet

1. At the power distribution unit of the upgraded EPN, set the main circuit breaker to OFF.



NOTE:

Powering down an EPN without powering down the PPN will set off alarms. However, these alarms should clear after power is restored to each EPN.

2. Temporarily disconnect the lightwave transceivers and fiber optic cables from the appropriate carriers.
3. Replace the rear doors or rear panels previously removed.
4. At the EPN cabinet, reconnect the lightwave transceivers, fiber optic cables, and the connector cables.
5. Install the front door on the EPN cabinet if previously removed.

Power Up the EPN Cabinets

1. At each EPN power distribution unit, set the main circuit breaker to ON. After about 40 seconds, EPN power and PPN/EPN communications return.
2. After power returns to each EPN and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

Retranslate Port Circuits

If port circuit packs in the G2 module control carrier were relocated in order to place:

- A critical port circuit pack, requiring longer nominal battery holdover (such as a DS1 or an Announcement circuit pack), in a port slot
- A TN736, TN752, or TN755 power supply in port slots "18" and "19"
- A TN776 or TN570 Expansion Interface in port slot "1"
- A TN776 or TN570 in port slot "2" (for a second directly connected EPN)

of the new expansion control carrier, verify that they were retranslated during the off-site software upgrade. If not, they must be retranslated now. Refer to *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*, for instructions on performing the retranslations.

Enable Customer Options

1. Enter **change system-parameters customer-options** and press Enter.
2. Use these forms to verify the customer options are properly set.



NOTE:

In the *Basic Call Setup* field, if *ISDN-PRI?* was set to *y* before the upgrade, be sure to set the field back to *y*.

Resolve Alarms

Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*.

Contact INADS to Enable Customer Options and Alarm Origination

Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.

Return Replaced Equipment

Return unused G2 equipment to Lucent Technologies according to the requirements outlined in:

*BCS/Material Logistics, MSL/Attended Stocking Locations
Methods and Procedures for Basic Material Returns*

High Reliability

Required Hardware

The equipment in Table 4-8 must be on-site before the upgrade begins. To place a claim for missing equipment, as part of the Streamlined Implementation process, call 1-800-772-5409, or the number provided by your Lucent Technologies representative.

Table 4-8. Required Hardware

Equipment	Description	Quantity
PEC 6300-05X	Processor Port Network	1
J58890AF	Expansion Control Carrier	1
106647985	TN775B Maintenance	1
103557294 or 103281788	TN776 Expansion Interface TN570 Expansion Interface	2 or 6 ¹ 2 or 6 ^{1,2}
406809889	J58890TG L10 4-Mbyte Translation Card	2 ³
J58890TF	Tape Cartridge	4
407439975	Fiber Cable	1 or 3 ⁴
106455348 or 106455363	9823-A Lightwave Transceiver 9823-B Lightwave Transceiver	2 or 6 ⁵ 2 or 6 ⁵

1. Use two for a high reliability system with two port networks; six with three port networks. Either one or four Expansion Interfaces (EIs) ship loose with the EPN equipment. The factory has installed either one or two EIs in the new PPN.
2. Required port network interfaces in a Release 5 system with the optional packet bus.
3. 4 Mbyte translation cards are required for a system with recorded announcements. 10 Mbyte translation cards are required for DEFINITY Wireless Business Systems.
4. Use two or six if the PPN and EPN(s) are remotely located. The fiber that previously connected an upgraded G2 universal module (not a traditional module) to the G2 TMS has the correct transceiver connectors and, therefore, can be reused.
5. One pair for each fiber connection. For each connection, install one 9823-type lightwave transceiver in an EPN and one in the PPN. A 9823-type transceiver can be reused from each upgraded G2 universal module. Additional transceivers also ship loose with the EPN equipment.

Required Tools

The following tools and items may be required during the upgrade:

- High-intensity flashlight or AC drop light
- 3/8-inch flat-blade screwdriver with a 10-inch shank (minimum)
- 5/16-inch and 1/4-inch sockets with a ratchet and 10-inch extension
- Long-nose pliers to disconnect ground straps and straighten backplane pins
- Static-proof or original circuit pack packaging for transporting circuit packs
- Labels for identifying the port circuit packs and cables attached to the rear of cabinets
- Twelve spare #12 and #10 self-tapping screws
- Four spare carrier ground straps
- Wrist ground strap
- Repair kit for backplane pins (KS-22876 L2 or equivalent)
- One copy of each of the following manuals:
 - *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*
 - *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*

Follow Routine Preventive Maintenance

Follow routine preventive maintenance procedures on the system to be upgraded. For information about the procedures and necessary equipment, refer to the “Preventive Maintenance” section in *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*.

Label Cables

To make reconnecting the cables simpler and more reliable, label both ends of the connector cables associated with the carrier to be removed.

Power Down G2 System

At the power distribution unit, set the main circuit breaker to OFF.

Install Power-Failure Transfer Ground Wire



CAUTION:

To avoid contaminating single-point ground, do not connect the ground wire while the system is powered up.

1. Connect a 10 AWG (#25) (2.588 mm) wire to pin 49 of the connecting block or to pin 49 of the CAP (cable access panel) on the power-failure transfer panel.
2. Route the opposite end of the wire to an approved ground and connect.

Disconnect Cables

1. With the cable retainer in front of you and the part number visible (4B or 4C), locate the slot that is almost vertical. This slot is adjacent to the part number. Insert a #2 flat blade screwdriver into the slot and twist. The retainer will snap open easily. Remove the cable.
2. Disconnect the cables associated with the carrier to be removed.
3. Remove the rear doors from the cabinet.
4. Remove all of the rear panels. Two different types of screws hold the panels to the cabinet. Remove the #10 screws with a screwdriver or a 1/4-inch socket. Remove the #12 screws with a screwdriver or a 5/16-inch socket.)

Remove Circuit Packs from Module Control Carrier A

1. To ensure that power units in the "A" carrier are properly replaced, label each power unit with its slot number.
2. Disconnect the power cords from the power units in the "A" carrier.
3. Remove all circuit packs and power units from carrier "A." Store the circuit packs in the static-proof packaging.
4. Remove the circuit pack blanks from the empty slots.
5. Remove the front trim plate from the "A" carrier by pulling it straight off.

Remove CURL from Module Control Carrier A

Remove the CFY1 current limiter (CURL) from the pin-field block marked "CURL" on the "A" carrier. The CURL will be reused in the Release 5 EPN.



NOTE:

Verify that the CURL meets the minimum usable vintage requirements.

Remove Module Control Carrier A



NOTE:

Note the position of each TDM/LAN cables before disconnecting.

1. Disconnect one end of the TDM/LAN cable (between the “A” and “C” carriers) from the “A” carrier. See Figure 4-10. Leave the other end connected to the “C” carrier, and move the cable out of the way.
2. Disconnect one end of the TDM/LAN cable (between the “A” and “D” carriers) from the “A” carrier. Leave the other end connected to the “D” carrier, and move the cable out of the way.



CAUTION:

When removing the TDM/LAN cables from a previously upgraded carrier, be careful that none of the short pieces of shrink tubing come off the four corner pins of the pin-field block. Otherwise, when the new equipment is connected, -48 volts could short to ground.

3. On port carrier J58890BB-1, connect the TDM cable or TDM terminator to Slot 02. On port carriers J58890BB-2 and J58890BB-3, connect the TDM cables to Slot 01.

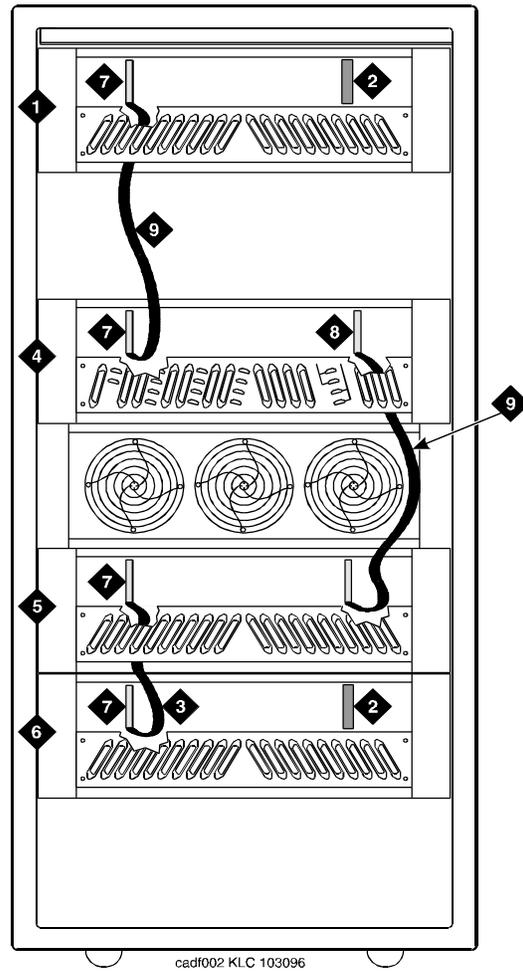


Figure Notes

- | | |
|------------------------------------------|--------------------------------|
| 1. Port Carrier ("C" Position) | 6. Port Carrier ("E" Position) |
| 2. ZAHF4 TDM/LAN Terminator | 7. Slot 21 |
| 3. TDM/LAN Cable (WP91716 L6) | 8. Slot 01 |
| 4. Module Control Carrier ("A" Position) | 9. TDM/LAN Cable (WP91716 L7) |
| 5. Port Carrier ("D" Position) | |

Figure 4-10. TDM/LAN Connections for High Reliability System

4. Disconnect one end of the 8 ground straps (between the “A” and “C” carriers) from the “A” carrier. See Figure 4-11. These straps reconnect to the new “A” carrier.
 5. Disconnect one end of the eight ground straps (between the “A” and “D” carriers) from the “A” carrier. These straps reconnect to the new “A” carrier.
-

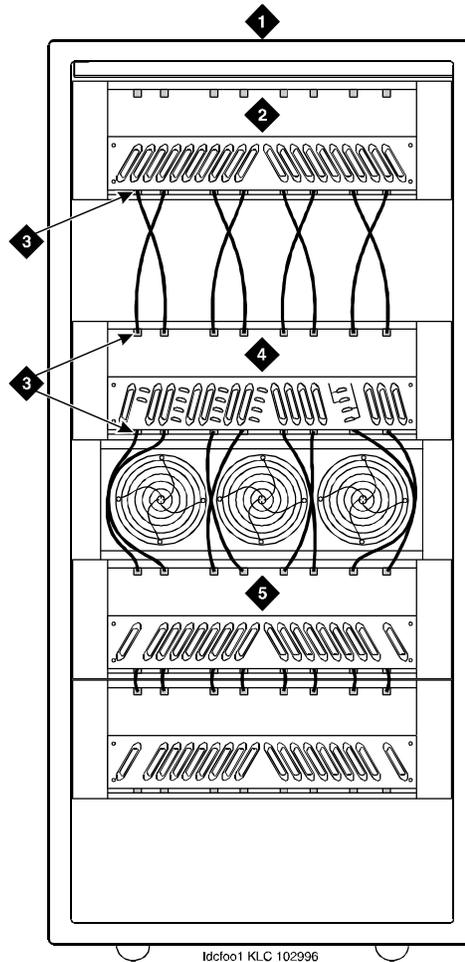
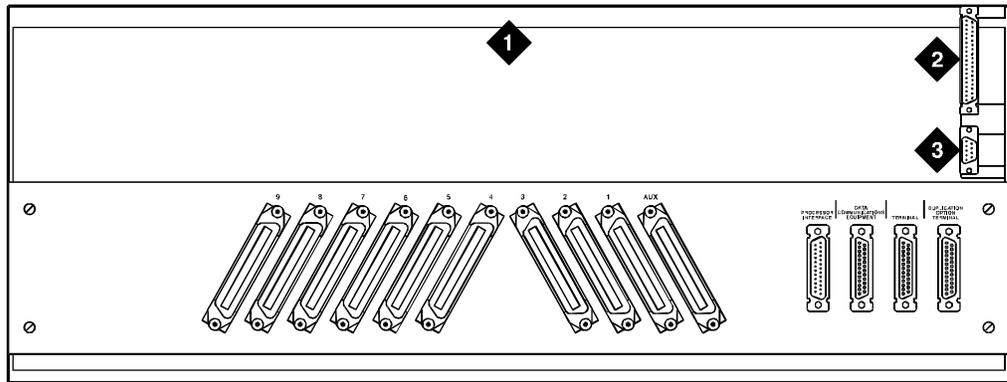


Figure Notes

- | | |
|--------------------------------|------------------------------------------|
| 1. Rear of Cabinet | 4. Module Control Carrier (“A” Position) |
| 2. Port Carrier (“C” Position) | 5. Port Carrier (“D” Position) |
| 3. Ground Jumpers | |

Figure 4-11. Locations of Ground Jumpers

6. Disconnect the “P1” and “P2” cables from the “A” carrier. See Figure 4-12.
 7. Slide the latch up, and disconnect the “P1” cable from the “B” carrier.
-



crdfp12 KLC 101596

Figure Notes

- | | |
|----------------------------|-----------------|
| 1. Rear of Control Carrier | 3. P1 Connector |
| 2. P2 Connector | |

Figure 4-12. Location of P1 and P2 Connectors

8. Remove the fan trim plate by pulling it straight off.
9. Clean or replace the air filter (403326820) if necessary.
10. In the front of the carrier, remove the 4 screws (top 2 first) holding the “A” carrier to the cabinet frame. Use a long handle screwdriver or 5/16-inch socket with a 10-inch (25 cm) extension.
11. Behind the carrier, remove the 2 screws holding the “A” carrier’s rear connector panel to the cabinet frame.
12. Slide the carrier forward 1 to 2 inches (2.5 to 5 cm). Be sure that no cables or wiring harnesses are caught on the cabinet/carrier framework.



CAUTION:

Cables and wiring harnesses can be damaged if they catch on the framework and if too much pressure is applied in removing the carrier.

13. Remove the carrier by sliding it out the front of the cabinet.

Unpack and Inspect Expansion Control Carrier

1. Inspect the new J58890AF Expansion Control Carrier for any damage. Also verify that the backplane pins are not bent.
2. Place the expansion control carrier on the floor so that the rear of the carrier faces up.
3. Install the CFY1 current limiter (CURL) on the "A" carrier to the pin-field block marked "CURL." Install the CURL with the components on the left.
4. At the rear connector panel, determine which connectors will have a cable attached, and install a 4B cable retainer on each of these connectors.

Install New Expansion Control Carrier A

1. Install the carrier in position "A" by aligning the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips support the carrier while installing the screws. Ensure that the power cords are properly placed in the slots at the sides of the carrier.
2. Fasten the carrier into position with the four self-tapping screws saved from the removal of the old carrier.



CAUTION:

Carefully realign the threads on the self-tapping screws by turning them counterclockwise one turn before tightening them to avoid stripping the threads out of the framework.

3. Behind the carrier, replace the 2 screws saved from the removal of the old carrier.
4. Connect the "P2" and "P1" cables to the "A" carrier. See Figure 4-12. Snap the connector lock into place to ensure the connection is properly made.
5. Connect the "P1" cable to the "C" carrier. Snap the connector lock into place to ensure the connection is properly made.
6. Connect the eight ground straps from the "D" carrier to the new "A" carrier. See Figure 4-11. These straps were left connected to the "D" carrier.
7. Connect the 8 ground straps from the "C" carrier to the new "A" carrier. These straps were left connected to the "C" carrier.
8. For an AC-powered system, install the 2 new carrier ground straps. One strap connects ground point "1" to the A-carrier frame (right side), and the other connects ground point "8" to the A-carrier frame (left side).



NOTE:

DC-powered carriers do not use these carrier ground straps.

9. Connect the remaining end of the TDM/LAN cable (between the "A" and "D" carriers) to the pin-field block marked "TDM" on the right side of the "A" carrier. See Figure 4-14 and Table 4-9. The other end remained connected to the "D" carrier when the old carrier was removed.
10. Connect the remaining end of the TDM/LAN cable (between the "A" and "C" carriers) to the pin-field block marked "TDM" on the left side of the "A" carrier. The other end remained connected to the "C" carrier when the old carrier was removed.
11. On port carrier J58890BB-1, connect the TDM cable or TDM terminator to Slot 02. On port carriers J58890BB-2 and J58890BB-3, connect the TDM cables to Slot 01.

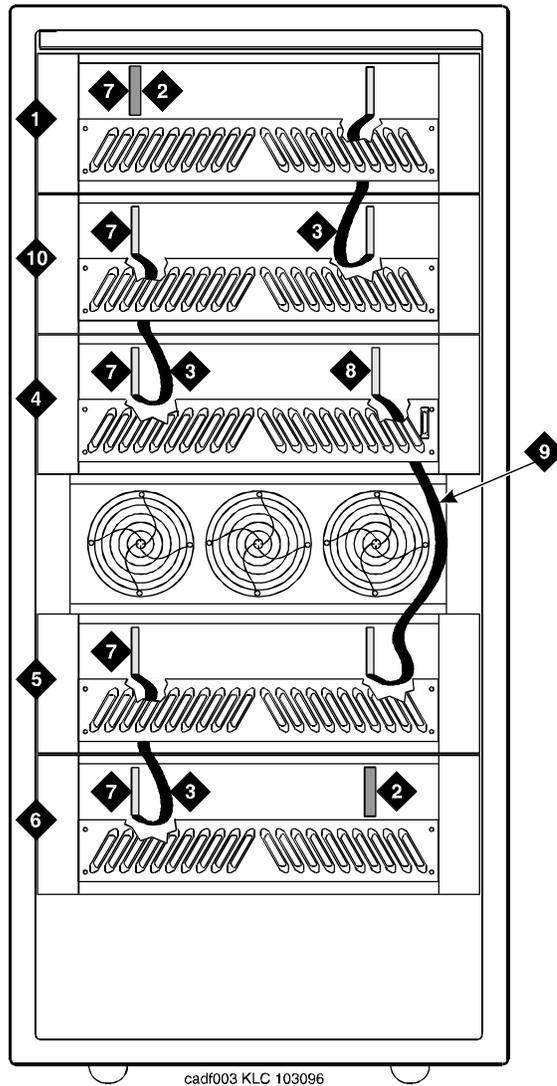


Figure Notes

- | | |
|---------------------------------------------|---------------------------------|
| 1. Port Carrier ("C" Position) | 6. Port Carrier ("E" Position) |
| 2. ZAHF4 TDM/LAN Terminator | 7. Slot 21 |
| 3. TDM/LAN Cable (WP91716 L6) | 8. Slot 02 |
| 4. Expansion Control Carrier ("A" Position) | 9. TDM/LAN Cable (WP91716 L7) |
| 5. Port Carrier ("D" Position) | 10. Port Carrier ("B" Position) |

Figure 4-13. TDM/LAN Connections for High Reliability Release 5 EPN

Table 4-9. TDM/LAN Connections

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890BB-1	Port	21	02
J58890BB-2	Port	21	01
J58890BB-3	Port	21	01
J58890AF	EPN Control "A"	21	02

12. Install the front trim plate on the "A" carrier.
13. Install the power units (removed from G2 module control carrier) into the "A" carrier. Do not interchange the physical locations of the units. The 631AR1, 631WA1, 631DA1, or 644A install in the left side, while the 631BR1, 631WB1, 631DB1, or 645B install in the right side.

⇒ NOTE:

In most cases, the new Release 5 carrier will contain the same power supplies as in the existing system. However, the new Release 5 carrier may contain a 649A Power Unit. If so, use the power units from the G2 power module.

14. If the expansion control carrier contains a 631BR1, 631WB1, or 645B power unit, install the previously removed TN736 power unit in port slots "18" and "19" of the carrier (adjacent to the 631BR1, 631WB1, or 645B). If the system is equipped for neon message waiting, a TN752 or TN755 power unit must be used.

⇒ NOTE:

The TN736 is not required when the 631DB1 or 645B power unit is used in the J58890AH control carrier or the J58890BB-2 or J58890BB-3 port carriers. It is required in the J58890BB-1 port carrier, regardless of which 631 power unit is provided. Use the TN752 or TN755 if the system is equipped with neon message waiting.

15. Connect the white power cords to the power units.

Install Circuit Packs

1. Install the new Release 5 control circuit packs into carrier "A." See Figure 4-15, the new decal, and the annotated "list configuration all" (provided with the Release 5 tape) as a guide.

NOTE:

Currently, the TN768 Tone-Clock circuit pack resides in a port slot of the universal module being upgraded. Relocate this circuit pack to the "TONE CLOCK" slot of carrier "A." Lucent Technologies recommends that you upgrade to the TN2182 Tone-Clock.

2. For a directly-connected high reliability Release 5 system with two port networks, ensure the PPN and this EPN are both equipped with a TN776 or TN570 expansion interface circuit pack.

For a directly-connected system with three port networks, ensure that the PPN and each EPN have two TN776s or TN570s.

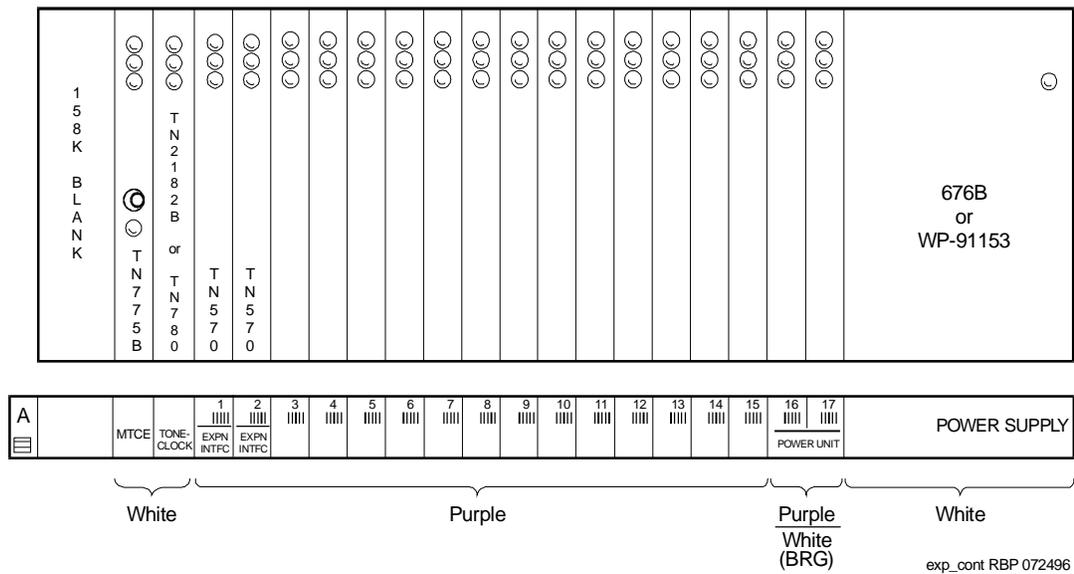


Figure 4-14. Circuit Pack Locations in Release 5 Expansion Control Carrier

Interconnect Port Networks — High Reliability

Fiber optic cabling terminated to 9823A lightwave transceivers can interconnect PNs up to 4,900 feet (1493 m) apart. Fiber optic cabling terminated to 9823B lightwave transceivers can interconnect PNs up to 25,000 feet (7620 m) apart. A 300A fiber optic lightwave transceiver can interconnect PNs up to 115,000 feet (21.7 miles, 35 km) apart.

⇒ NOTE:

These distance limits are approximate measurements of the *actual* fiber right-of-way (not of the shortest linear distance) between the two endpoints.

⇒ NOTE:

It is important to label every cable that you install.

⇒ NOTE:

Keep track of which fiber attaches to which connector on each lightwave transceiver. This section provides figures offering the suggested way of making these connections.

The connectors on the lightwave transceivers are labeled either “TX” (transmit) or “RX” (receive), while the fibers attaching to each connector are numbered either “1” or “2.” A viable fiber connection is only made when both fibers in each cable (“1” and “2”) route from the “TX” connector of a port network to the “RX” connector of its adjacent port network. See Figure 4-17.

⇒ NOTE:

Refer to the “Fiber Link Administration” sections of *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*.

Collocated Port Networks

For a high reliability system with 1 collocated expansion port network, use 1 fiber optic cable and 2 lightwave transceivers to directly connect the networks.

For a high reliability system with 2 collocated expansion port networks, use 3 fiber optic cables and 6 lightwave transceivers to directly connect the networks.

⇒ NOTE:

Based on floor plan considerations, the length of these fiber cables may vary. 20 foot (6.1 m) cables are normally adequate for a Release 5 with 2 port networks.

For collocated cabinets, the fiber optic cables should be routed directly from the PPN to the EPN cabinet. If a “DEFINITY style” PPN cabinet is collocated with another “DEFINITY style” EPN cabinet, the preferred routing is to run the cables *up* the cable tray and out the top of the PPN cabinet. The cables are then run to

the other cabinet, through the top of the cabinet, and down the cable tray to the desired carrier level.

⇒ NOTE:

Refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, for additional guidelines about fiber routing.

If a “DEFINITY style” PPN cabinet is collocated with either a small cabinet, medium cabinet, or single-carrier cabinet stack, the preferred routing is to run the cables *down* the cable tray and out the bottom of the PPN cabinet. The cables are then run to the EPN cabinet and up the outside of the rear panels to the desired carrier level.

Fiber-Remoted Port Networks

For a high reliability system with one fiber-remoted expansion port network, 2 fiber optic cables, 2 lightwave transceivers, and 2 lightguide interconnect units (provided by the PSC) are required.

For a high reliability system with 2 fiber-remoted expansion port networks, six fiber optic cables, 6 lightwave transceivers, and 6 lightguide interconnect units (provided by the PSC) are required.

For fiber-remoted cabinets, the cables should be routed down the cable tray and out the bottom of the cabinet to the cross-connect field where the lightguide interconnect units are located.

In either case, use cable ties to secure the cable against the walls of the cable tray at the cable tie positions built into the trays.

For Either One or Two Collocated Expansion Port Networks

1. At control carrier A of PPN cabinet 1 (see Figure 4-16 through Figure 4-19):
 - Install a lightwave transceiver on the cable connector at slot 1A01.

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect a fiber optic cable to the transceiver just installed.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control carrier A of EPN cabinet 2:

- Install a lightwave transceiver on the cable connector at slot 2A01.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect the other end of the fiber optic cable to the transceiver just installed.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
- At the top of the cabinet, coil the surplus of fiber optic cable and carefully attach the coil to the wall of the cable tray.

For Two Collocated Expansion Port Networks

1. Behind control carrier A of PPN cabinet 1:

- Install a lightwave transceiver on the cable connector at slot 1A02.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect a fiber optic cable to the transceiver just installed.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control carrier A of EPN cabinet 3:

- Install a lightwave transceiver on the cable connector at slot 3A01.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect the other end of the fiber optic cable to the lightwave transceiver just installed.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
- At the top of the cabinet, coil up the surplus fiber optic cable and attach it to the wall of the cable tray.

3. Behind control carrier A of EPN cabinet 2:

- Install a lightwave transceiver on the cable connector at slot 2A02.
- Connect a fiber optic cable to the transceiver just installed.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

4. Behind control carrier A of EPN cabinet 3:

- Install a lightwave transceiver on the cable connector at slot 3A02.

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect the other end of the fiber optic cable to the transceiver just installed.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
- At the top of the cabinet, coil up the surplus fiber optic cable and attach it to the wall of the cable tray.

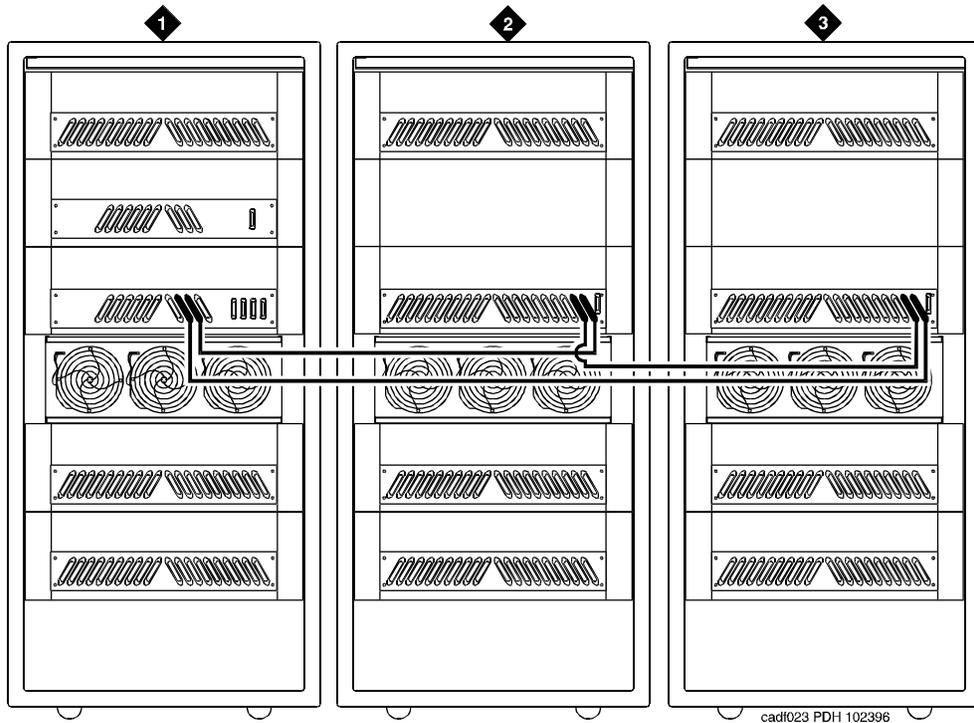


Figure Notes

- 1. Cabinet 1 Processor Port Network
- 2. Cabinet 2 Expansion Port Network 1
- 3. Cabinet 3 Expansion Port Network 2

Figure 4-15. High Reliability Release 5 with Two or Three Port Networks

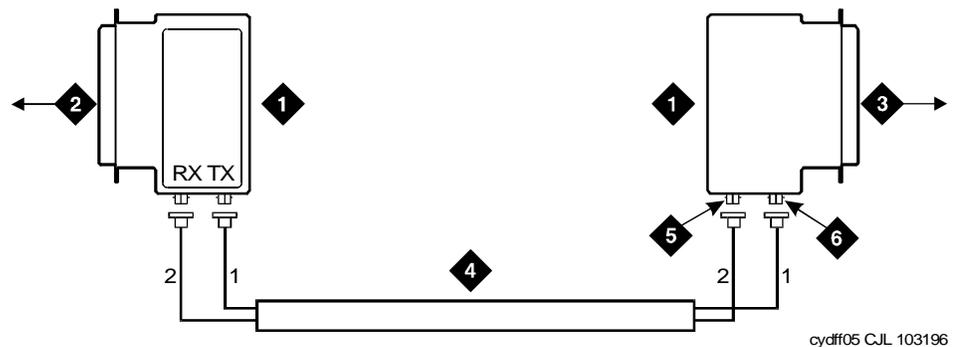


Figure Notes

- | | |
|---------------------------------|----------------------|
| 1. Lightwave Transceiver | 4. Fiber Optic Cable |
| 2. To EPN Carrier A Slot 2A02 | 5. RX Connection |
| 3. To EPN 1 Carrier A Slot 3A02 | 6. TX Connection |

Figure 4-18. Fiber Optic Connections EPN1 to EPN2

For Either One or Two Fiber-Remoted Expansion Port Networks

1. At control carrier A of PPN cabinet 1 (see Figure 4-20 through Figure 4-23):
 - Install a lightwave transceiver on the cable connector at slot 1A01.

NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect a fiber optic cable to the transceiver just installed.
- Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
- Connect the cable to the lightguide interconnect unit provided.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control carrier A of EPN cabinet 2:

- Install a lightwave transceiver on the cable connector at slot 2A01.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect the fiber optic cable to the transceiver just installed.
- Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
- Connect the cable to the lightguide interconnect unit provided.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
- Coil up the surplus fiber cable and place it in the cable manager.

For Two Fiber-Remoted Expansion Port Networks

1. Behind control carrier A of PPN cabinet 1:

- Install a lightwave transceiver on the cable connector at slot 1A02.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect a fiber optic cable to the transceiver just installed.
- Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
- Connect the fiber cable to the lightguide interconnect unit provided.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control carrier A of EPN cabinet 3:

- Install a lightwave transceiver on the cable connector at slot 3A01.

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect the remaining end of the fiber cable to the transceiver just installed.
- Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
- Connect the fiber cable to the lightguide interconnect unit provided.

- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - Coil up the surplus fiber cable and place it in the cable manager.
3. Behind control carrier A of EPN cabinet 2:
- Install a lightwave transceiver on the cable connector at slot 2A02.
 - Connect a fiber optic cable to the transceiver just installed.
 - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
 - Connect the fiber cable to the lightguide interconnect unit provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
4. Behind control carrier A of EPN cabinet 3:
- Install a lightwave transceiver on the cable connector at slot 3A02.

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect the remaining end of the cable to the transceiver just installed.
- Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
- Connect the fiber cable to the lightguide interconnect unit provided.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
- Coil up the surplus fiber cable and place it in the cable manager.

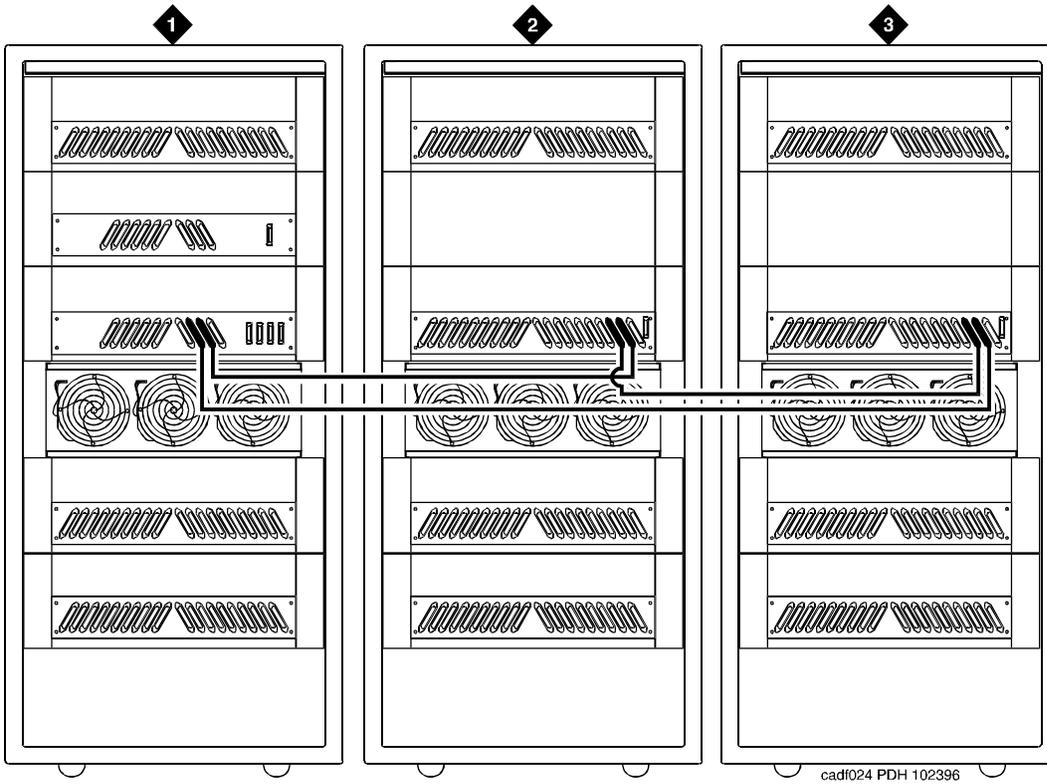


Figure Notes

- | | |
|---------------------------------------|---------------------------------------|
| 1. Cabinet 1 Processor Port Network | 3. Cabinet 3 Expansion Port Network 2 |
| 2. Cabinet 2 Expansion Port Network 1 | |

Figure 4-19. High Reliability Release 5 with Two or Three Port Networks

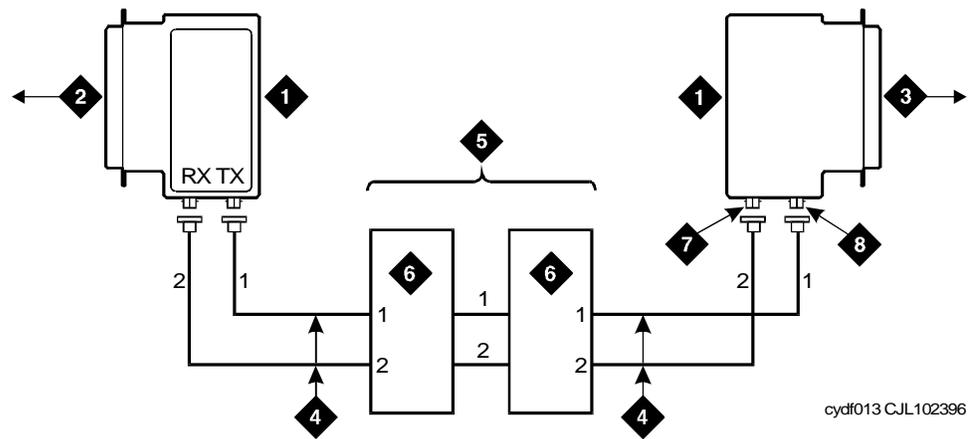


Figure Notes

- | | |
|---------------------------------|--------------------------------------------|
| 1. Lightwave Transceiver | 5. Optical Cross-Connect Facility |
| 2. To PPN Carrier C Slot 1C02 | 6. 100A Lightguide Interconnect Unit (LIU) |
| 3. To EPN 1 Carrier A Slot 2A01 | 7. TX Connector |
| 4. Fiber Optic Cable | 8. RX Connector |

Figure 4-20. Fiber Optic Connections PPN to EPN1

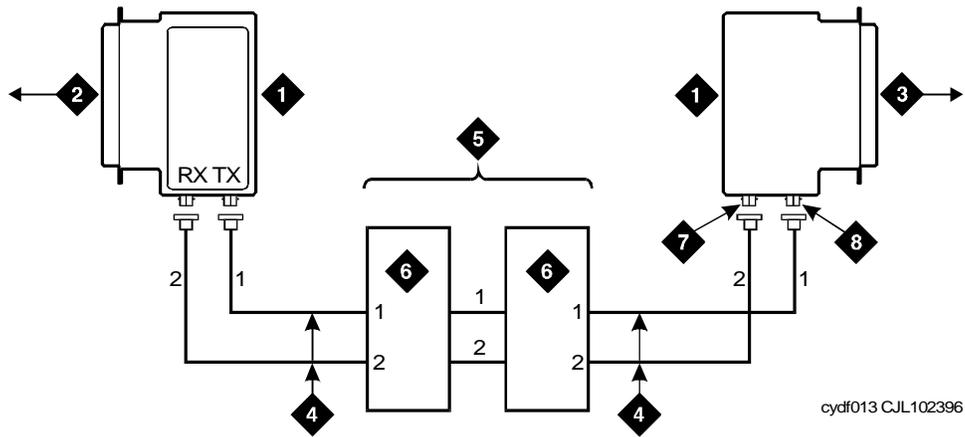
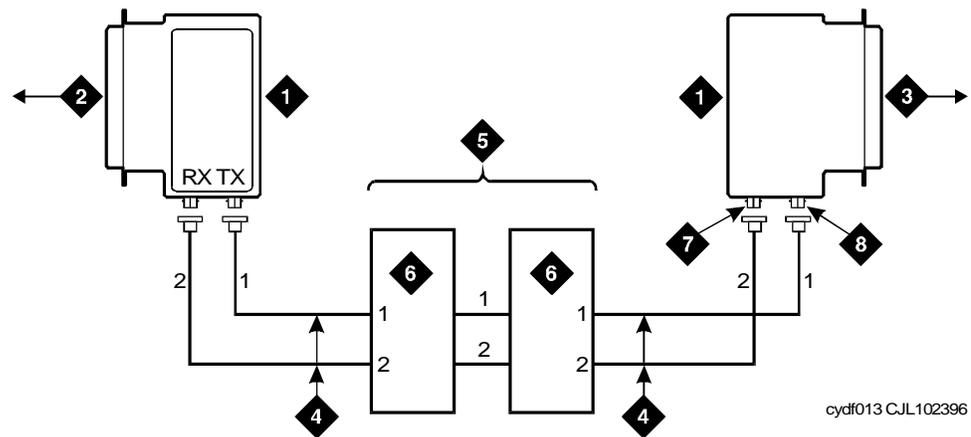


Figure Notes

- | | |
|--------------------------------|--------------------------------------|
| 1. Lightwave Transceiver | 5. Optical Cross-Connect Facility |
| 2. To PPN Carrier D Slot 1D02 | 6. 100A Lightguide Interconnect Unit |
| 3. To EPN2 Carrier A Slot 3A01 | 7. TX Connector |
| 4. Fiber Optic Cable | 8. RX Connector |

Figure 4-21. Fiber Optic Connections PPN to EPN2



cydf013 CJL102396

Figure Notes

- | | |
|--------------------------------|--------------------------------------|
| 1. Lightwave Transceiver | 5. Optical Cross-Connect Facility |
| 2. To EPN1 Carrier A Slot 2A02 | 6. 100A Lightguide Interconnect Unit |
| 3. To EPN2 Cabinet A Slot 3A02 | 7. TX Connector |
| 4. Fiber Optic Cable | 8. RX Connector |

Figure 4-22. Fiber Optic Connections EPN1 to EPN2

Verify Usable Circuit Pack Vintages

Verify that each reused circuit pack conforms to the usable vintage requirements for a Release 5 system (see Reference Guide for Circuit Pack Vintages and Change Notices).

Remove Power-Failure Ground Wire

Remove the 10 AWG (#25) (2.588 mm) ground wire from the power-failure transfer unit.

Boot the Release 5 System

1. Connect the management terminal to the "TERMINAL" connector behind PPN control carrier "A," or install the G3-MA according to the "Set Up G3-MA" chapter of *DEFINITY Communications System Generic 3 Management Applications — Operations*, 585-229-202.
2. Insert the translation cards in the TN777B faceplates.
3. At each EPN power distribution unit, set the main circuit breaker to ON.
4. At the PPN power distribution unit, set the main circuit breaker to ON.
5. The system performs the reset level 4 rebooting process, loading the default system translations from the translation card. This takes 8 to 11 minutes.
6. Get the order number of the upgrade, and call the regional CSA to request an "init" login so the right-to-use options can be enabled on the upgraded system.
7. Enter **set time**, and press Enter to set the time and ensure that the system is booted properly.
8. Enter **list configuration software-version long**, and press Enter to compare the version number of the DEFINITY ECS Release 5 software program (displayed on the G3-MT or G3-MA) with the version number (written on a label on the processor's faceplate). If the version numbers are not the same, change the version number on the processor label so that they agree.
9. Enter **change system-parameters customer-options**. Press Enter. Use this form to enable the Release 5 option and to assign the customer's other right-to-use options on the G2-to-DEFINITY ECS Release 5 upgrade order. See *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*, for details on enabling these options.
10. Enter **change site-data**. Press Enter. Use this form to assign system-specific information (such as building, floor, stations, and so forth).
11. Enter **status system 1**, and press Enter to verify the system is in the "active/standby" mode.
12. Enter **save translation**. Press Enter. This instructs the system to write all translation information from memory to the translation card.



WARNING:

If the terminal screen displays "translation corruption detected; call Lucent Technologies distributor immediately", an error was detected in the translations. Call your Lucent Technologies representative.

Reconnect Cables

1. At the power distribution unit of the upgraded EPN, set the main circuit breaker to OFF.



NOTE:

Powering down an EPN without powering down the PPN will set off alarms. However, these alarms should clear after power is restored to each EPN.

2. Temporarily disconnect the lightwave transceivers and fiber optic cables, already labeled, from the appropriate carriers.
3. Replace the back doors or back panels.
4. At the EPN cabinet, reconnect the lightwave transceivers, fiber optic cables, and the connector cables associated with the carrier being replaced.
5. Install the front door on the EPN cabinet.

Power Up the EPN Cabinets

1. At each EPN power distribution unit, set the main circuit breaker to ON.
After about 40 seconds, EPN power and PPN/EPN communications return.
2. After power returns to each EPN and all trouble is cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

Retranslate Port Circuits

If port circuit packs in the G2 module control carrier were relocated in order to put:

- A critical port circuit pack, requiring longer nominal battery holdover (such as a DS1 or an Announcement circuit pack), in a port slot
- A TN736, TN752, or TN755 power supply in port slots "18" and "19"
- A TN776 or TN570 Expansion Interface in port slot "1"
- A TN776 or TN570 in port slot "2" (for a second directly connected EPN)

of the new expansion control carrier, verify that they were retranslated during the off-site software upgrade. If not, they must be retranslated now. Refer to *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*, for instructions on performing the retranslations.

Enable TTI

1. Enter **change system-parameters features** and press Enter.
2. Use page 2 of the form to change the TTI field back to *y*.

Enable Scheduled Maintenance

Enter **change system-parameters maintenance**, and press Enter. Enable the scheduled daily maintenance.

Enable Customer Options

1. Enter **change system-parameters customer-options** and press Enter.
2. Use these forms to verify the customer options are properly set.

NOTE:

In the *Basic Call Setup* field, if *ISDN-PRI?* was set to *y* before the upgrade, be sure to set the field back to *y*.

Resolve Alarms

Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5vs/si*.

Contact INADS to Enable Customer Options and Alarm Origination

Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.

Return Replaced Equipment

Return unused G2 equipment to Lucent Technologies according to the requirements outlined in:

BCS/Material Logistics, MSL/Attended Stocking Locations
Methods and Procedures for Basic Material Returns

Critical Reliability

Upgrade Cabinets

An existing universal module cabinet is always upgraded to an EPN.

Required Hardware

The equipment in Table 4-10 *must* be on-site before the upgrade begins. To place a claim for missing equipment, as part of the Streamlined Implementation process, call “1-800-772-5409” or the number provided by your Lucent Technologies representative.

Table 4-10. Required Hardware

Equipment	Description	Quantity
PEC 6300-05X	Processor Port Network	1
J58890AF	Expansion Control Carrier	1
J58890BB-3	Port Carrier	1
106647985	TN775B Maintenance	1
103557294 or 103281788	TN776 Expansion Interface TN570 Expansion Interface	4 or 12 ¹ 4 or 12 ^{1,2}
406809889	J58890TG L10 4-MByte Translation Card	2 ³
J58890TF	Tape Cartridge	4
H-600-204 G1	ICC	2 ⁴
407439975	Fiber Cable	2 or 6 ⁵
106455348 or 106455363	9823-A Lightwave Transceiver 9823-B Lightwave Transceiver	4 or 12 (See Note 1) 4 or 12 (See Note 1)
106689516	TN771D Maintenance Test	1 or 2

1. Use four for a critical reliability system with two port networks or twelve with three port networks. Either two or eight Expansion Interfaces (EIs) ship loose with the EPN equipment. The factory has installed the other two or four EIs in the new PPN.
2. Required port network interfaces in a Release 5 system with the optional packet bus.
3. 4 Mbyte translation cards are required for a system using recorded announcements. 10 Mbyte translation cards are required for DEFINITY Wireless Business Systems.
4. Required for an EPN in a critical reliability system.
5. Use four or twelve if the EPNs and the PPN are remotely located. Assuming acceptable lengths, the fibers previously connecting an upgraded G2 universal module (not a traditional module) to the G2 TMS have the correct transceiver connectors and can be reused.

Required Tools

The following tools and items may be required during the upgrade:

- High-intensity flashlight or AC drop light
- 3/8-inch flat-blade screwdriver with a 10-inch shank (minimum)
- 5/16-inch and 1/4-inch sockets with a ratchet and 10-inch extension
- Long-nose pliers to disconnect grounding straps and straighten backplane pins
- Static-proof or original circuit pack packaging for transporting circuit packs
- Labels for identifying the port circuit packs and cables attached to the rear of cabinets
- Twelve #12 and #10 self-tapping screws
- Four spare carrier grounding straps
- Wrist ground strap
- Repair kit for backplane pins (KS-22876 L2 or equivalent)
- One copy of each of the following manuals:
 - *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*
 - *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*

Follow Routine Preventive Maintenance

During the upgrade, follow routine preventive maintenance procedures on the system to be upgraded. For information about the procedures and necessary equipment, refer to the "Preventive Maintenance" section in *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*.

Label Cables

To make reconnecting the cables simpler and more reliable, label both ends of the connector cables associated with the carrier to be removed.

Power Down G2 System

At the power distribution unit, set the main circuit breaker to OFF.

Install Power-Failure Transfer Ground Wire



CAUTION:

To avoid contaminating single-point ground, do not connect the ground wire while the system is powered up.

1. Connect one end of a 10 AWG (#25) (2.588 mm) wire either to pin 49 of the connecting block or to pin 49 of the CAP (cable access panel) associated with the power-failure transfer panel.
2. Route the opposite end of the wire to an approved ground source and connect.

Disconnect Cables

1. With the cable retainer in front of you and the part number visible (4B or 4C), locate the slot that is almost vertical. This slot is adjacent to the part number. Insert a flat blade screwdriver with a 1/4-inch blade into the slot and twist. The retainer will snap open easily. Remove the cable.
2. Disconnect previously labeled cables associated with the carrier to be removed.
3. Behind a "DEFINITY style" cabinet, remove the back doors from the cabinet.
4. Behind a previously upgraded cabinet, remove all of the back panels. (Two different types of screws hold the back panels to the cabinet. The #10 screws can be removed with a screwdriver or a 1/4-inch socket. The #12 screws can be removed with a screwdriver or a 5/16-inch socket.)

Remove Circuit Packs from Module Control Carriers A and B

1. To ensure that power units in the "A" and "B" carriers are properly replaced, label each power unit with its slot number.
2. Disconnect the power cords from the power units in the "A" and "B" carriers.
3. Remove all circuit packs and power units from carrier "A." Store the circuit packs in the static-proof packaging.
4. Remove all circuit packs from carrier "B." Store the circuit packs in the static-proof packaging.
5. Remove the circuit pack blanks from slots that do not contain circuit packs.
6. Remove the front trim plate from the "B" carrier by pulling straight off. Then remove the front trim plate from the "A" carrier.

Remove CURL from Module Control Carrier A

Remove the CFY1 current limiter (CURL) from the pin-field block marked "CURL" on the "A" carrier. The CURL will be reused in the DEFINITY ECS Release 5 EPN.

⇒ NOTE:

Note the position of the components on the left side of the CURL.

⇒ NOTE:

Verify that the CURL meets the minimum usable vintage requirements.

Remove Module Control Carriers A and B

1. Remove the TDM/LAN cable from between the "A" and "B" carriers. See Figure 4-24. This cable will be reused.
2. Disconnect one end of the TDM/LAN cable (between the "A" and "D" carriers) from the "A" carrier. Leave the other end connected to the "D" carrier, and move the cable into a position so that it will not interfere with removing the "A" carrier.

⇒ NOTE:

Note the position of the TDM/LAN cable before disconnecting.

3. Disconnect one end of the TDM/LAN cable (between the "B" and "C" carriers) from the "B" carrier. Leave the other end connected to the "C" carrier, and move the cable into a position so that it will not interfere with removing the "B" carrier.

⚠ CAUTION:

When removing the TDM/LAN cables from a previously upgraded carrier, be careful that none of the short pieces of shrink tubing come off the four corner pins of the pin-field block. Otherwise, when the new equipment is connected, -48 volts could short to ground.

4. Remove and retain the eight ground straps from between the "A" and "B" carriers. See Figure 4-25.
5. Disconnect one end of the eight ground straps from between the "A" and "D" carriers. These straps will reconnect to the new "A" carrier.
6. Disconnect one end of the eight ground straps from between the "B" and "C" carriers. These straps will reconnect to the new "B" carrier.
7. Disconnect the "P1" (small 9-pin) connector and the "P2" (large 38-pin) connector from the "A" carrier. See Figure 4-26. Move the cables into a position where they will not interfere with removing the carrier.

8. Slide the latch up, and disconnect the "P1" (small 9-pin) connector from the "B" carrier. Move the cable into a position where it will not interfere with removing the carrier.
9. Disconnect and remove the ICC cables. See Figure 4-24. They will not be reused.
10. Remove the fan trim plate by pulling straight off.
11. Clean or replace the air filter (403326820) if necessary.
12. In front of carrier, remove the four screws (top two first) holding the "B" carrier to the cabinet frame. Use a long-handle screwdriver or 5/16-inch socket with a 10-inch extension.
13. Behind the carrier, remove the two screws holding the "B" carrier's rear connector panel to the cabinet frame.
14. Slide the carrier forward 1 to 2 inches; then, from the back, be sure that no cables or wiring harnesses are caught on the cabinet/carrier framework.



CAUTION:

Cables and wiring harnesses can be damaged if they catch on the framework and if too much pressure is applied in removing the carrier.

15. Remove the carrier by sliding it out the front of the cabinet.
16. Repeat Steps 12 through 15 for the "A" carrier.
17. On port carrier J58890BB-1, connect the TDM cable or the TDM terminator to Slot 02. On port carriers J58890BB-2 and J58890BB-3, connect the TDM cables or the TDM terminator to Slot 01. If the port carrier has J58890BB-1 and J58890BB-2 printed on it, treat it as a J58890BB-1.

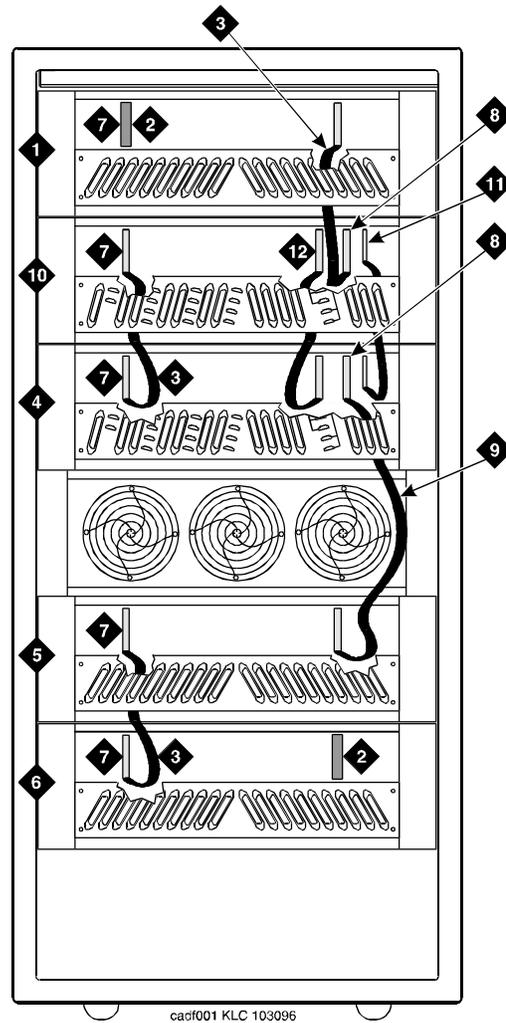


Figure Notes

- | | |
|------------------------------------------|------------------------------------------------------|
| 1. Port Carrier ("C" Position) | 7. Slot 21 |
| 2. ZAHF4 TDM/LAN Terminator | 8. Slot 01 |
| 3. TDM/LAN Cable (WP91716 L6) | 9. TDM/LAN Cable (WP91716 L7) |
| 4. Module Control Carrier ("A" Position) | 10. Duplicated Module Control Carrier ("B" Position) |
| 5. Port Carrier ("D" Position) | 11. ICCA Cable (Slot 03) |
| 6. Port Carrier ("E" Position) | 12. ICCB Cable |

Figure 4-23. TDM/LAN Connections for Duplicated G2 Universal Module

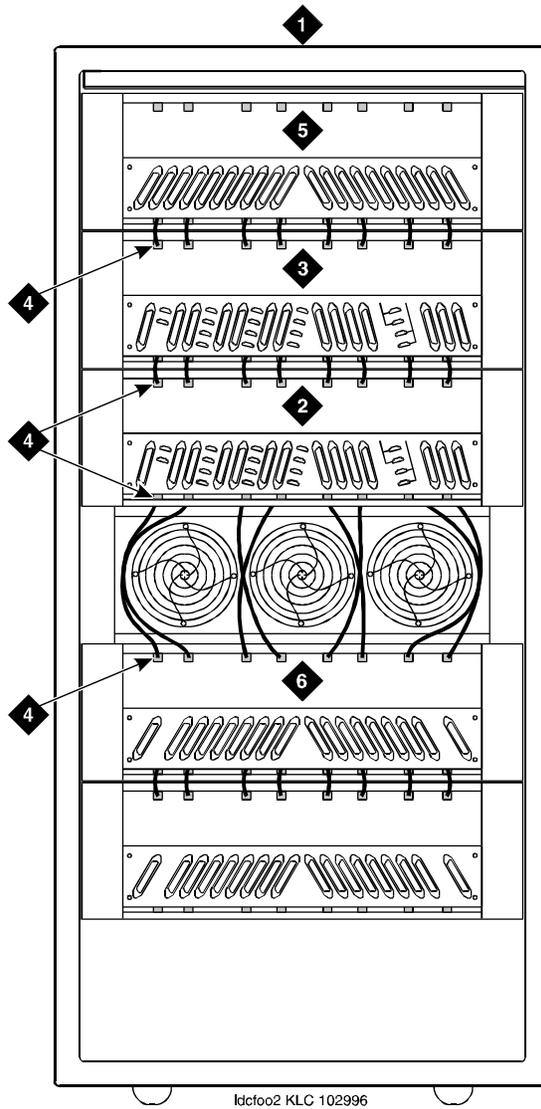
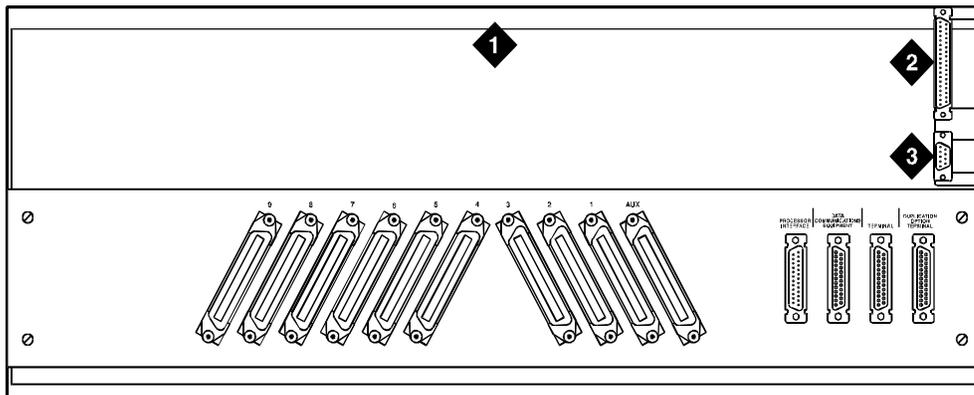


Figure Notes

- | | |
|----------------------------------------------------|--------------------------------|
| 1. Rear of Cabinet | 4. Ground Jumpers |
| 2. Module Control Carrier ("A" Position) | 5. Port Carrier ("C" Position) |
| 3. Expansion Module Control Carrier ("B" Position) | 6. Port Carrier ("D" Position) |

Figure 4-24. Locations of Ground Jumpers



crdfp12 KLC 101596

Figure Notes

- | | |
|----------------------------|-----------------|
| 1. Rear of Control Carrier | 3. P1 Connector |
| 2. P2 Connector | |

Figure 4-25. Location of P1 and P2 Connectors

Prepare the New A and B Position Carriers

1. Inspect the new carriers for any damage. Verify that the backplane pins are not bent.
2. Place the expansion control carrier on the floor so that the rear of the carrier faces up.
3. Install the CFY1 current limiter (CURL) on the "A" carrier to the pin-field block marked "CURL." The CURL is inserted with the components on the left side as viewed from the rear.
4. At the rear connector panel, determine which connectors will have a cable attached, and install a 4B cable retainer on each of these connectors.

Install the New A and B Position Carriers

1. Install the J58890AF Expansion Control Carrier in position "A" by lining up the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips will support the carrier while the screws are being replaced. Ensure that the power cords are properly placed in the slots at the sides of the carrier.
2. Fasten the carrier into position with four self-tapping screws saved from the removal of the old carrier.



CAUTION:

Carefully realign the threads on the self-tapping screws by turning them counterclockwise one turn before tightening them to avoid stripping the threads out of the framework.

3. Behind the carrier in a "DEFINITY style" cabinet, replace the two screws saved from the removal of the old carrier.
4. Install the J58890BB-3 port carrier in position "B" by lining up the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips support the carrier while the screws are being replaced. Ensure the power cords are properly placed in the slots at the sides of the carrier.
5. Fasten the carrier into position with 4 self-tapping screws saved from the removal of the old carrier.
6. Connect the "P2" and "P1" (large and small) connectors to the "A" carrier. To get enough slack in the cables, cut the tie wrap holding the intercabinet cables from the upright in the area of the carrier being installed. Snap the connector lock into place to ensure the connection is properly made (see Figure 4-26).
7. Connect the "P1" (small) connector to the "B" carrier. To get enough slack in the cables, cut the tie wrap holding the intercabinet cables from the upright in the area of the carrier being installed. Snap the connector lock into place to ensure the connection is properly made.
8. Connect the eight ground straps from the "D" carrier to the new "A" carrier (see Figure 4-25). These straps were left connected to the "D" carrier.
9. Connect the eight ground straps from the "C" carrier to the new "B" carrier. These straps were left connected to the "C" carrier.
10. Install the eight ground straps between the new "A" and "B" carriers. These straps were removed from the old carriers.

11. For an AC-powered expansion control carrier, install the two new carrier ground straps. One strap connects ground point "1" to the A-carrier frame (on the right side), and the other connects ground point "8" to the A-carrier frame (on the left side).



NOTE:

DC-powered carriers do not use these carrier ground straps.

12. Connect the loose end of the TDM/LAN cable (between the "A" and "D" carriers) to the pin-field block marked "TDM" on the right side of the "A" carrier (see Figure 4-27 and Table 4-11). The other end remained connected to the "D" carrier when the old carrier was removed.
13. Connect the loose end of the TDM/LAN cable (between the "B" and "C" carriers) to the pin-field block marked "TDM" on the right side of the "B" carrier. The other end remained connected to the "C" carrier when the old carrier was removed.
14. Install the TDM/LAN cable between the "A" and "B" carriers. The cable is connected to the "A" and "B" carriers at the pin-field blocks marked "TDM" on the left side of each carrier.

Table 4-11. TDM/LAN Connections

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890BB-1	Port	21	02
J58890BB-2	Port	21	01
J58890BB-3	Port	21	01
J58890AF	EPN Control "A"	21	02

15. On port carrier J58890BB-1, connect the TDM cable or the TDM terminator to Slot 02. On port carriers J58890BB-2 and J58890BB-3, connect the TDM cables or the TDM terminator to Slot 01. If the port carrier has J58890BB-1 and J58890BB-2 printed on it, treat it as a J58890BB-1.

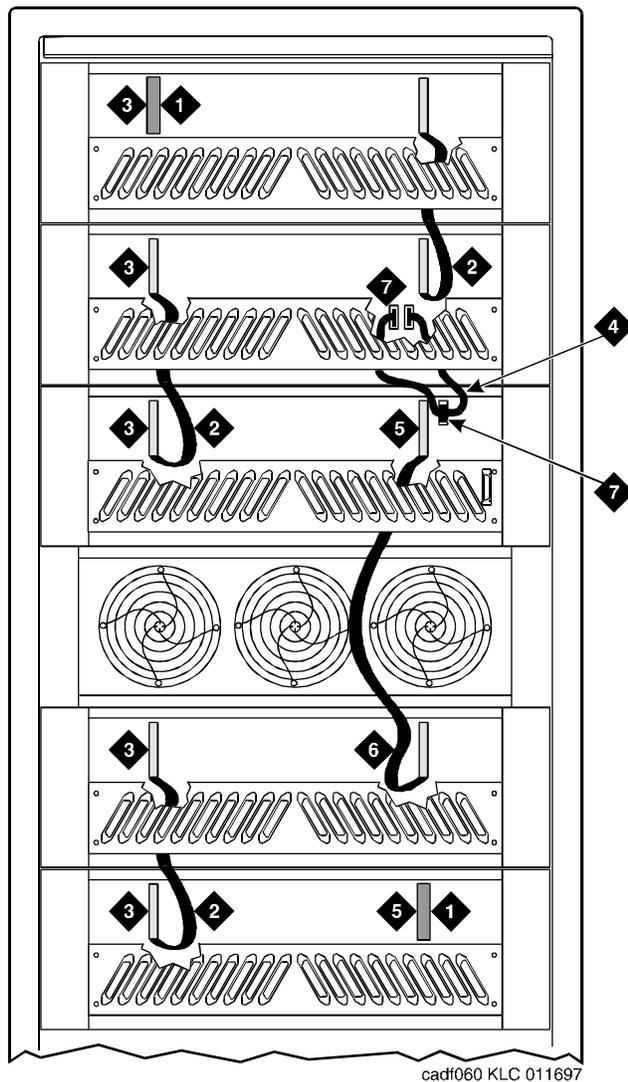


Figure Notes

- | | |
|-------------------------------------------------------|-------------------------------|
| 1. ZAHF4 TDM/LAN Terminator | 5. Slot 02 |
| 2. TDM/LAN Cable (WP91716 L6) | 6. TDM/LAN Cable (WP91716 L7) |
| 3. Slot 21 | 7. ICCA and ICCB Connectors) |
| 4. Inter-Carrier Cables ("A" and "B")
H600-204, G1 | |

Figure 4-26. TDM/LAN Connections for Critical Reliability Release 5 EPN

16. Install the front trim plates; first on the “A” carrier, and then on the “B” carrier.
17. Install the ICC cables (H600-204 G1) between carriers “A” and “B.” Connect the cables to the “ICC” pin-field block on both carriers (see Figure 4-28 and Figure 4-29 and Table 4-12). Install the cable so that the dark stripe is on the bottom at both ends.



CAUTION:

While installing the ICC cable connectors, be careful not to bend any backplane pins. Double check each connection to verify that the pins are straight.

18. Install the power units (removed from G2 universal module) into the “A” carrier. There are four different pairs of power units available. They are the 631AR1 and 631BR1, the 631WA1 and 631WB1, the 631DA1 and 631DB1, and the 644A and 645B.

Do not interchange the physical locations of the units. Install the 631AR1, 631WA1, 631DA1 or 644A in the left side. Install the 631BR1, 631WB1, 631DB1 or 645B in the right side.

19. If the expansion control carrier contains a 631BR1, 631WB1, or 645B power unit, install the previously removed TN736 power unit in port slots “18” and “19” of the carrier (adjacent to the 631BR1, 631WB1, or 645B). If the system contains neon message waiting, a TN752 or TN755 power unit must be used.



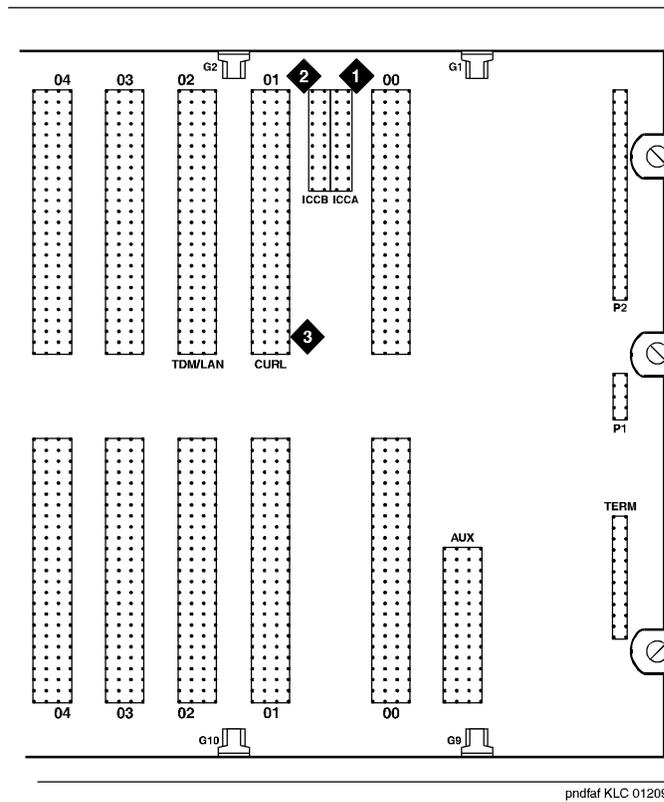
NOTE:

The TN736 is not required when the 631DB1 or 645B power unit is used in the J58890AH control carrier or the J58890BB-2 or J58890BB-3 port carriers. It is required in the J58890BB-1 port carrier regardless of which 631 power unit is provided. Use the TN752 or TN755 if the system is equipped with neon message waiting.

20. Connect the power cords to the power units. The power cords are the white cables equipped with plugs that are run through the slots in the front of each carrier.

Table 4-12. Inter-carrier Cable Connections

Connect ICC Cables				
	From		To	
	Carrier	Pin-Field Block	Carrier	Pin-Field Block
EPN	J58890AF	ICCA ICCB	J58890BB	ICCA ICCB



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Figure Notes

- 1. ICCA Connectors
- 2. ICCB Connectors
- 3. CURL (Current Limiter) Connectors

Figure 4-27. ICC Connections for the Expansion Control Carrier

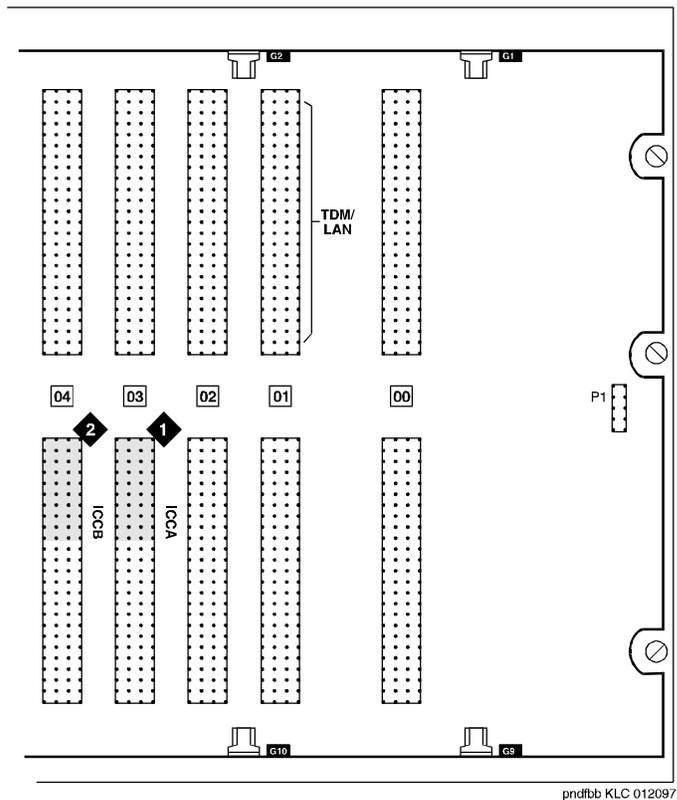


Figure Notes

- 1. ICCA Connectors
- 2. ICCB Connectors

Figure 4-28. ICC Connections for the Port Carrier

Test the CURL

1. Plug the cabinet power cord into the appropriate receptacle.
2. At the power distribution unit, set the main circuit breaker to ON.
3. Unplug the power cord from the power unit "B" (right-hand side) in the "A" carrier.
4. The fans must be running. If not, check the installation of the CURL.
5. Reconnect the power cord to the power unit in the "A" carrier, then unplug the power cord from power unit "B" (right-hand side) in the "B" carrier.
6. The fans must be running. If not, check the installation of the CURL.

7. Reconnect the power cord to the power unit in the “B” carrier.
8. At the power distribution unit, set the main circuit breaker to OFF.

Install Circuit Packs

1. Install the new Release 5 control circuit packs into carriers “A” and “B.” Use the new decal and the annotated “list configuration all” (provided with the Release 5 translation card) as a guide.

⇒ NOTE:

Currently, both TN768 Tone Clock circuit packs reside in port slots of the universal module being upgraded. As part of this step, relocate these circuit packs to the “TONE CLOCK” slot of carrier “A” and port slot “1” of carrier “B.”

2. For a directly-connected critical reliability Release 5 system with two port networks, ensure that the PPN and this EPN are both equipped with two TN776 or TN570 Expansion Interface circuit packs.

For a directly-connected system with three port networks, ensure that the PPN and each EPN have four TN776s or TN570s.

Interconnect Port Networks — Critical Reliability

Fiber optic cabling terminated to 9823A lightwave transceivers can interconnect PNs up to 4,900 feet (1493 m) apart. Fiber optic cabling terminated to 9823B lightwave transceivers can interconnect PNs up to 25,000 feet (7620 m) apart.

⇒ NOTE:

These distance limits are approximate measurements of the *actual* fiber right-of-way (not of the shortest linear distance) between the two endpoints.

⇒ NOTE:

It is important to label every cable that you install.

⇒ NOTE:

Keep track of which fiber attaches to which connector on each lightwave transceiver. This section provides figures offering the suggested way of making these connections.

The connectors on the lightwave transceivers are labeled either “TX” (transmit) or “RX” (receive), while the fibers attached to each connector are numbered either “1” or “2.” A viable fiber connection is only made when both fibers in each cable (“1” and “2”) route from the “TX” connector of a port network to the “RX” connector of its adjacent port network. For an example, refer to Figure 4-30 on page 4-82.

⇒ NOTE:

Refer to the “Fiber Link Administration” sections of *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*.

Collocated Port Networks

For a critical reliability system with one collocated EPN, use two fiber optic cables and four lightwave transceivers to directly connect the networks. For a critical reliability system with two collocated EPNs, use six fiber optic cables and twelve lightwave transceivers to directly connect the networks.

⇒ NOTE:

Based on floor-plan considerations, the length of these cables may vary. Twenty-foot (6.1 m) cables are normally adequate for a Release 5 with two port networks.

For collocated cabinets, the fiber optic cables should be routed directly from the PPN to the EPN cabinet. If a “DEFINITY style” PPN cabinet is collocated with another “DEFINITY style” EPN cabinet, route the cables *up* the cable tray and out the top of the PPN cabinet. The cables are then run to the other cabinet, through the top of the cabinet, and down the cable tray to the desired carrier level.

If a “DEFINITY style” PPN cabinet is collocated with either a small cabinet, medium cabinet, or single-carrier cabinet stack, route the cables *down* the cable tray and out the bottom of the PPN cabinet. The cables are then run to the EPN cabinet and up the outside of the rear panels to the desired carrier level.

Fiber-Remoted Port Networks

For a critical reliability system with one fiber-remoted EPN, use four fiber optic cables, four lightwave transceivers, and four lightguide interconnect units (provided by the PSC). For a critical reliability system with two fiber-remoted EPNs, use twelve fiber optic cables, twelve lightwave transceivers, and twelve lightguide interconnect units (provided by the PSC).

For fiber-remoted cabinets, route the cables down the cable tray and out the bottom of the cabinet to the MDF to the lightguide interconnect units.

For Either One or Two Collocated Expansion Port Networks

1. At control carrier A of PPN cabinet 1 (see Figure 4-29 through Figure 4-32):
 - Install a lightwave transceiver on the cable connector at slot 1A01.
 - Connect a fiber optic cable to the transceiver just installed.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control carrier A of EPN cabinet 2:
 - Install a lightwave transceiver on the cable connector at slot 2A01.

- Connect the other end of the fiber cable to the transceiver just installed.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - At the top of the cabinet, coil the surplus fiber optic cable and attach it to the wall of the cable tray.
3. Behind control carrier B of PPN cabinet 1:
- Install a lightwave transceiver on the cable connector at slot 1B01.
 - Connect a fiber optic cable to the transceiver just installed.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
4. Behind port carrier B of EPN cabinet 2:
- Install a lightwave transceiver on the cable connector at slot 2B02.
 - Connect the other end of the fiber cable to the transceiver just installed.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - At the top of the cabinet, coil the surplus fiber optic cable and attach it to the wall of the cable tray.

For Two Collocated Expansion Port Networks

1. Behind control carrier A of PPN cabinet 1:
- Install a lightwave transceiver on the cable connector at slot 1A02.
 - Connect a fiber optic cable to the transceiver just installed.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control carrier A of EPN cabinet 3:
- Install a lightwave transceiver on the cable connector at slot 3A01.
 - Connect the other end of the fiber cable to the transceiver just installed.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - At the top of the cabinet, coil up the surplus fiber optic cable and attach it to the wall of the cable tray.
3. Behind control carrier B of PPN cabinet 1:
- Install a lightwave transceiver on the cable connector at slot 1B02.
 - Connect a fiber optic cable to the transceiver just installed.

- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
4. Behind port carrier B of EPN cabinet 3:
 - Install a lightwave transceiver on cable connector at slot 3B02.
 - Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot 3B02.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - At the top of the cabinet, coil up the surplus length of fiber optic cable, and carefully attach the coil to the wall of the cable tray.
 5. Behind control carrier A of EPN cabinet 2:
 - Install a lightwave transceiver on cable connector at slot 2A02.
 - Connect one end of the fiber optic cable to the lightwave transceiver, just installed, at slot 2A02.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 6. Behind control carrier A of EPN cabinet 3:
 - Install a lightwave transceiver on cable connector at slot 3A02.
 - Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot 3A02.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - At the top of the cabinet, coil the surplus fiber optic cable, and carefully attach the coil to the wall of the cable tray.
 7. Behind port carrier B of EPN cabinet 2:
 - Install a lightwave transceiver on cable connector at slot 2B03.
 - Connect one end of the fiber optic cable to the lightwave transceiver, just installed, at slot 2B03.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 8. Behind port carrier B of EPN cabinet 3:
 - Install a lightwave transceiver on cable connector at slot 3B03.
 - Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot 3B03.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - At the top of the cabinet, coil the surplus fiber optic cable, and carefully attach the coil to the wall of the cable tray.

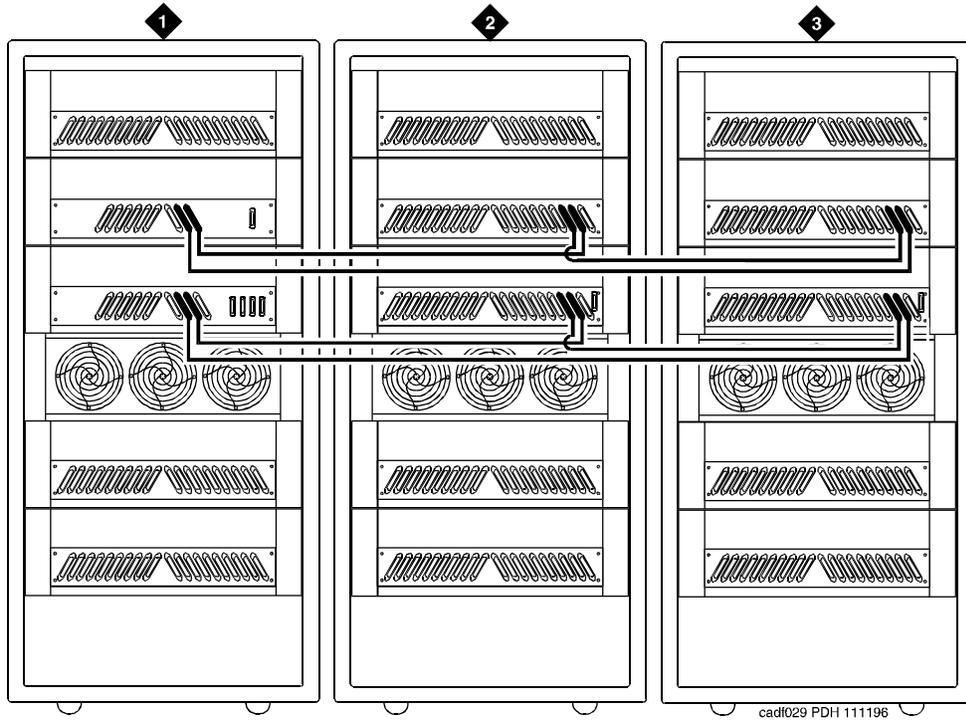


Figure Notes

- 3. Cabinet 1 PPN
- 4. Cabinet 2 EPN 1

- 5. Cabinet 3 EPN 2

Figure 4-29. Critical Reliability Release 5 with Two or Three Port Networks

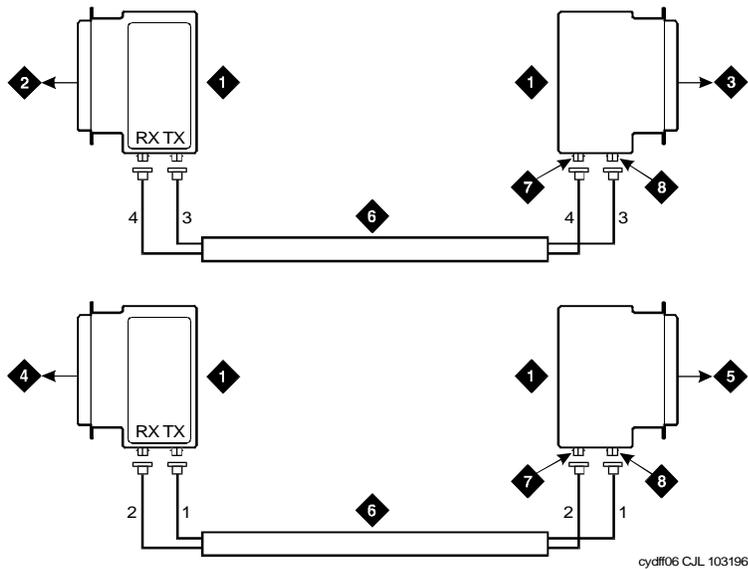


Figure Notes

- | | |
|--------------------------------|-----------------------------|
| 1. Lightwave Transceiver | 5. EPN1 Carrier B Slot 2B02 |
| 2. To PPN Carrier A Slot 1A01 | 6. Fiber Optic Cable |
| 3. To EPN1 Carrier A Slot 2A01 | 7. TX Connector |
| 4. PPN Carrier B Slot 1B01 | 8. RX Connector |

Figure 4-30. Fiber Optic Connections PPN to EPN1

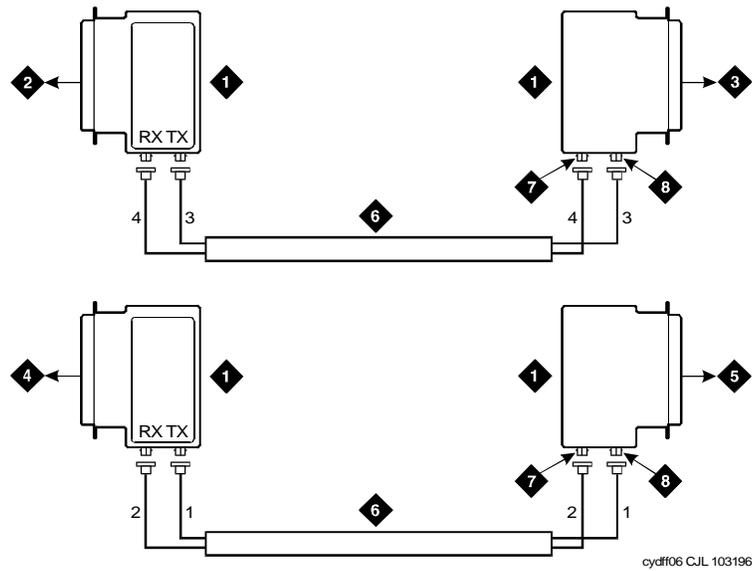


Figure Notes

- | | |
|--------------------------------|--------------------------------|
| 1. Lightwave Transceiver | 5. To EPN2 Carrier A Slot 3A01 |
| 2. To PPN Carrier A Slot 1A02 | 6. Fiber Optic Cable |
| 3. To EPN2 Carrier A Slot 3A01 | 7. TX Connector |
| 4. To PPN Carrier B Slot 1B02 | 8. RX Connector |

Figure 4-31. Fiber Optic Connections PPN to EPN2

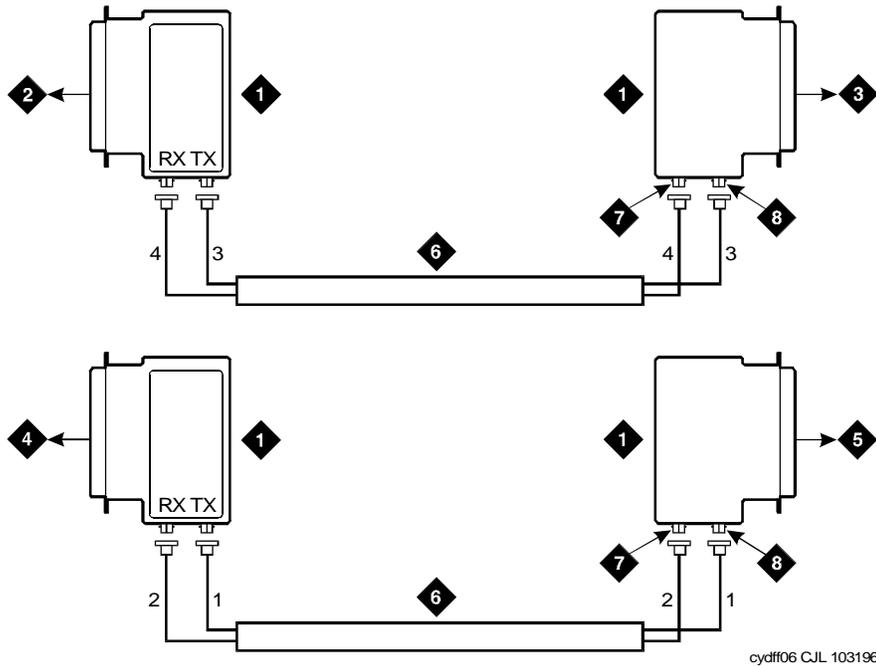


Figure Notes

- | | |
|--------------------------------|--------------------------------|
| 1. Lightwave Transceiver | 5. To EPN2 Carrier B Slot 3B03 |
| 2. To EPN1 Carrier A Slot 2A02 | 6. Fiber Optic Cable |
| 3. To EPN2 Carrier A Slot 3A02 | 7. TX Connector |
| 4. To EPN1 Carrier B Slot 2B03 | 8. RX Connector |

Figure 4-32. Fiber Optic Connections EPN1 to EPN2

For Either One or Two Fiber-Remoted Expansion Port Networks

1. Behind control carrier A of PPN cabinet 1 (see Figure 4-34 through Figure 4-36):
 - Install a lightwave transceiver on the cable connector at slot 1A01.
 - Connect a fiber optic cable to the transceiver just installed.
 - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
 - Connect the fiber cable to the lightguide interconnect unit provided.

- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control carrier A of EPN cabinet 2:
 - Install a lightwave transceiver on the cable connector at slot 2A01.
 - Connect the fiber optic cable to the lightwave transceiver slot 2A01.
 - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
 - Connect the fiber cable to the lightguide interconnect unit provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - Coil the surplus fiber optic cable and place it in the cable manager.
 3. Behind control carrier B of PPN cabinet 1:
 - Install a lightwave transceiver on the cable connector at slot 1B01.
 - Connect a fiber optic cable to the transceiver just installed.
 - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
 - Connect the fiber cable to the lightguide interconnect unit provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 4. Behind port carrier B of EPN cabinet 2:
 - Install a lightwave transceiver on the cable connector at slot 2B02.
 - Connect the fiber optic cable to the transceiver just installed.
 - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
 - Connect the fiber cable to the lightguide interconnect unit provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - Coil the surplus fiber optic cable and place it in the cable manager.

For Two Fiber-Remoted Expansion Port Networks

1. Behind control carrier A of PPN cabinet 1:
 - Install a lightwave transceiver on the cable connector at slot 1A02.
 - Connect a fiber optic cable to the transceiver just installed.
 - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.

- Connect the fiber cable to the lightguide interconnect unit provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control carrier A of EPN cabinet 3:
- Install a lightwave transceiver on cable connector at slot 3A01.
 - Connect the fiber optic cable to the transceiver just installed.
 - Route the fiber cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
 - Connect the fiber cable to the lightguide interconnect unit provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - Coil the surplus fiber optic cable and place it in the cable manager.
3. Behind control carrier B of PPN cabinet 1:
- Install a lightwave transceiver on cable connector at slot 1B02.
 - Connect a fiber optic cable to the transceiver just installed.
 - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
 - Connect the fiber cable to the lightguide interconnect unit provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
4. Behind port carrier B of EPN cabinet 3:
- Install a lightwave transceiver on the cable connector at slot 3B02.
 - Connect the fiber optic cable to the transceiver just installed.
 - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
 - Connect the fiber cable to the lightguide interconnect unit provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - Coil up the surplus fiber cable and place it in the cable manager.
5. Behind control carrier A of EPN cabinet 2:
- Install a lightwave transceiver on the cable connector at slot 2A02.
 - Connect a fiber optic cable to the transceiver just installed.

- Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
 - Connect the fiber cable to the lightguide interconnect unit provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
6. Behind control carrier A of EPN cabinet 3:
- Install a lightwave transceiver on the cable connector at slot 3A02.
 - Connect the fiber optic cable to the transceiver just installed.
 - Route the fiber cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
 - Connect the fiber cable to the lightguide interconnect unit provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - Coil up the surplus fiber cable and place it in the cable manager.
7. Behind port carrier B of EPN cabinet 2:
- Install a lightwave transceiver on the cable connector at slot 2B03.
 - Connect a fiber optic cable to the transceiver just installed.
 - Route the fiber cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
 - Connect the fiber cable to the lightguide interconnect unit provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
8. Behind port carrier B of EPN cabinet 3:
- Install a lightwave transceiver on the cable connector at slot 3B03.
 - Connect the fiber cable to the transceiver just installed.
 - Route the fiber cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
 - Connect the fiber cable to the lightguide interconnect unit provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - Coil up the surplus fiber cable and place it in the cable manager.

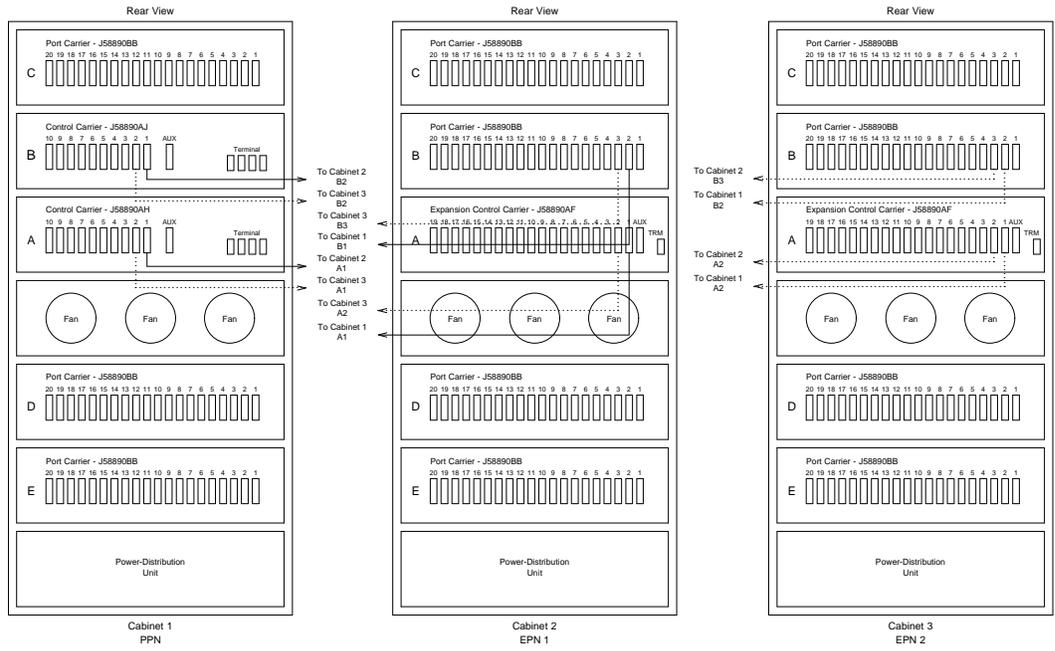


Figure 4-33. Critical Reliability Release 5 with Two or Three Port Networks

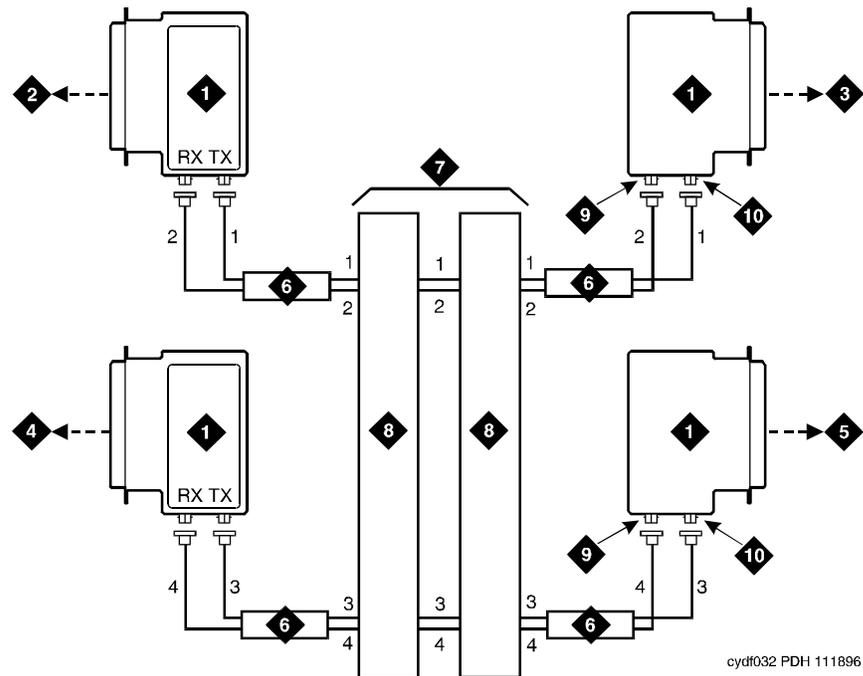
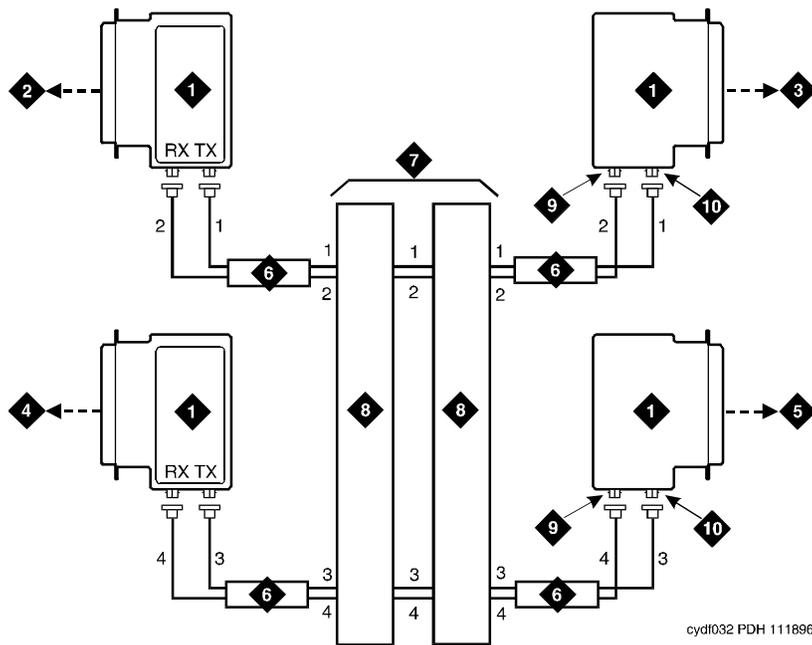


Figure Notes

- | | |
|--------------------------------|--------------------------------------|
| 1. Lightwave Transceiver | 6. Fiber Optic Cable |
| 2. To PPN Carrier A Slot 1A01 | 7. Optical Cross-Connect Facility |
| 3. To EPN1 Carrier A Slot 2A01 | 8. 100A Lightguide Interconnect Unit |
| 4. To PPN Carrier B Slot 1B01 | 9. TX Connector |
| 5. To EPN1 Carrier B Slot 2B02 | 10. RX Connector |

Figure 4-34. Fiber Optic Connections PPN to EPN1

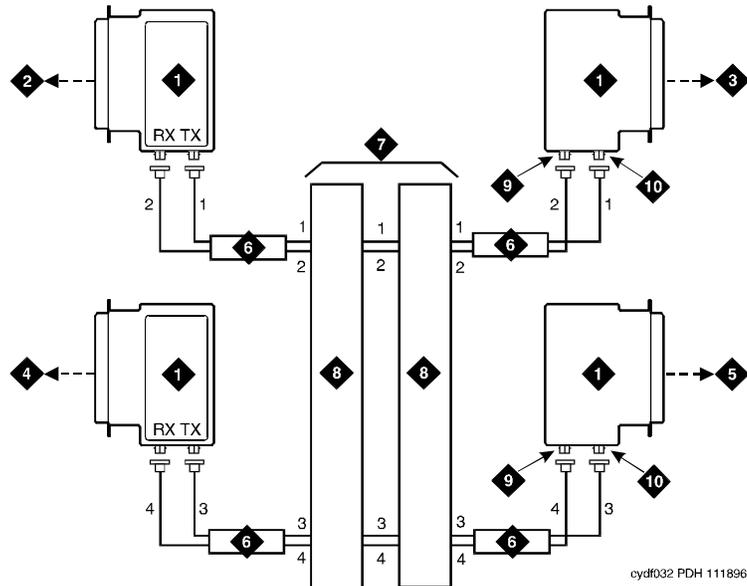


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Figure Notes

- | | |
|--------------------------------|--------------------------------------|
| 1. Lightwave Transceiver | 6. Fiber Optic Cable |
| 2. To PPN Carrier A Slot 1A02 | 7. Optical Cross-Connect Facility |
| 3. To EPN2 Carrier A Slot 3A01 | 8. 100A Lightguide Interconnect Unit |
| 4. To PPN Carrier B Slot 1B02 | 9. TX Connector |
| 5. To EPN2 Carrier B Slot 3B02 | 10. RX Connector |

Figure 4-35. Fiber Optic Connections PPN to EPN2



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Figure Notes

- | | |
|--------------------------------|--------------------------------------|
| 1. Lightwave Transceiver | 6. Fiber Optic Cable |
| 2. To PPN Carrier A Slot 1A02 | 7. Optical Cross-Connect Facility |
| 3. To EPN2 Carrier A Slot 3A01 | 8. 100A Lightguide Interconnect Unit |
| 4. To PPN Carrier B Slot 1B02 | 9. TX Connector |
| 5. To EPN2 Carrier B Slot 3B02 | 10. RX Connector |

Figure 4-36. Fiber Optic Connections EPN1 to EPN2

Verify Usable Circuit Pack Vintages

Verify that each circuit pack reused in the upgrade conforms to the usable vintage requirements for a DEFINITY ECS Release 5 system (see Reference Guide for Circuit Pack Vintages and Change Notices).

Remove Power-Failure Ground Strap

Remove the ground strap from the power-failure transfer unit.

Boot the Release 5 System

1. Connect the management terminal to the “TERMINAL” connector behind PPN control carrier “A,” or install the G3-MA according to the “Set Up G3-MA” chapter of *DEFINITY Communications System Generic 3 Management Applications — Operations*, 585-229-202.
2. Insert the translation cards in the TN777B faceplates.
3. At each EPN power distribution unit, set the main circuit breaker to ON.
4. At the PPN power distribution unit, set the main circuit breaker to ON.
5. The system performs the reset level 4 rebooting process, loading the default system translations from the translation cards. This takes 8 to 11 minutes.
6. Get the order number of the upgrade and call the regional CSA to request an “init” login so the right-to-use options can be enabled.
7. Enter **set time**, and press Enter to set the time and ensure that the system is booted properly.
8. Enter **list configuration software-version long**, and press Enter to compare the version number of the Release 5 software program (displayed on the terminal) with the version number (written on a label on the processor’s faceplate). If the version numbers are not the same, change the version number on the processor label so that they agree.
9. Enter **change system-parameters customer-options**. Press Enter. Use this form to enable the G3 V5 option and to assign the customer’s other right-to-use options on the Release 5 upgrade order. See *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*, for details on enabling these options.
10. Enter **change site-data**. Press Enter. Use this form to assign system-specific information (such as building, floor, stations, and so forth).
11. Enter **status system 1**, and press Enter to verify that the system is in the “active/standby” mode.
12. Enter **save translation**. Press Enter. This instructs the system to write all translation information from memory to the translation cards.



WARNING:

If the terminal screen displays “translation corruption detected; call Lucent Technologies distributor immediately”, an error was detected in the translations. Call your Lucent Technologies representative.

Close Upgraded EPN Cabinet and Reconnect Cables

1. At the upgraded EPN, set the main circuit breaker to OFF.



NOTE:

Powering down an EPN without powering down the PPN will set off alarms. However, these alarms should clear after power is restored to each EPN.

2. Temporarily disconnect the lightwave transceivers and fiber optic cables from the appropriate carriers.
3. Replace the back doors or back panels previously removed.
4. At the EPN cabinet, reconnect the lightwave transceivers, fiber optic cables, and the connector cables associated with the carrier being replaced.
5. Install the front door on the EPN cabinet.

Power Up the EPN Cabinets

1. At each EPN power distribution unit, set the main circuit breaker to ON. After about 40 seconds, EPN power and PPN/EPN communications return.
2. After power returns to each EPN and all trouble is cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

Retranslate Port Circuits

If port circuit packs were relocated in order to put:

- A critical port circuit pack, requiring longer nominal battery holdover (such as a DS1 or an Announcement circuit pack), in a port slot
- A TN736, TN752, or TN755 power supply in port slots "18" and "19"
- A TN776 or TN570 Expansion Interface in port slot "1"
- A TN776 or TN570 in port slot "2" (for a second directly connected EPN)

of the new expansion control carrier, verify that they were retranslated during the off-site software upgrade. If not, they must be retranslated now. Refer to *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*.

Enable TTI

1. Enter **change system-parameters features** and press Enter.
2. Use page 2 of the form to change the TTI field back to *y*.

Enable Scheduled Maintenance

Enter **change system-parameters maintenance**, and press Enter. Enable the scheduled daily maintenance.

Enable Customer Options

1. Enter **change system-parameters customer-options** and press Enter.
2. Use these forms to verify the customer options are properly set.

NOTE:

In the *Basic Call Setup* field, if *ISDN-PRI?* was set to *y* before the upgrade, be sure to set the field back to *y*.

Resolve Alarms

Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5vs/si* or *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*.

Contact INADS to Enable Customer Options and Alarm Origination

Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.

Return Replaced Equipment

Return equipment to Lucent Technologies according to the requirements outlined in:

*BCS/Material Logistics, MSL/Attended Stocking Locations
Methods and Procedures for Basic Material Returns*

**Single-Carrier Cabinet G2 Universal
Module to Release 5si + Memory
EPN**

5

This chapter provides the information necessary to upgrade a DEFINITY G2 universal module with single-carrier cabinets to a DEFINITY ECS Release 5si + memory EPN.

DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description lists DEFINITY ECS Release 5 features and functions, and provides the commands, procedures, and forms to initialize and administer the DEFINITY System.

Task Tables

Table 5-1 provides the high-level tasks to perform the upgrades in this chapter. Refer to the appropriate page for instructions for each step.

Table 5-1. Tasks to Upgrade to Release 5si + Memory EPN

✓	Task Description	Page
	Save Translations	5-10
	Make Source Tape for TRACS Report	5-10
	G2 to Release 5	5-11
	Follow Routine Preventive Maintenance	5-13
	Label Cables	5-13
	Power Down System	5-13
	Disconnect Power and Ground	5-14
	Install Power-Failure Transfer Ground Wire	5-14
	Disconnect Cables	5-14
	Remove Circuit Packs	5-14
	Disconnect TDM/LAN Cables	5-14
	Remove the Existing Module Control Cabinet	5-15
	Unpack and Inspect Expansion Control Cabinet	5-15
	Install Expansion Control Cabinet	5-15
	Add Earthquake Protection	5-16
	Install Port Cabinets	5-16
	Install Circuit Packs	5-18
	Change Cabinet Address Plugs	5-19
	Install TDM/LAN Bus Terminators	5-21
	Connect TDM/LAN Cables and ICC Cables	5-21
	Interconnect Port Networks — Standard Reliability System	5-24
	Interconnect Port Networks — High Reliability Release 5	5-36
	Interconnect Port Networks — Critical Reliability	5-49
	Install Ground Plate(s)	5-65
	Install Cabinet Clip(s)	5-67

Continued on next page

Table 5-1. Tasks to Upgrade to Release 5si + Memory EPN — Continued

✓	Task Description	Page
	Connect Power and Ground	5-67
	Verify Usable Circuit-Pack Vintages	5-67
	Remove Power-Failure Ground Wire	5-67
	Boot the Release 5 System	5-67
	Close Upgraded EPN Stack without Earthquake Protection and Reconnect Cables	5-68
	Close Upgraded EPN Stack with Earthquake Mounting and Reconnect Cables	5-69
	Install Cable Clamps	5-71
	Power Up the EPN Cabinets	5-71
	Retranslate Port Circuits	5-72
	Resolve Alarms	5-72
	Contact INADS to Enable Customer Options and Origination	5-67
	Return Replaced Equipment	5-72

Considerations

Service Interruption

This upgrade process requires a service interruption. Coordinate this service interruption with the customer and the local account team.

Communication Between Equipment Rooms

For an upgrade where some of the equipment resides at a remote location, the upgrade activity is much easier if temporary communication is established between the equipment rooms.

Contact Network Technicians

Contact the technician for each public and private network accessed by the system before the upgrade begins. Otherwise, it is possible that network-access trunk facilities will be busied out at the far end.

Relocation of Port Circuit Packs

A G2 universal-module upgrade to DEFINITY ECS Release 5 *does not* cause port circuit packs, from the G2 universal module, to be moved and manually retranslated. This is because a G2 universal module always upgrades to an EPN. So, during the upgrade, a Release 5 expansion control cabinet (with 14 to 16 available port slots) always replaces the G2 module control cabinet (with no port slots), providing a net gain of from 14 to 16 port slots.

Usable Circuit Packs

Every circuit pack used in the upgraded Release 5 system must conform to the minimum usable vintage requirements for Release 5. Those circuit packs shipped in the new Release 5 PPN or shipped loose with the new EPN equipment must meet the usable vintage specifications. In addition, at a presale site inspection, the Quality Protection Plan Change Notice (QPPCN) process must check the vintages of every circuit pack to be reused in the upgraded Release 5 and replace those circuit packs with unusable vintages. Refer to *Technical Quarterly*, Reference Guide for Circuit Pack Vintages and Change Notices, for current information about usable vintages in a Release 5 system.

In most configurations, the two- or three-circuit pack combination of a tone generator, tone detector, and/or call classifier circuit pack can be replaced with the TN2182 circuit pack, freeing up one or two port slots.

Since Release 5 supports international call processing applications, a wide variety of non-United States circuit packs can be used in this system.

Site Inspections

For a Release 5 upgrade, most G2 systems are equipped with the correct lightwave transceivers (9823A or 9823B). However, some G2 systems contain earlier versions of these components, and (based on a site inspection) these older components must be replaced.

The earlier versions of lightwave transceivers included the 4-series transceivers (4A through 4F). These transceivers supported fiber connections up to 7,000 feet (2134 m) apart; whereas the 9823-A supports connections up to 5,000 feet (1524 m), and the 9823-B supports connections up to 25,000 feet (7620 m). A 300A fiber optic lightwave transceiver supports connections up to 115,000 feet (21.7 miles, 35 km). If the site inspection reveals that the older transceivers reside in the system, order the correct transceivers according to a separate PEC.

⇒ NOTE:

Using the 300A may require 5 or 10 dB attenuators which are available. Contact your Lucent Technologies representative for more information.

⇒ NOTE:

The 9823A transceiver is *not* a direct replacement for the 4-series transceiver since a pair of 9823A transceivers *cannot* replace a pair of 4-series transceivers supporting a connection of between 5,000 feet (1524 m) and 7,000 feet (2134 m).

Power and Ground

The new PPN cabinet or any EPN cabinet added for the upgrade can be either AC- or DC-powered. If an added cabinet is powered differently from the existing cabinets, the existing cabinets do not have to be converted since mixed power configurations are allowed. However, the system's power and ground must be modified so that the AC-powered cabinets ground to the same single-point ground bar as the DC-powered cabinets.

If a new AC-powered cabinet is to be added, a separate AC receptacle must be provided for the new cabinet. This AC receptacle must not be shared with any other equipment and must not be controlled by a wall switch. For the convenience and safety of equipment room personnel, the receptacle should not be located under the MDF.

DC Isolator

Each peripheral connecting to a DC-powered system, via the asynchronous EIA RS-232 interface, requires a 116A isolator. Insert the isolator at the RS-232 interface between the peripheral and the interface connector to isolate ground between the system and external adjuncts.

Power Failure Stations

Disconnect the ground for the power failure stations during the upgrade. This disables the power failure stations. Connect a ground strap to the power failure transfer panel after power is removed and disconnect it before power is restored.

To minimize downtime during the upgrade, test and repair power failure transfer equipment before the upgrade begins.

Software

The Release 5 translations are saved on a translation card installed in the new TN777B Netcon circuit pack. The format of this translation card is not compatible with the format of the G2 disk/tape system (DTS).

If the customer plans to emulate existing G2 translations in the upgraded Release 5, then these translations must be copied to a spare tape and sent to Software Technical Support (STS) so reports of the current G2 translations and a G3-MA diskette with basic station translations can be generated. After STS receives the spare tape, this process takes one week. STS must return the G2 reports and the diskette to the Project Manager before the upgrade can begin. For each G2 processor, 2 tapes (1 system tape and 1 backup tape) must always be retained on site with the G2 system.

After the reports arrive, many features require special attention because of feature differences, form changes, and potential naming conflicts in the upgrade process. The Software Specialist should implement Release 5 translations that are appropriate for the customer's needs. For information, refer to:

- *DEFINITY Enterprise Communications Server Release 5.4 Transition Reference*
- *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*

Alarm Connection

The D6 connector on G2 systems had 31 alarm-monitor appearances (Unit 1 to Unit 31) for external equipment. Whereas, the AUXILIARY connector on a Release 5 PPN only has appearances for 1M (major alarm) and 1m (minor alarm). If the G2 system used more than 1 major or more than 1 minor alarm-monitor appearance, these extra appearances can either be distributed to the AUXILIARY connector on a Release 5 EPN, or “ganged” so that several external devices share the same appearance. The alarms can also be accommodated by paralleling them to the above connections.

NOTE:

When several external devices are ganged to the same appearance, each device loses its individual identity. An alarm on a shared appearance only denotes that one of several devices reported a problem. Subsequent maintenance effort determines which device reported the problem and the nature of the problem.

The control circuit pack behind the AUXILIARY connector detects external alarms with a ground-detector chip. Therefore, to gang several external devices, every device must be able to return a true relay ground closure to the AUXILIARY connector. Alternatives, such as a TTL low driver, are inadequate.

Table 5-2 and Table 5-3 correlate wall-field terminal numbers, connector pin numbers, lead colors, and lead designations for the G2 D6 and Release 5 AUXILIARY connectors.

Table 5-2. Pinouts for D6 Connector on G2 System

Terminal #	Pin #	Color	Desig.	Terminal #	Pin #	Color	Desig.
1	26	W-BL	UNIT20	2	01	BL-W	UNIT19
3	27	W-O	UNIT22	4	02	O-W	UNIT21
5	28	W-G	UNIT24	6	03	G-W	UNIT23
7	29	W-BR		8	04	BR-W	UNIT25
9	30	W-S	UNIT27	10	05	S-W	UNIT26
11	31	R-BL	UNIT29	12	06	BL-R	UNIT28
13	32	R-O	UNIT31	14	07	O-R	UNIT30
15	33	R-G	AUXCTMP	16	08	G-R	UNIT32
17	34	R-BR	EXTEQMN	18	09	BR-R	EXTEQMJ
19	35	R-S	AUXCRCT	20	10	S-R	AUXCHO
21	36	BK-BL	AUXCCB	22	11	BL-BK	AUXCFRQ
23	37	BK-O	AUXCFAN	24	12	O-BK	
25	38	BK-G	EXTPRMJ	26	13	G-BK	EXTPRMN
27	39	BK-BR	UNIT2	28	14	BR-BK	UNIT1
29	40	BK-S	UNIT4	30	15	S-BK	UNIT3
31	41	Y-BL	UNIT6	32	16	BL-Y	UNIT5
33	42	Y-O	UNIT8	34	17	O-Y	UNIT7
35	43	Y-G	UNIT10	36	18	G-Y	UNIT9
37	44	Y-BR		38	19	BR-Y	UNIT11
39	45	Y-S	UNIT13	40	20	S-Y	UNIT12
41	46	V-BL	UNIT15	42	21	BL-V	UNIT14
43	47	V-O	UNIT17	44	22	O-V	UNIT16
45	48	V-G		46	23	G-V	UNIT18
47	49	V-BR	RING0	48	24	BR-V	TIP0
49	50	V-S	RING1	50	25	S-V	TIP1

Table 5-3. Pinouts for Auxiliary Connector on DEFINITY ECS Release 5 System

Terminal #	Pin #	Color	Desig.	Terminal #	Pin #	Color	Desig.
1	26	W-BL	AUXMJ	2	01	BL-W	GRD
3	27	W-O	AUXMN	4	02	O-W	GRD
5	28	W-G		6	03	G-W	GRD
7	29	W-BR		8	04	BR-W	GRD
9	30	W-S		10	05	S-W	GRD
11	31	R-BL		12	06	BL-R	GRD
13	32	R-O		14	07	O-R	GRD
15	33	R-G		16	08	G-R	
17	34	R-BR		18	09	BR-R	
19	35	R-S		20	10	S-R	
21	36	BK-BL	XFER48	22	11	BL-BK	GRD
23	37	BK-O	XFER48	24	12	O-BK	GRD
25	38	BK-G	XFER48	26	13	G-BK	GRD
27	39	BK-BR	XFER48	28	14	BR-BK	GRD
29	40	BK-S	XFER48	30	15	S-BK	GRD
31	41	Y-BL	XFER48	32	16	BL-Y	GRD
33	42	Y-O	XFER48	34	17	O-Y	GRD
35	43	Y-G		36	18	G-Y	
37	44	Y-BR	GRD	38	19	BR-Y	ACC48A
39	45	Y-S	GRD	40	20	S-Y	ACC48B
41	46	V-BL	GRD	42	21	BL-V	ACC48C
43	47	V-O		44	22	O-V	
45	48	V-G	EXT_ALM	46	23	G-V	EXT_ALM_ RT
47	49	V-BR		48	24	BR-V	
49	50	V-S	INADS TIP	50	25	S-V	INADS RING

Software Translation Upgrade

During an upgrade, STS generates TRACS reports (shows the current software translations) and G3-MA diskettes (basic station translations) in the G2 system and sends the reports to the Project Manager. To enable these activities, replace the system tape with a spare G2 tape. Acquire spare G2 tape cartridges from the QPPCN before the upgrade. Copy the current G2 translations to the spare tape and overnight mail to STS. Put the original system tape back into the system.

If possible, the customer should put a freeze on any new translations while the spare tape is being converted. If not, be sure the customer's system administrator keeps detailed records of any translation changes made during that interval. These records will supplement the TRACS reports to facilitate the transition from G2 to Release 5 software translations.

The TRACS reports with the current G2 translations must be on-site before the upgrade begins.

Save Translations

1. Log in at the Manager II on the G2.
2. Enter **rtx** (run tape, execute). Press Enter. This instructs the system to write all translation information from memory to the tape.
3. Remove the system tape and install the backup tape.
4. Enter **rtx**. Press Enter.

Make Source Tape for TRACS Report

For each processor, there must always be two tapes on site with the G2 system. Do not send a system or backup tape to STS.

Copy the G2 translations to the spare tape used to make the TRACS report. Perform the following procedures:

1. Remove the backup tape and install the spare tape.
2. Enter **rtx**. Press Enter. This instructs the system to write all translation information from memory to the tape.
3. Remove the source tape.
4. Insert the system tape.

The tape removed in Step 3 should be mailed (with next-day delivery) to STS for use in making the G2 TRACS report.

System Upgrades

There are many configurations of DEFINITY G2 in the field. Each system can have a unique configuration. However, to simplify upgrades:

- The existing common control is always replaced by a PPN
- Existing traditional modules are replaced by EPNs (see Note, below)
- Existing universal modules are upgraded to EPNs



NOTE:

There is not necessarily a one-to-one correspondence between Release 5 EPNs and G2 modules. With careful hardware and traffic engineering, an upgraded Release 5 can have fewer EPNs than the G2 had modules.

A new multi-carrier cabinet would always serve as the PPN. If a G2 universal module is upgraded to a Release 5 EPN, hardware changes (including carrier replacement) are required.

G2 to Release 5

Upgrade Single-Carrier Cabinet Stack

An existing universal module cabinet stack is always upgraded to an EPN. Upgrading a G2 universal module with single-carrier cabinets requires, at a minimum, replacement of the module control cabinet. Since this cabinet is the bottom cabinet in the stack, the stack must be dismantled.

Required Hardware

The equipment in Table 5-4 must be on-site before the upgrade begins. To place a claim for missing equipment, as part of the Streamlined Implementation process, call 1-800-772-5409, or the number provided by your Lucent Technologies representative.

Table 5-4. Required Hardware

Equipment	Description	Quantity
PEC 6300-05X	Processor Port Network	1
J58890N-1	Expansion Control Cabinet	1
106647985	TN775B Maintenance	1
103557294 or 103281788	TN776 Expansion Interface TN570 Expansion Interface	2, 4, 6, or 12 ¹ 2, 4, 6, or 12 _{1, 2}
407439975	Fiber Cable	1 to 12 ³
106455348 or 106455363 or 107731853	9823A Lightwave Transceiver 9823B Lightwave Transceiver 300A Lightwave Transceiver	2 to 12 ⁴ 2 to 12 ⁴ 2 to 12
406809889	J58890TG L10 4 MByte Translation Card	1 or 2 ⁵
106689516	TN771D Maintenance Test	1 or 2 ⁶
846307817	Lower Rear Cover	1 ⁷
846307809	Ground Plate	1
H600-248 G1	ICC Cables	2
846408268	Earthquake Front Panel (earthquake protection only)	1
846408386	Earthquake Ground Plate (earthquake protection only)	1
846408250	Stiffener (earthquake protection only)	1
846408243	Earthquake Front Mounting Angle (earthquake protection only)	1

1. Use two Expansion Interfaces (EIs) for a standard or high reliability system with two port networks; six with three port networks. Use four for a critical reliability system with two port networks; twelve with three port networks.
2. Required port network interfaces in a Release 5 system with the optional packet bus.
3. The fiber(s) previously connected a G2 universal module (not a traditional module) to the G2 TMS have the correct transceiver connectors and, therefore, can be reused.
4. A 9823-type transceiver can be reused from each G2 universal module. Additional transceivers, ordered separately, also ship loose with the EPN equipment.
5. 4 Mbyte translation cards are required for a system that uses recorded announcements. One translation card is required for a standard reliability system; two for a high reliability system.
6. Depending on the number of EPNs in a critical reliability Release 5 system.
7. Required for the "B" port cabinet of a critical reliability Release 5 EPN. (May not have been installed during R1V3 System 75-to-G2 universal module upgrade.)

Required Tools

The following tools and items may be required during the upgrade:

- Flashlight or high-intensity AC drop light
- 1/4-inch flat blade screwdriver
- 1/4-inch socket with ratchet (optional)
- Long-nose pliers to straighten backplane pins
- Static-proof or original circuit pack packaging for transporting circuit packs
- Labels for identifying the port circuit packs and cables attaching to the cabinets
- One dozen #8 self-tapping screws
- Repair kit for backplane pins (KS-22876 L2 or equivalent)
- One copy of each of the following manuals:
 - *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*, or *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5vs/si*
 - *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*

Follow Routine Preventive Maintenance

Follow routine preventive maintenance procedures on the system to be upgraded. For information about the procedures and necessary equipment, refer to the “Preventive Maintenance” section in *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*, or *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5vs/si*.

Label Cables

To make reconnecting the cables simpler and more reliable, label every connector cable associated with the system (if not already labeled).

Power Down System

1. At each PPN cabinet’s power supply, set the main circuit breaker to OFF.
2. At each EPN cabinet’s power supply, set the main circuit breaker to OFF.

Disconnect Power and Ground

1. Disconnect the cabinet power cords from the rear of each cabinet.
2. Disconnect the 10 AWG (#25) (2.588 mm) coupled bonding conductor wire.
3. Disconnect the 6 AWG (#40) (4.115 mm) cabinet ground wire from the ground bar on the cabinet.

Install Power-Failure Transfer Ground Wire



CAUTION:

To avoid contaminating single-point ground, do not connect the ground wire while the system is powered up.

1. Connect a 10 AWG (#25) (2.588 mm) wire either to pin 49 of the connecting block or to pin 49 of the CAP (cable access panel) associated with the power-failure transfer panel.
2. Route the opposite end of the wire to an approved ground and connect.

Disconnect Cables

1. Disconnect the connector cables attaching to the universal module.
2. Remove the ground plate(s) from between all of the universal module's cabinets.
3. Remove the top and bottom rear covers from all of the universal module's cabinets.

Remove Circuit Packs

Remove all circuit packs and power units from the module control cabinet. Store the circuit packs in the static-proof packaging.

Disconnect TDM/LAN Cables



NOTE:

Before disconnecting each cable, note the position of the cable.

Remove and retain all of the TDM/LAN cables. They will be reused.

Remove the Existing Module Control Cabinet

At this point, all the power, ground, TDM, ICC, and connector cables are disconnected.

1. Remove the cabinet clip between each cabinet or front earthquake plate.
2. Remove the rear ground plate.
3. Remove the port cabinets from the stack.



CAUTION:

A port cabinet may weigh as much as 125 pounds. Use lifting precautions to avoid injury.

4. If the module control cabinet in position "A" is earthquake mounted, remove the hardware securing the cabinet to the floor.
5. Remove the existing module control cabinet. It will not be reused.



NOTE:

If the universal module being upgraded is part of a critical reliability G2 system, both the "A" and "B" logical carriers reside in this cabinet. In this case, two sets of module control circuit packs occupy both sides of the cabinet.

Unpack and Inspect Expansion Control Cabinet

1. Unpack the J58890N Expansion Control Cabinet.



CAUTION:

Take care to avoid injury while cutting and removing bands.

2. Inspect the cabinet for any damage caused during shipping. Report any damage per local procedures.

Install Expansion Control Cabinet

1. Position the expansion control cabinet at the desired location.



CAUTION:

The cabinet may weigh as much as 130 pounds. Use lifting precautions to avoid injury.

2. If earthquake protection is not required, install hole plugs (provided with cabinet) in the holes previously occupied by the two carriage bolts at the bottom rear of the cabinet.

Add Earthquake Protection

To install earthquake protection, refer to the instructions at the end of this chapter.

Install Port Cabinets

Place the port cabinets into the positions from which they were previously removed. See Figure 5-1.



CAUTION:

The cabinet may weigh as much as 130 pounds. Use lifting precautions to avoid injury.



NOTE:

If a critical reliability G2 universal module is being upgraded to a Release 5 EPN, the second logical carrier in the G2 module control cabinet (J58890P) can be replaced by a new J58890H port cabinet in position "B."

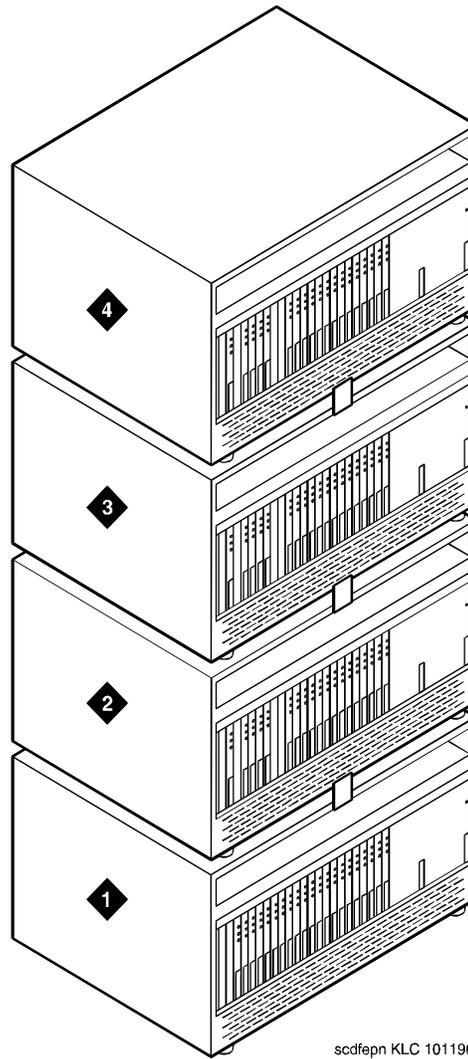


Figure 5-1. Release 5 EPN Single-Carrier Cabinet Stack — Front View

3. For an EPN in a critical reliability Release 5 system, install the other TN768 Tone-Clock and either a TN776 or TN570 EI in slots “1” and “2” of port cabinet “B.” See Table 5-5.



NOTE:

Installing these circuit packs may require a port circuit pack (in slot 3B02) to be moved to an available slot now. Its port circuits will be retranslated after the system is rebooted with the Release 5 translation card.

Table 5-5. TN776 or TN570 Requirements

Cabinet	2 Port Networks w/o Critical Reliability	2 Port Networks w/Critical Reliability	3 Port Networks w/o Critical Reliability	3 Port Networks w/Critical Reliability
PPN	1	2	2	4
EPN 1	1	2	2	4
EPN 2	N/A	N/A	2	4

Change Cabinet Address Plugs

If the G2 universal module was not duplicated or if a duplicated module control cabinet was removed from position “B” and was not replaced with a new port cabinet, the upgraded EPN’s port cabinets occupy incorrect positions in the cabinet stack. If so, the location of each port cabinet’s address plug must be changed to reflect the cabinet’s current position (see Figure 5-3).

Behind each port cabinet, find either one or two address plugs attaching to either two or four of the six backplane pins to the right of the pin-field block for slot 00.

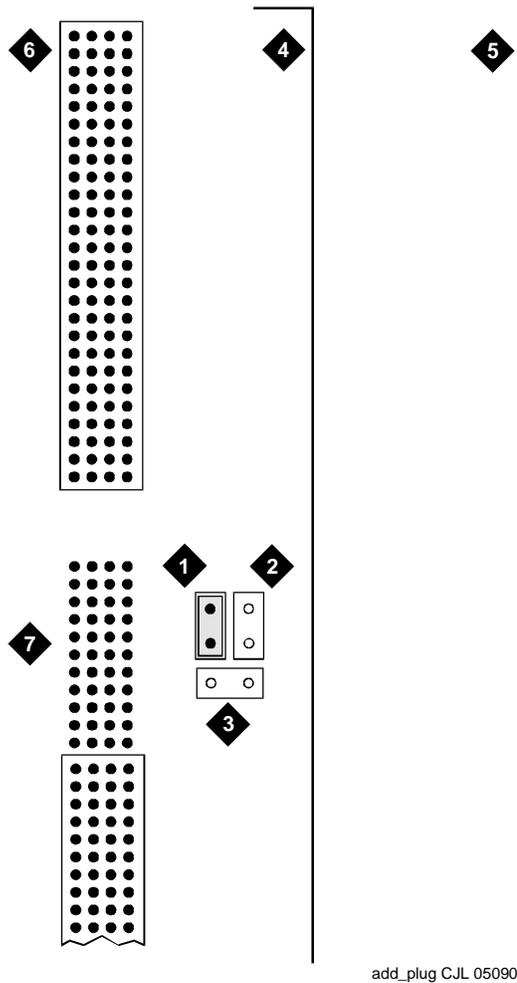


Figure Notes

- | | |
|------------------------------------------|--------------------------|
| 1. Address Plug (Shown Set to Carrier D) | 5. Right Edge of Cabinet |
| 2. Carrier B Jumper Location (Default) | 6. Backplane Slot 00 |
| 3. Carrier C Jumper Location | 7. To Connector Panel |
| 4. Right Edge of Backplane | |

Figure 5-3. Cabinet Address Plug Location

Install TDM/LAN Bus Terminators

1. Install a AHF110 TDM/LAN bus terminator in Slot 01 on the right side of the control cabinet (rear) as shown in Figure 5-4.
2. Install a AHF110 TDM/LAN bus terminator in Slot 00 on the top port cabinet.

Connect TDM/LAN Cables and ICC Cables

1. Route and connect the TDM/LAN cables. If any of the G2 port cabinets (being upgraded to Release 5 cabinets) were originally R1V3 System 75 port cabinets, use the following steps to route a cable between an R1V3 upper cabinet and cabinet beneath it. Do not run a new cable through the existing slot in the rear shelf of the upper cabinet.
 - a. Loosen the two left connector panel screws, then remove the other two connector panel screws.
 - b. Attach the TDM/LAN cable to the backplane and slide the cable between the connector panel and the rear shelf (not through the existing slot in the shelf). Route the cable along the bottom of the cabinet.
 - c. Replace and tighten the connector panel screws.
2. Connect the new ICC cables (H600-248 G1) as shown in Figure 5-4, Figure 5-5, and Figure 5-6.
3. Connect the CFY1 current limiter (CURL) to the "A" carrier, on pin-field block "00" (see Figure 5-5). The CURL's components must be on the left side as viewed from the rear.

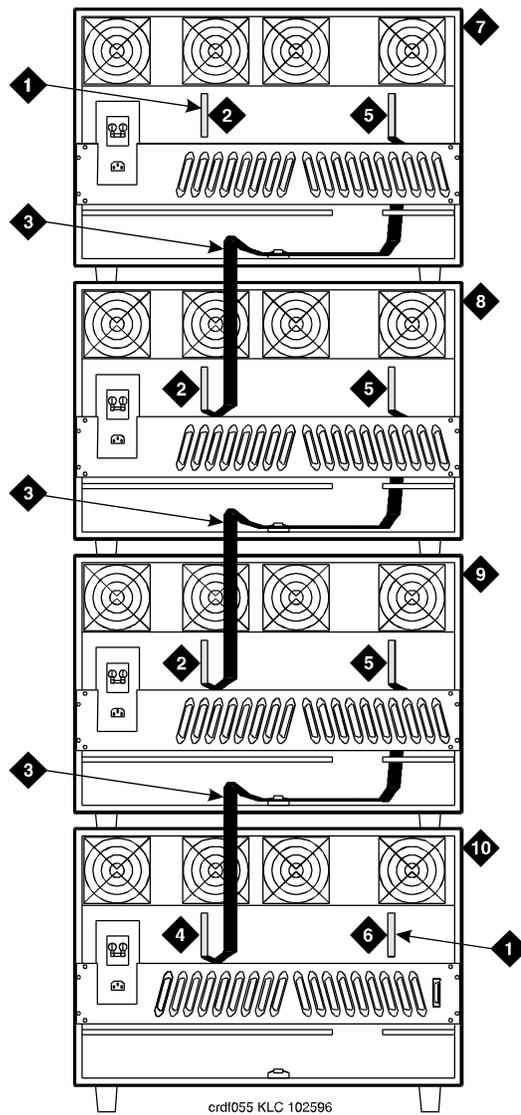


Figure Notes

- | | |
|----------------------------------|------------------------------------|
| 1. AHF110 TDM/LAN Bus Terminator | 6. Slot 01 |
| 2. Slot 17 | 7. Port Cabinet ("D" Position) |
| 3. TDM/LAN Cable (WP91716 L3) | 8. Port Cabinet ("C" Position) |
| 4. Slot 18 | 9. Port Cabinet ("B" Position) |
| 5. Slot 00 | 10. Control Cabinet ("A" Position) |

Figure 5-4. TDM/LAN Connections for Release 5 EPN

Table 5-6. Intercabinet Cable Connections

Connect ICC Cables				
	From		To	
	Carrier	Pin-Field Block	Carrier	Pin-Field Block
EPN	J58890N	ICCA	J58890H-1	ICCA
		ICCB		ICCB

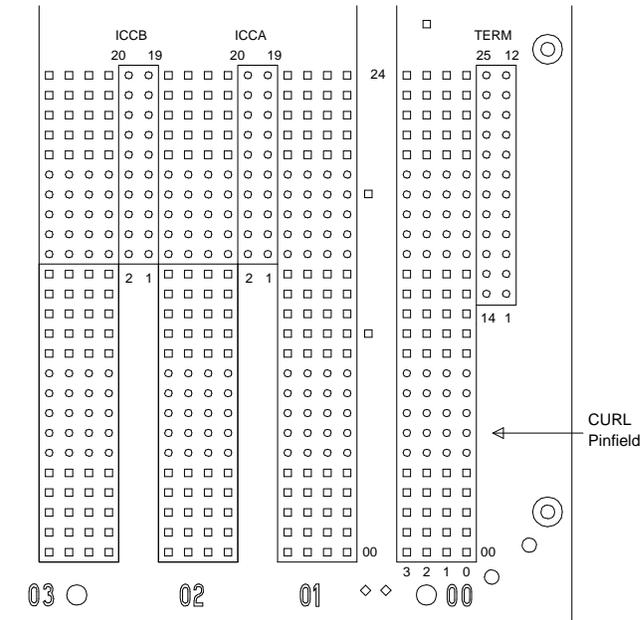


Figure 5-5. ICC Pin-Field Blocks on J58890N Expansion Control Cabinet

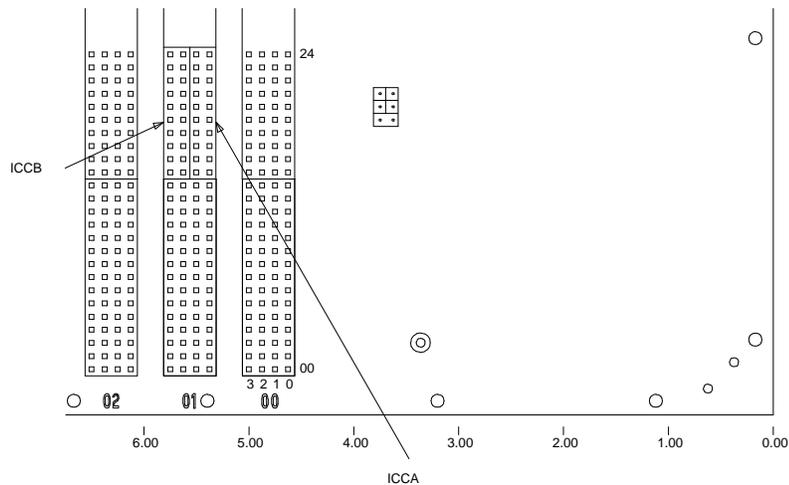


Figure 5-6. ICC Pin-Field Blocks on J58890H Port Cabinet

Interconnect Port Networks — Standard Reliability System

Fiber optic cabling terminated to 9823A lightwave transceivers can interconnect PN's up to 4,900 feet (1493 m) apart. Fiber optic cabling terminated to 9823B lightwave transceivers can interconnect PN's up to 25,000 feet (7620 m) apart. A 300A fiber optic lightwave transceiver can interconnect PN's up to 115,000 feet (21.7 miles, 35 km).

⇒ NOTE:

These distance limitations are approximate measurements of the *actual* fiber right-of-way, not the shortest linear distance between the 2 endpoints.

⇒ NOTE:

It is important to label every cable installed. Keep track of which fiber attaches to which connector on each lightwave transceiver.

⇒ NOTE:

The connectors on the lightwave transceivers are labeled either "TX" (transmit) or "RX" (receive), while the fibers attaching to each connector are numbered either "1" or "2." A viable fiber connection is only made when both fibers in each cable ("1" and "2") route from the "TX" connector of a PN to the "RX" connector of its adjacent PN.

⇒ NOTE:

Refer to the “Fiber Link Administration” sections of *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*.

Collocated Port Networks

For a standard reliability system with one collocated EPN, use one fiber optic cable and two lightwave transceivers to directly connect the networks. For a standard reliability system with two collocated EPNs, use three fiber optic cables and six lightwave transceivers to directly connect the networks.

⇒ NOTE:

Based on floor plan considerations, the length of cables may vary. Twenty foot cables are normally adequate for a Release 5 with two port networks.

For collocated cabinets, route the fiber optic cables directly from the PPN to each EPN cabinet. Since a “DEFINITY style” PPN cabinet is collocated with a single- cabinet stack, the preferred routing is to run the cables *down* the cable tray and out the bottom of the PPN cabinet. The cables are then run to the EPN cabinet and up the outside of the rear panels to the desired carrier level.

If a “DEFINITY style” PPN cabinet is also collocated with another “DEFINITY style” multi-carrier EPN cabinet, the preferred routing is to run the cables *up* the cable tray and out the top of the PPN cabinet. The cables are then run to the other cabinet, through the top of the cabinet, and down the cable tray to the desired carrier level.

Fiber-Remoted Port Networks

For a standard reliability system with one fiber-remoted EPN, use two fiber optic cables, two lightwave transceivers (9823), and two lightguide interconnect units (provided by the PSC). For a standard reliability system with two fiber-remoted EPNs, use six fiber optic cables, six lightwave transceivers, and six lightguide interconnect units (provided by the PSC).

For One or Two Collocated Expansion Port Networks

NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver.

1. Behind control carrier A of the multi-carrier PPN (see Figure 5-7 through Figure 5-10):
 - Install a lightwave transceiver on the connector at slot 1A01.
 - Connect one end of the fiber optic cable to the lightwave transceiver just installed.
 - Route the fiber optic cable to the cabinet's cable tray and down out of the cabinet to the EPN stack.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control cabinet A of EPN stack 2:
 - Install a lightwave transceiver on the connector at slot 2A01.
 - Connect the other end of the fiber optic cable from the PPN to the lightwave transceiver just installed.
 - Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
 - Coil the surplus fiber optic cable and place it either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

For Two Collocated Expansion Port Networks

NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver.

1. Behind control carrier A of the multi-carrier PPN:
 - Install a lightwave transceiver on the connector at slot 1A02.
 - Connect one end of the fiber optic cable to the lightwave transceiver just installed.
 - Route the fiber optic cable from the transceiver to the cabinet's cable tray and downward out of the cabinet to the EPN stack.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control cabinet A of EPN stack 3:
 - Install a lightwave transceiver on the connector at slot 3A01.
 - Connect the other end of the fiber optic cable coming from the PPN to the lightwave transceiver just installed.
 - Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
 - Coil the surplus fiber optic cable and place it either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.
3. Behind control cabinet A of EPN stack 2:
 - Install a lightwave transceiver on the connector at slot 2A02.
 - Connect one end of the fiber optic cable to the lightwave transceiver just installed.
 - Route the fiber optic cable from the transceiver down the outside of the rear covers to the other EPN stack.
 - Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
4. Behind control cabinet A of EPN stack 3:
 - Install a lightwave transceiver on the connector at slot 3A02.
 - Connect the other end of the fiber optic cable coming from the other EPN to the lightwave transceiver at slot 3A02.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - Coil the surplus fiber optic cable and Carefully attach it (with a cable tie) to a leg of an EPN cable clamp.

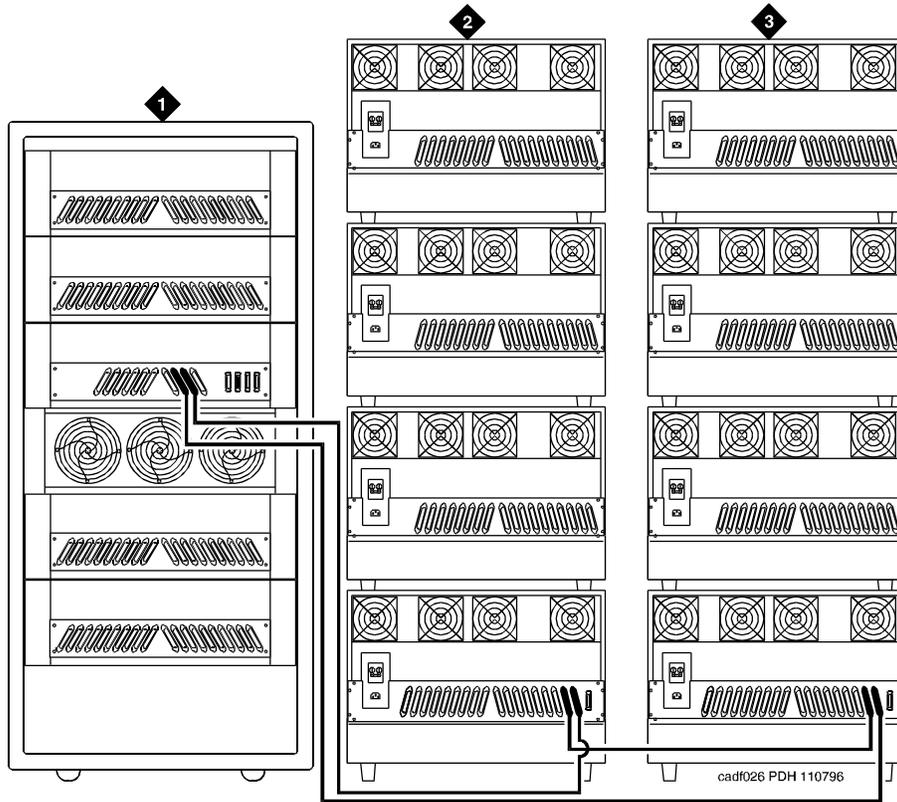


Figure Notes

- 1. Cabinet 1 PPN
- 2. Cabinet Stack 2 EPN 1
- 3. Cabinet Stack 3 EPN 2

Figure 5-7. Standard-Reliability Release 5 with Two or Three Port Networks

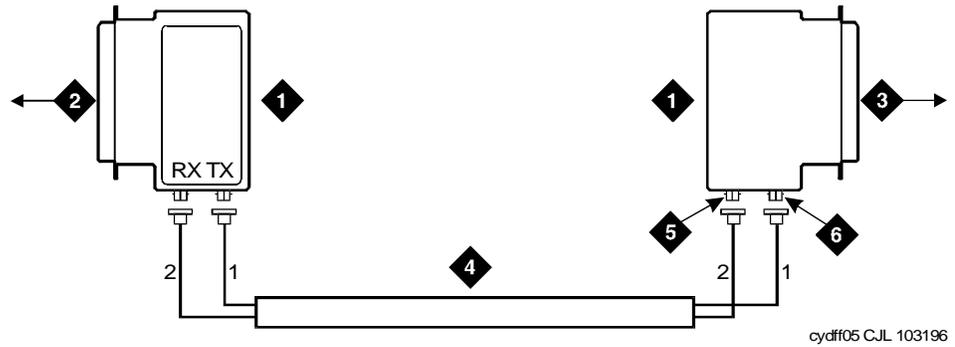


Figure Notes

- | | |
|---------------------------------|----------------------|
| 1. Lightwave Transceiver | 4. Fiber Optic Cable |
| 2. To PPN Carrier A Slot 1A01 | 5. TX Connector |
| 3. To EPN 1 Carrier A Slot 2A02 | 6. RX Connector |

Figure 5-8. Fiber Optic Connections PPN to EPN1

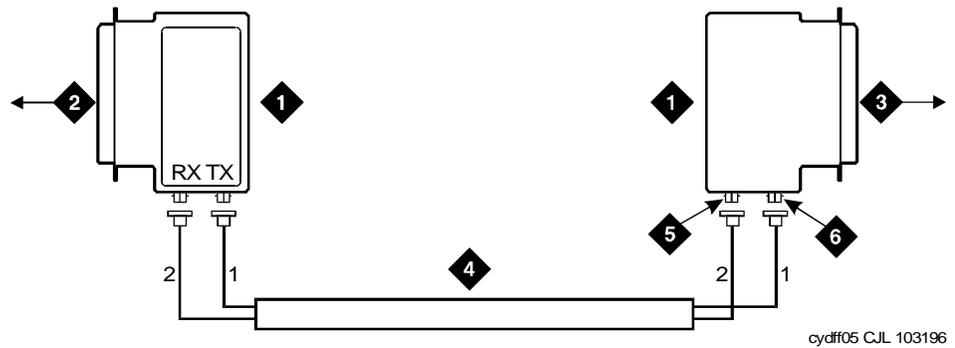


Figure Notes

- | | |
|---------------------------------|----------------------|
| 1. Lightwave Transceiver | 4. Fiber Optic Cable |
| 2. To PPN Carrier A Slot 1A02 | 5. TX Connector |
| 3. To EPN 1 Carrier A Slot 3A01 | 6. RX Connector |

Figure 5-9. Fiber Optic Connections PPN to EPN2

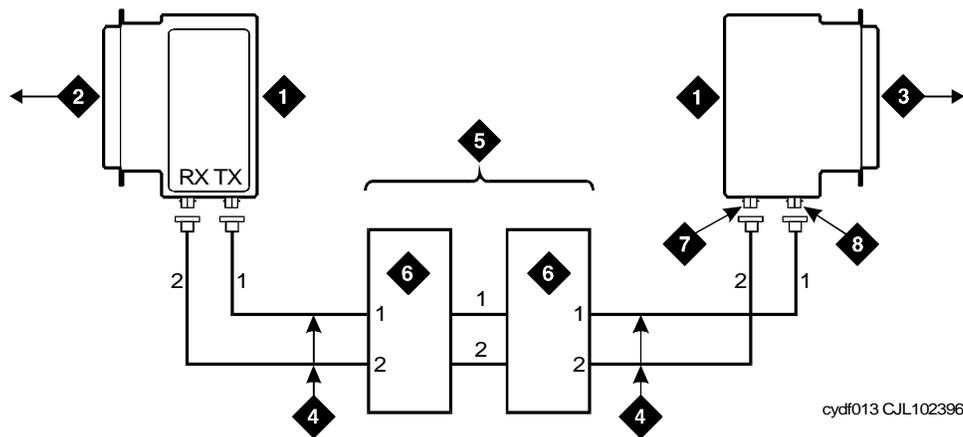


Figure Notes

- | | |
|--------------------------------|--------------------------------------|
| 1. Lightwave Transceiver | 5. Optical Cross-Connect Facility |
| 2. To EPN1 Cabinet A Slot 2A02 | 6. 100A Lightguide Interconnect Unit |
| 3. To EPN2 Cabinet A Slot 3A02 | 7. TX Connector |
| 4. Fiber Optic Cable | 8. RX Connector |

Figure 5-10. Fiber Optic Connections EPN1 to EPN2

For One or Two Fiber-Remoted Expansion Port Networks

NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver.

1. Behind control carrier A of the multi-carrier PPN (Figure 5-11 through Figure 5-14):
 - Install a lightwave transceiver on the connector at slot 1A01.
 - Connect one end of the fiber optic cable to the lightwave transceiver just installed.
 - Route the fiber cable to the cabinet cable tray, out of the cabinet, through the cable manager, and to the PDS cross-connect facility.
 - Connect the fiber cable to the lightguide interconnect unit (LIU) provided.
 - Carefully attach the fiber cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control cabinet A of EPN stack 2:

- Install a lightwave transceiver on the connector at slot 2A01.
- Connect the fiber optic cable to the lightwave transceiver just installed.
- Route the fiber optic cable down the outside of the rear covers and through the cable manager to the PDS cross-connect facility.
- Connect the fiber cable to the lightguide interconnect unit (LIU) provided.
- Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
- Coil the surplus fiber optic cable and place it in the cable manager.

For Two Fiber-Remoted Expansion Port Networks

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver.

1. Behind control carrier A of the multi-carrier PPN:

- Install a lightwave transceiver on the connector at slot 1A02.
- Connect one end of the fiber optic cable to the lightwave transceiver just installed.
- Route the fiber cable to the cabinet cable tray, out of the cabinet, through the cable manager, and to the PDS cross-connect facility.
- Connect the fiber optic cable to the lightguide interconnect unit (LIU) provided.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control cabinet A of EPN stack 3:

- Install a lightwave transceiver on the connector at slot 3A01.
- Connect the fiber optic cable to the lightwave transceiver just installed.
- Route the fiber optic cable down the outside of the rear covers and through the cable manager to the PDS cross-connect facility.
- Connect the fiber optic cable to the lightguide interconnect unit (LIU) provided.
- Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
- Coil the surplus fiber optic cable and place it in the cable manager.

3. Behind control carrier A of EPN stack 2:

- Install a lightwave transceiver on the connector at slot 2A02.
- Connect one end of the fiber optic cable to the lightwave transceiver just installed.
- Route the fiber optic cable down the outside of the rear covers and through the cable manager to the PDS cross-connect facility.
- Connect the fiber optic cable to the lightguide interconnect unit (LIU) provided.
- Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.

4. Behind control cabinet A of EPN stack 3:

- Install a lightwave transceiver on the connector at slot 3A02.
- Connect the fiber optic cable to the lightwave transceiver just installed.
- Route the fiber optic cable down the outside of the rear covers and through the cable manager to the PDS cross-connect facility.
- Connect the fiber optic cable to the lightguide interconnect unit (LIU) provided.
- Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
- Coil the surplus fiber optic cable and place it in the cable manager.

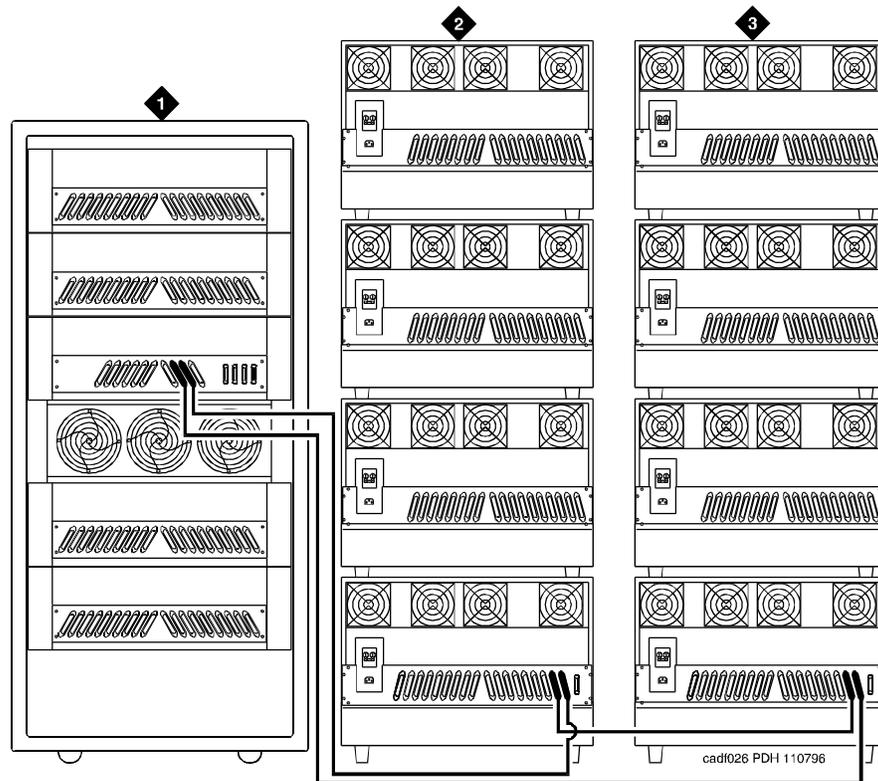


Figure Notes

1. Cabinet 1 PPN

3. Cabinet Stack 3 EPN 2

2. Cabinet Stack 2 EPN 1

Figure 5-11. Standard Reliability Release 5 with Two or Three Port Networks

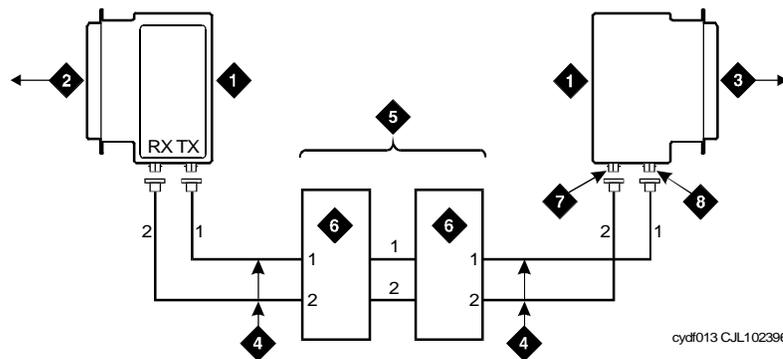


Figure Notes

- | | |
|--------------------------------|--------------------------------------|
| 1. Lightwave Transceiver | 5. Optical Cross-Connect Facility |
| 2. To PPN Carrier A Slot 1A01 | 6. 100A Lightguide Interconnect Unit |
| 3. To EPN2 Cabinet A Slot 2A01 | 7. TX Connector |
| 4. Fiber Optic Cable | 8. RX Connector |

Figure 5-13. Fiber Optic Connections PPN to EPN2

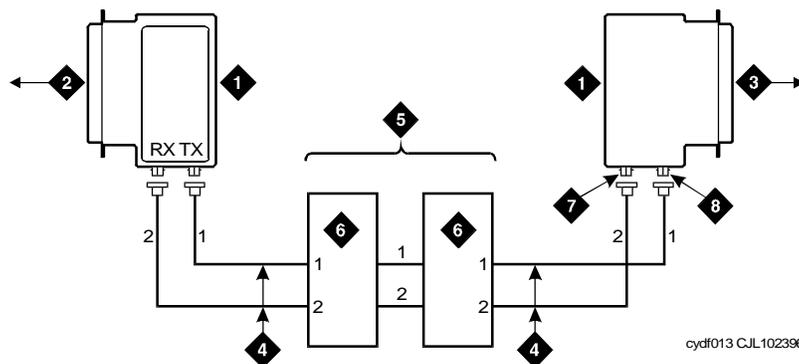


Figure Notes

- | | |
|--------------------------------|--------------------------------------|
| 1. Lightwave Transceiver | 5. Optical Cross-Connect Facility |
| 2. To EPN1 Cabinet A Slot 2A02 | 6. 100A Lightguide Interconnect Unit |
| 3. To EPN2 Cabinet A Slot 3A02 | 7. TX Connector |
| 4. Fiber Optic Cable | 8. RX Connector |

Figure 5-14. Fiber Optic Connections EPN1 to EPN2

Interconnect Port Networks — High Reliability Release 5

Fiber optic cabling terminated to 9823A lightwave transceivers can interconnect PNs up to 4,900 feet (1493 m) apart. Fiber optic cabling terminated to 9823B lightwave transceivers can interconnect PNs up to 25,000 feet (7620 m) apart. A 300A fiber optic lightwave transceiver can interconnect PNs up to 115,000 feet (21.7 miles, 35 km).

⇒ NOTE:

These distance limits are approximate measurements of *actual* fiber right-of-way (not of the shortest linear distance) between the two endpoints.

⇒ NOTE:

It is important to label every cable installed. Keep track of which fiber attaches to which connector on each lightwave transceiver. This section provides figures offering a suggested way of making these connections.

⇒ NOTE:

The connectors on the lightwave transceivers are labeled either “TX” (transmit) or “RX” (receive), while the fibers attached to each connector are numbered either “1” or “2.” A viable fiber connection is only made when

both fibers in each cable (“1” and “2”) route from the “TX” connector of a port network to the “RX” connector of its adjacent port network.

⇒ NOTE:

For implementation details, refer to the “Fiber Link Administration” sections of *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*.

Collocated Port Networks

For a high reliability system with one collocated EPN, use 1 fiber optic cable and 2 lightwave transceivers to directly connect the networks.

For a high reliability system with two collocated EPNs, use 3 fiber optic cables and 6 lightwave transceivers to directly connect the networks.

⇒ NOTE:

Based on floor-plan considerations, the length of these cables may vary. 20 foot (6.1 m) cables are normally adequate for a Release 5 with two port networks.

For collocated cabinets, route the fiber optic cables directly from the PPN to each EPN cabinet. Since a “DEFINITY style” PPN cabinet is collocated with a single-carrier cabinet stack, the preferred routing is to run the cables *down* the cable tray and out the bottom of the PPN cabinet. The cables are then run to the EPN cabinet and up the outside of the rear panels to the desired carrier level.

If a “DEFINITY style” PPN cabinet is also collocated with another “DEFINITY style” multi-carrier EPN cabinet, the preferred routing is to run the cables *up* the cable tray and out the top of the PPN cabinet. The cables are then run to the other cabinet, through the top of the cabinet, and down the cable tray to the desired carrier level.

Fiber-Remoted Port Networks

For a high reliability system with 1 fiber-remoted EPN, use 2 fiber optic cables, 2 lightwave transceivers (9823-type), and 2 lightguide interconnect units (LIUs) (provided by the PSC).

For a high reliability system with 2 fiber-remoted EPNs, use 6 fiber optic cables, 6 lightwave transceivers, and 6 lightguide interconnect units (LIUs) (provided by the PSC).

For One or Two Collocated Expansion Port Networks

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver.

1. Behind control carrier A of the multi-carrier PPN (see Figure 5-15 through Figure 5-18):
 - Install a lightwave transceiver on the connector at slot 1A01.
 - Connect one end of the fiber optic cable to the lightwave transceiver just installed.
 - Route the fiber optic cable to the cabinet's cable tray and downward out of the cabinet to the EPN stack.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control cabinet A of EPN stack 2:
 - Install a lightwave transceiver on the connector at slot 2A01.

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect the other end of the fiber optic cable coming from the PPN to the lightwave transceiver at slot 2A01.
- Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
- Coil the surplus fiber optic cable and place it either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

For Two Collocated Expansion Port Networks

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver.

1. Behind control carrier A of the multi-carrier PPN:
 - Install a lightwave transceiver on the connector at slot 1A02.
 - Connect one end of the fiber optic cable to the lightwave transceiver just installed.

- Route the fiber optic cable to the cabinet's cable tray and downward out of the cabinet to the EPN stack.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control cabinet A of EPN stack 3:
- Install a lightwave transceiver on the connector at slot 3A01.
 - Connect the other end of the fiber optic cable coming from the PPN to the lightwave transceiver at slot 3A01.
 - Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
 - Coil the surplus fiber optic cable and place it either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.
3. Behind control cabinet A of EPN stack 2:
- Install a lightwave transceiver on the connector at slot 2A02.
 - Connect one end of the fiber optic cable to the lightwave transceiver just installed.
 - Route the fiber optic cable down the outside of the rear covers to the other EPN stack.
 - Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
4. Behind control cabinet A of EPN stack 3:
- Install a lightwave transceiver on the connector at slot 3A02.
 - Connect the other end of the fiber optic cable coming from the PPN to the lightwave transceiver at slot 3A02.
 - Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
 - Coil the surplus fiber optic cable and carefully attach it (with a cable tie) to a leg of an EPN cable clamp.

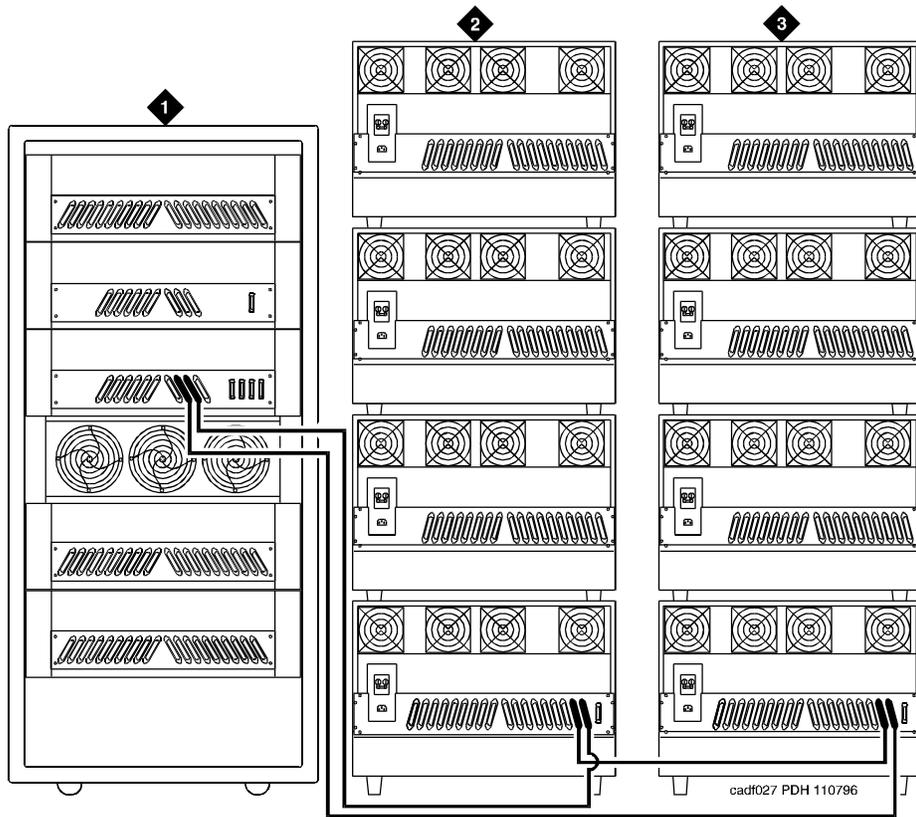


Figure Notes

- 1. Cabinet 1 PPN
- 2. Cabinet Stack 2 EPN 1
- 3. Cabinet Stack 3 EPN 2

Figure 5-15. High Reliability Release 5 with Two or Three Port Networks

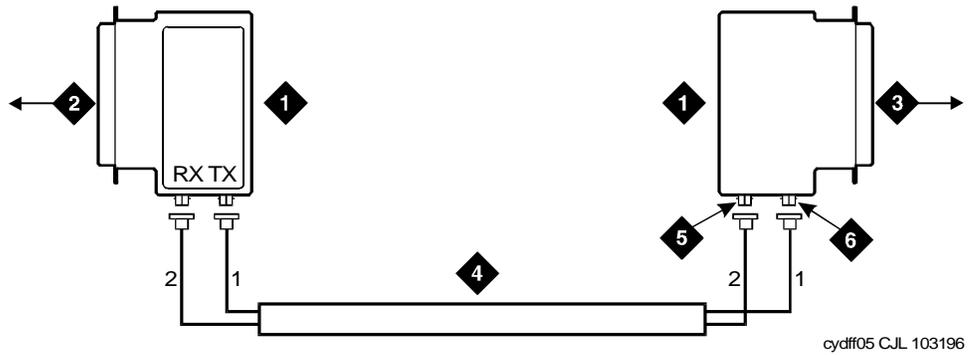


Figure Notes

- | | |
|---------------------------------|----------------------|
| 1. Lightwave Transceiver | 4. Fiber Optic Cable |
| 2. To PPN Carrier A Slot 1A01 | 5. TX Connector |
| 3. To EPN 1 Cabinet A Slot 2A01 | 6. RX Connector |

Figure 5-16. Fiber Optic Connections PPN to EPN1

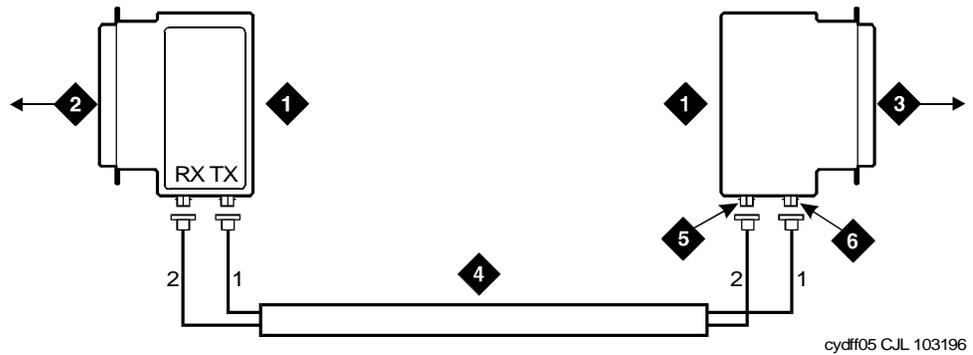


Figure Notes

- | | |
|---------------------------------|----------------------|
| 1. Lightwave Transceiver | 4. Fiber Optic Cable |
| 2. To PPN Carrier A Slot 1A02 | 5. TX Connector |
| 3. To EPN 2 Cabinet A Slot 3A01 | 6. RX Connector |

Figure 5-17. Fiber Optic Connections PPN to EPN2

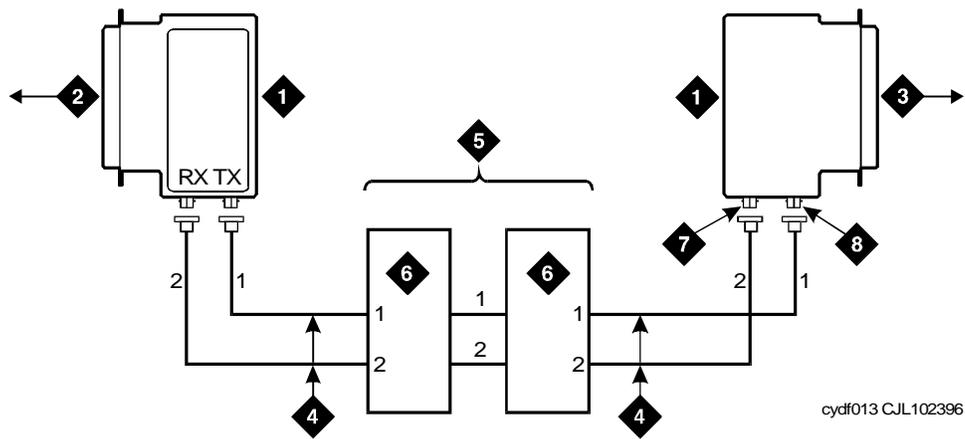


Figure Notes

- | | |
|--------------------------------|--------------------------------------|
| 1. Lightwave Transceiver | 5. Optical Cross-Connect Facility |
| 2. To EPN1 Cabinet A Slot 2A02 | 6. 100A Lightguide Interconnect Unit |
| 3. To EPN2 Cabinet A Slot 3A02 | 7. TX Connector |
| 4. Fiber Optic Cable | 8. RX Connector |

Figure 5-18. Fiber Optic Connections EPN1 to EPN2

For One or Two Fiber-Remoted Expansion Port Networks

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver.

1. Behind control carrier A of the multi-carrier PPN (Figure 5-19 through Figure 5-22):
 - Install a lightwave transceiver on the connector at slot 1A01.
 - Connect one end of the fiber optic cable to the lightwave transceiver just installed.
 - Route the fiber optic cable to the cabinet cable tray, out of the cabinet, through the cable manager, and to the PDS cross-connect facility.
 - Connect the fiber optic cable to the Lightguide Interconnect Unit (LIU) provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control cabinet A of EPN stack 2:
 - Install a lightwave transceiver on the connector at slot 2A01.
 - Connect the fiber optic cable to the lightwave transceiver just installed.
 - Route the fiber optic cable down the outside of the rear covers and through the cable manager to the PDS cross-connect facility.
 - Connect the fiber optic cable to the lightguide interconnect unit (LIU) provided.
 - Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
 - Coil the surplus fiber optic cable and place it in the cable manager.

For Two Fiber-Remoted Expansion Port Networks

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver.

1. Behind control carrier A of the multi-carrier PPN:
 - Install a lightwave transceiver on the connector at slot 1A02.
 - Connect one end of the fiber optic cable to the lightwave transceiver just installed.

- Route the fiber optic cable to the cabinet cable tray, out of the cabinet, through the cable manager, and to the PDS cross-connect facility.
 - Connect the fiber optic cable to the lightguide interconnect unit (LIU) provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control cabinet A of EPN stack 3:
- Install a lightwave transceiver on the connector at slot 3A01.
 - Connect the fiber optic cable to the lightwave transceiver at slot 3A01.
 - Route the fiber optic cable down the outside of the rear covers and through the cable manager to the PDS cross-connect facility.
 - Connect the fiber optic cable to the Lightguide Interconnect Unit (LIU) provided.
 - Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
 - Coil the surplus fiber optic cable and place it in the cable manager.
3. Behind control cabinet A of EPN stack 2:
- Install a lightwave transceiver on the connector at slot 2A02.
 - Connect one end of the fiber optic cable to the lightwave transceiver at slot 2A02.
 - Route the fiber optic cable down the outside of the rear covers and through the cable manager to the PDS cross-connect facility.
 - Connect the fiber optic cable to the Lightguide Interconnect Unit (LIU) provided.
 - Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
4. Behind control cabinet A of EPN stack 3:
- Install a lightwave transceiver on the connector at slot 3A02.
 - Connect the fiber optic cable to the lightwave transceiver at slot 3A02.
 - Route the fiber optic cable down the outside of the rear covers and through the cable manager to the PDS cross-connect facility.
 - Connect the fiber optic cable to the Lightguide Interconnect Unit (LIU) provided.
 - Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
 - Coil the surplus fiber optic cable and place it in the cable manager.

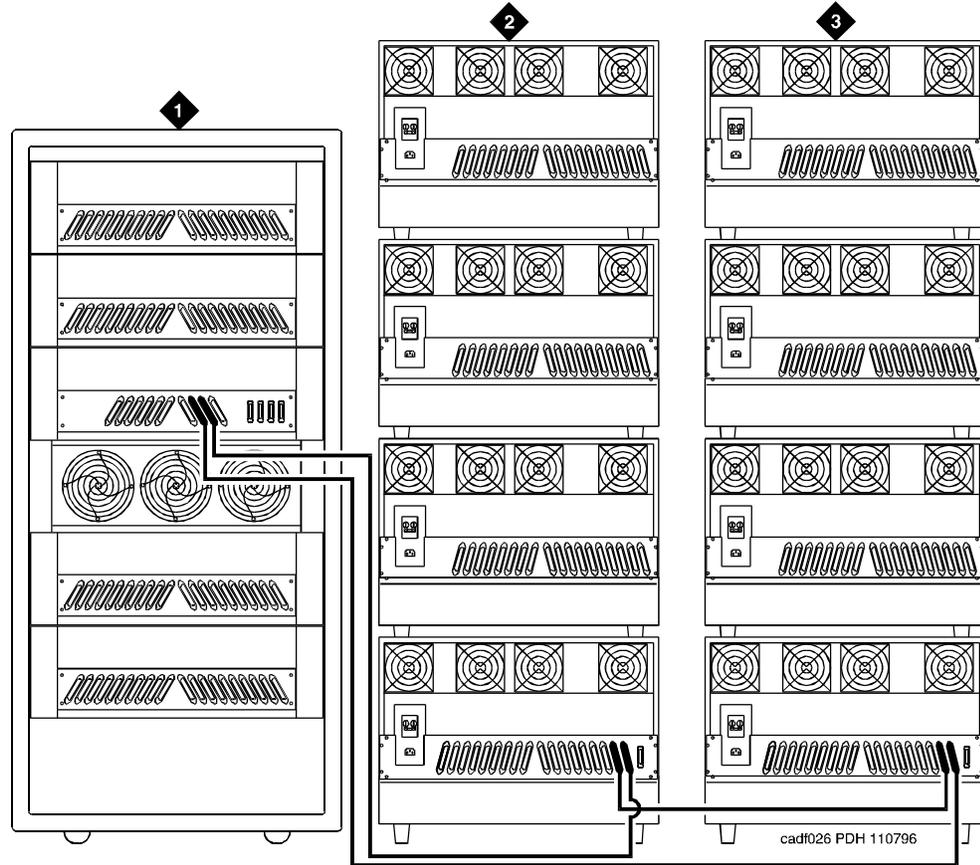


Figure Notes

1. Cabinet 1 PPN

3. Cabinet Stack 3 EPN 2

2. Cabinet Stack 2 EPN 1

Figure 5-19. High Reliability Release 5 with Two or Three Port Networks

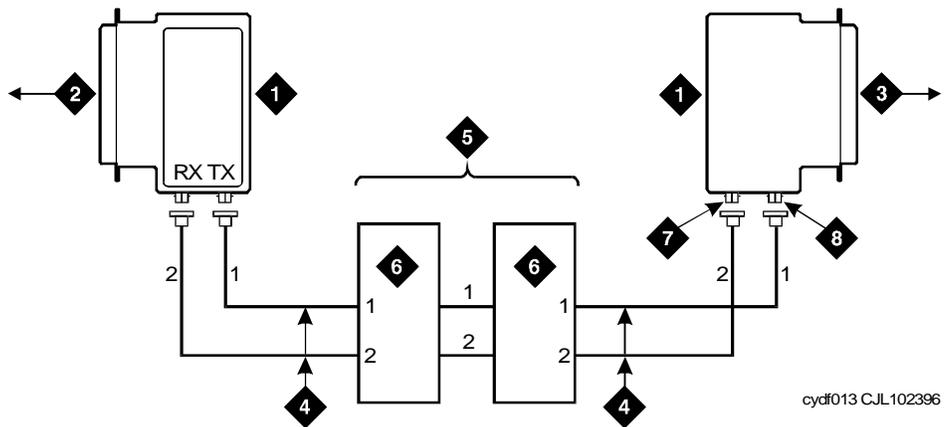


Figure Notes

- | | |
|--------------------------------|--------------------------------------|
| 1. Lightwave Transceiver | 5. Optical Cross-Connect Facility |
| 2. To PPN Carrier A Slot 1A01 | 6. 100A Lightguide Interconnect Unit |
| 3. To EPN1 Cabinet A Slot 2A01 | 7. TX Connector |
| 4. Fiber Optic Cable | 8. RX Connector |

Figure 5-20. Fiber-Optic Connections PPN to EPN1

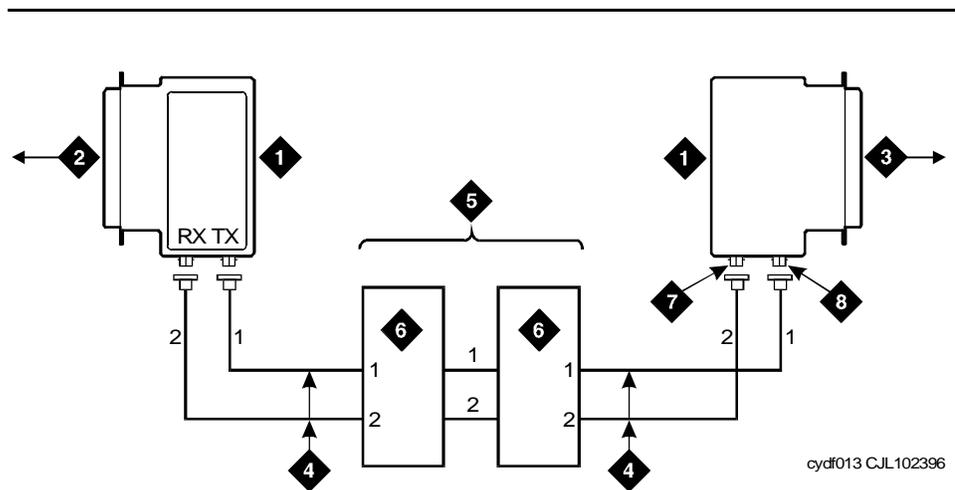


Figure Notes

- | | |
|--------------------------------|--------------------------------------|
| 1. Lightwave Transceiver | 5. Optical Cross-Connect Facility |
| 2. To PPN Carrier A Slot 1A02 | 6. 100A Lightguide Interconnect Unit |
| 3. To EPN2 Cabinet A Slot 3A01 | 7. TX Connector |
| 4. Fiber Optic Cable | 8. RX Connector |

Figure 5-21. Fiber Optic Connections PPN to EPN2

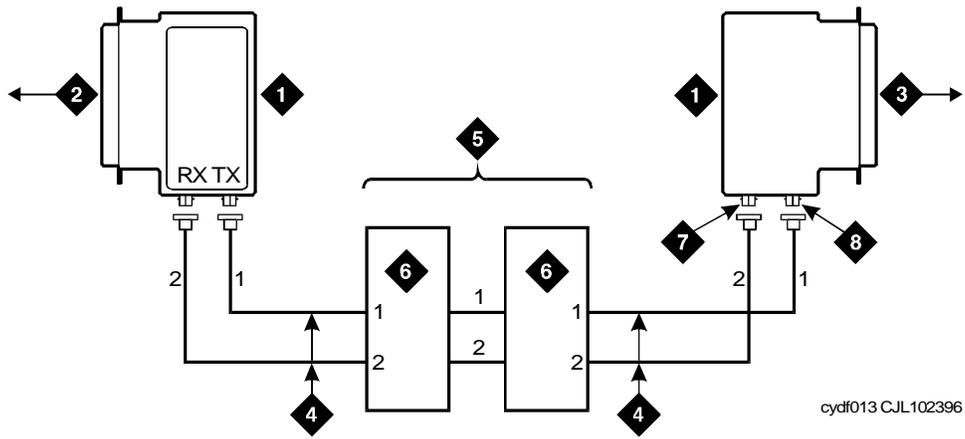


Figure Notes

- | | |
|--------------------------------|--------------------------------------|
| 1. Lightwave Transceiver | 5. Optical Cross-Connect Facility |
| 2. To EPN1 Cabinet A Slot 2A02 | 6. 100A Lightguide Interconnect Unit |
| 3. To EPN2 Cabinet A Slot 3A02 | 7. TX Connector |
| 4. Fiber Optic Cable | 8. RX Connector |

Figure 5-22. Fiber Optic Connections EPN1 to EPN2

Interconnect Port Networks — Critical Reliability

Fiber optic cabling terminated to 9823A lightwave transceivers can interconnect PNs up to 4,900 feet (1493 m) apart. Fiber optic cabling terminated to 9823B lightwave transceivers can interconnect PNs up to 25,000 feet (7620 m) apart. A 300A fiber optic lightwave transceiver can interconnect PNs up to 115,000 feet (21.7 miles, 35 km).

⇒ NOTE:

These distance limitations are approximate measurements of the *actual* fiber right-of-way (not of the shortest linear distance) between the two endpoints.

⇒ NOTE:

It is important to label every cable that you install. Keep track of which fiber attaches to which connector on each lightwave transceiver. This section provides figures offering a suggested way of making these connections.

⇒ NOTE:

The connectors on the lightwave transceivers are labeled either “TX” (transmit) or “RX” (receive), while the fibers attaching to each connector are numbered either “1” or “2.” A viable fiber connection is only made when both fibers in each cable (“1” and “2”) route from the “TX” connector of a port network to the “RX” connector of its adjacent port network.

⇒ NOTE:

For implementation details, refer to the “Fiber Link Administration” sections of *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*.

Collocated Port Networks

For a critical reliability system with one collocated EPN, use two fiber optic cables and four lightwave transceivers (9823-type) to directly connect the networks.

For a critical reliability system with two collocated EPNs, use six fiber optic cables and twelve lightwave transceivers to directly connect the networks.

⇒ NOTE:

Based on floor-plan considerations, the length of these cables may vary. Twenty-foot (6.1 m) cables are normally adequate for a Release 5 with two port networks.

For collocated cabinets, the fiber optic cables should be routed directly from the PPN to each EPN cabinet. Since, for this upgrade, a “DEFINITY style” PPN cabinet is collocated with a single-carrier cabinet stack, the preferred routing is to run the cables *down* the cable tray and out the bottom of the PPN cabinet. The

cables are then run to the EPN cabinet and up the outside of the rear panels to the desired carrier level.

If, for this upgrade, a “DEFINITY style” PPN cabinet is also collocated with another “DEFINITY style” multi-carrier EPN cabinet, the preferred routing is to run the cables *up* the cable tray and out the top of the PPN cabinet. The cables are then run to the other cabinet, through the top of the cabinet, and down the cable tray to the desired carrier level.

Fiber-Remoted Port Networks

For a critical reliability system with one fiber-remoted expansion port network, four fiber optic cables, four lightwave transceivers (9823-type), and four lightwave-interface units (provided by the PSC) are required.

For a critical reliability system with two fiber-remoted expansion port networks, twelve fiber optic cables, twelve lightwave transceivers (9823-type), and twelve lightwave-interface units (provided by the PSC) are required.

For One or Two Collocated Expansion Port Networks

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver.

1. Behind control carrier A of the multi-carrier PPN (see Figure 5-23 through Figure 5-26):
 - Install a lightwave transceiver on the connector at slot 1A01.
 - Connect one end of the fiber optic cable to the lightwave transceiver at slot 1A01.
 - Route the fiber optic cable to the cabinet cable tray and out of the cabinet. Then route the cable into the cable tray of the EPN cabinet.
2. Behind control cabinet A of EPN stack 2:
 - Install a lightwave transceiver on cable connector at slot 2A01.
 - Connect the other end of the fiber optic cable coming from the PPN to the lightwave transceiver at slot 2A01.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - Coil the surplus fiber optic cable and attach it to the cable-tray wall with cable ties.

3. Behind control carrier B of the multicarrier PPN:
 - Install a lightwave transceiver on the connector at slot 1B01.
 - Connect one end of the fiber optic cable to the lightwave transceiver at slot 1B01.
 - Route the fiber optic cable to the cabinet cable tray and out of the cabinet. Then route the cable into the cable tray of the EPN cabinet.
4. Behind port cabinet B of EPN stack 2:
 - Install a lightwave transceiver on cable connector at slot 2B02.
 - Connect the other end of the fiber optic cable coming from the PPN to the lightwave transceiver at slot 2B02.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - Coil the surplus fiber optic cable and attach it to the cable-tray wall with cable ties.

For Two Collocated Expansion Port Networks

⇒ NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver.

1. Behind control carrier A of the multi-carrier PPN:
 - Install a lightwave transceiver on the connector at slot 1A02.
 - Connect one end of the fiber optic cable to the lightwave transceiver at slot 1A02.
 - Route the fiber optic cable to the cabinet cable tray and out of the cabinet. Then route the cable into the cable tray of the EPN cabinet.
2. Behind control cabinet A of EPN stack 3:
 - Install a lightwave transceiver on cable connector at slot 3A01.
 - Connect the other end of the fiber optic cable coming from the PPN to the lightwave transceiver at slot 3A01.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - Coil the surplus fiber optic cable and attach it to the cable-tray wall with cable ties.
3. Behind control carrier B of the multicarrier PPN:
 - Install a lightwave transceiver on the connector at slot 1B02.
 - Connect one end of the fiber optic cable to the lightwave transceiver at slot 1B02.

- Route the fiber optic cable to the cabinet cable tray and out of the cabinet. Then route the cable into the cable tray of the EPN cabinet.
4. Behind port cabinet B of EPN stack 3:
- Install a lightwave transceiver on cable connector at slot 3B02.
 - Connect the other end of the fiber optic cable coming from the PPN to the lightwave transceiver at slot 3B02.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - Coil the surplus fiber optic cable and attach it to the cable-tray wall with cable ties.
5. Behind control cabinet A of EPN stack 2:
- Install a lightwave transceiver on the connector at slot 2A02.
 - Connect one end of the fiber optic cable to the lightwave transceiver at slot 2A02.
 - Route the fiber optic cable to the cabinet cable tray and out of the cabinet. Then route the cable into the cable tray of the EPN cabinet.
6. Behind control cabinet A of EPN stack 3:
- Install a lightwave transceiver on cable connector at slot 3A02.
 - Connect the other end of the fiber optic cable coming from the PPN to the lightwave transceiver at slot 3A02.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - Coil the surplus fiber optic cable and attach it to the cable-tray wall with cable ties.
7. Behind port cabinet B of EPN stack 2:
- Install a lightwave transceiver on the connector at slot 2B03.
 - Connect one end of the fiber optic cable to the lightwave transceiver at slot 2B03.
 - Route the fiber optic cable to the cabinet cable tray, out of the cabinet, and into the cable tray of the EPN cabinet.
8. Behind port cabinet B of EPN stack 3:
- Install a lightwave transceiver on cable connector at slot 3B03.
 - Connect the other end of the fiber optic cable coming from the PPN to the lightwave transceiver at slot 3B03.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
 - Coil the surplus fiber optic cable and attach it to the cable-tray wall with cable ties.

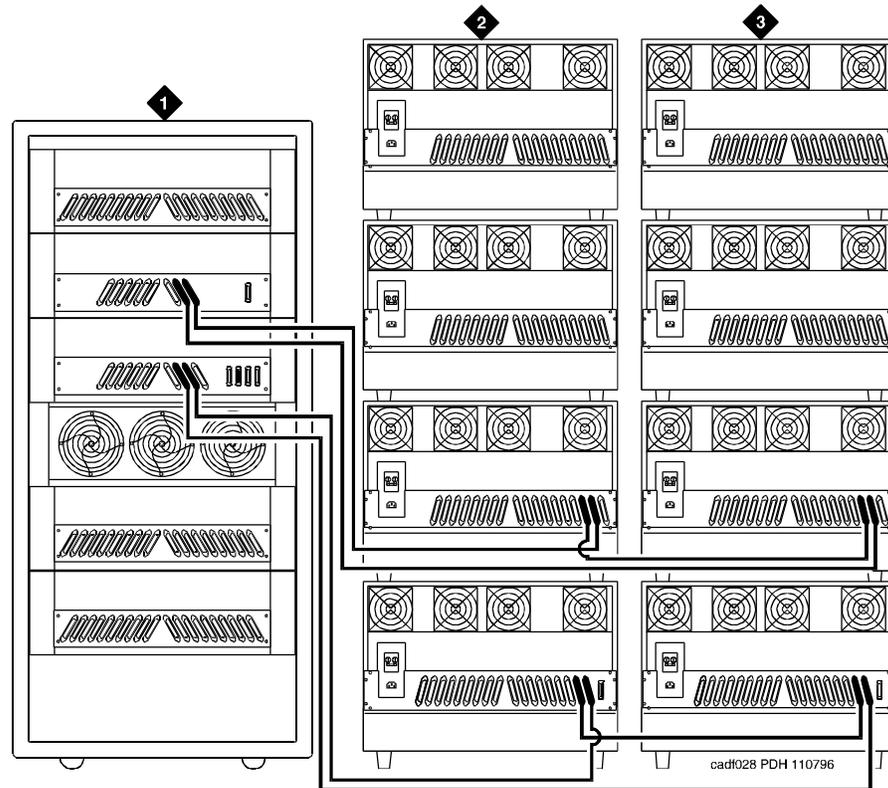


Figure Notes

1. Cabinet 1 PPN

3. Cabinet Stack 3 EPN 2

2. Cabinet Stack 2 EPN 1

Figure 5-23. Critical Reliability Release 5 with Two or Three Port Networks

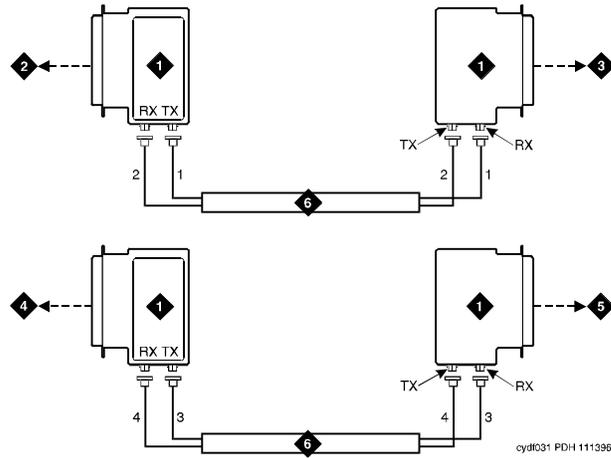
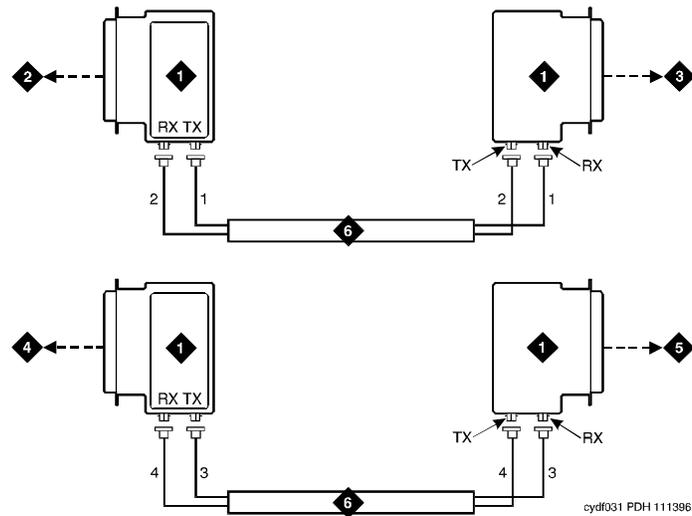


Figure Notes

- | | |
|------------------------------------|------------------------------|
| 1. 9823-Type Lightwave Transceiver | 4. PPN Carrier B Slot 1B01 |
| 2. PPN Carrier A Slot 1A01 | 5. EPN 1 Cabinet B Slot 2B02 |
| 3. EPN 1 Cabinet A Slot 2A01 | 6. Fiber Optic Cables |

Figure 5-24. Fiber Optic Connections PPN to EPN1



cydl031 PDH 111396

Figure Notes

- | | |
|-------------------------------------|------------------------------|
| 1. 9823-Type Lightwave Transceivers | 4. PPN Carrier B Slot 1B02 |
| 2. PPN Carrier A slot 1A01 | 5. EPN 2 Cabinet B Slot 3B02 |
| 3. EPN 2 Cabinet A Slot 3A01 | 6. Fiber Optic Cables |

Figure 5-25. Fiber Optic Connections PPN to EPN2

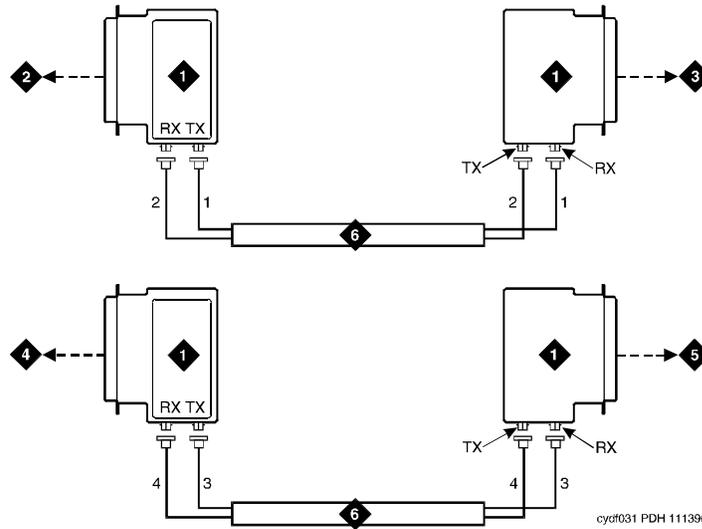


Figure Notes

- 1. 9823-Type Lightwave Transceivers
- 2. EPN 1 Carrier A slot 2A02
- 3. EPN 2 Cabinet A Slot 3A02
- 4. EPN 1 Carrier B Slot 1B03
- 5. EPN 2 Cabinet B Slot 3B03
- 6. Fiber Optic Cables

Figure 5-26. Fiber Optic Connections EPN1 to EPN2

For One or Two Fiber-Remoted Expansion Port Networks

NOTE:

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver.

1. Behind port carrier C of the multi-carrier PPN (Figure 5-27, Figure 5-28, Figure 5-29, and Figure 5-30):
 - Install a lightwave transceiver on the connector at slot 1C02.
 - Connect one end of the fiber optic cable to the lightwave transceiver at slot 1C02.
 - Route the fiber optic cable to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
 - Connect the fiber optic cable to the lightwave-interface unit provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind port cabinet B of EPN stack 2:
 - Install a lightwave transceiver on cable connector at slot 2B02.
 - Connect the fiber optic cable to the lightwave transceiver at slot 2B02.
 - Route the fiber optic cable to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
 - Connect the fiber optic cable to the Lightguide Interconnect Unit (LIU) provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
3. Behind port carrier D of the multicarrier PPN:
 - Install a lightwave transceiver on the connector at slot 1D02.
 - Connect one end of the fiber optic cable to the lightwave transceiver at slot 1D02.
 - Route the fiber optic cable to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
 - Connect the fiber optic cable to the Lightguide Interconnect Unit (LIU) provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

4. Behind control cabinet A of EPN stack 2:

- Install a lightwave transceiver on cable connector at slot 2A01.
- Connect the fiber optic cable to the lightwave transceiver at slot 2A01.
- Route the fiber optic cable to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
- Connect the fiber optic cable to the Lightguide Interconnect Unit (LIU) provided.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

For Two Fiber-Remoted Expansion Port Networks

 **NOTE:**

Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver.

1. Behind port carrier C of the multi-carrier PPN:

- Install a lightwave transceiver on the connector at slot 1C03.
- Connect one end of the fiber optic cable to the lightwave transceiver at slot 1C03.
- Route the fiber optic cable to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
- Connect the fiber optic cable to the Lightguide Interconnect Unit (LIU) provided.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind port cabinet B of EPN stack 3:

- Install a lightwave transceiver on cable connector at slot 3B02.
- Connect the fiber optic cable to the lightwave transceiver at slot 3B02.
- Route the fiber optic cable to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
- Connect the fiber optic cable to the Lightguide Interconnect Unit (LIU) provided.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

3. Behind port carrier D of the multi-carrier PPN:
 - Install a lightwave transceiver on the connector at slot 1D03.
 - Connect one end of the fiber optic cable to the lightwave transceiver at slot 1D03.
 - Route the fiber optic cable to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
 - Connect the fiber optic cable to the Lightguide Interconnect Unit (LIU) provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
4. Behind control cabinet A of EPN stack 3:
 - Install a lightwave transceiver on cable connector at slot 3A01.
 - Connect the fiber optic cable to the lightwave transceiver at slot 3A01.
 - Route the fiber optic cable to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
 - Connect the fiber optic cable to the Lightguide Interconnect Unit (LIU) provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
5. Behind control cabinet A of EPN stack 2:
 - Install a lightwave transceiver on the connector at slot 2A02.
 - Connect one end of the fiber optic cable to the lightwave transceiver at slot 2A02.
 - Route the fiber optic cable to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
 - Connect the fiber optic cable to the Lightguide Interconnect Unit (LIU) provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
6. Behind control cabinet A of EPN stack 3:
 - Install a lightwave transceiver on cable connector at slot 3A02.
 - Connect the fiber optic cable to the lightwave transceiver at slot 3A02.

- Route the fiber optic cable to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
 - Connect the fiber optic cable to the Lightguide Interconnect Unit (LIU) provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
7. Behind port cabinet B of EPN stack 2:
- Install a lightwave transceiver on the connector at slot 2B03.
 - Connect one end of the fiber optic cable to the lightwave transceiver at slot 2B03.
 - Route the fiber optic cable to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
 - Connect the fiber optic cable to the Lightguide Interconnect Unit (LIU) provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
8. Behind port cabinet B of EPN stack 3:
- Install a lightwave transceiver on cable connector at slot 3B03.
 - Connect the fiber optic cable to the lightwave transceiver at slot 3B03.
 - Route the fiber optic cable to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
 - Connect the fiber optic cable to the Lightguide Interconnect Unit (LIU) provided.
 - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

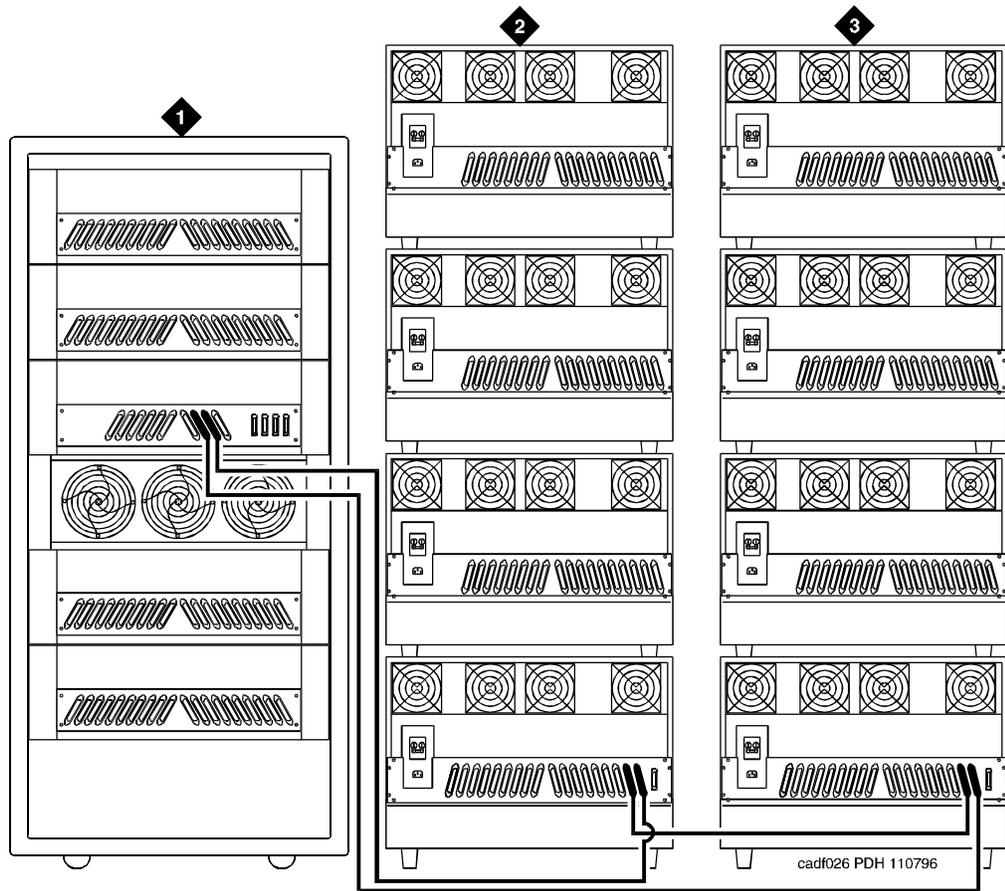


Figure Notes

1. Cabinet 1 PPN

3. Cabinet Stack 3 EPN 2

2. Cabinet Stack 2 EPN 1

Figure 5-27. Critical Reliability Release 5 with Two or Three Port Networks

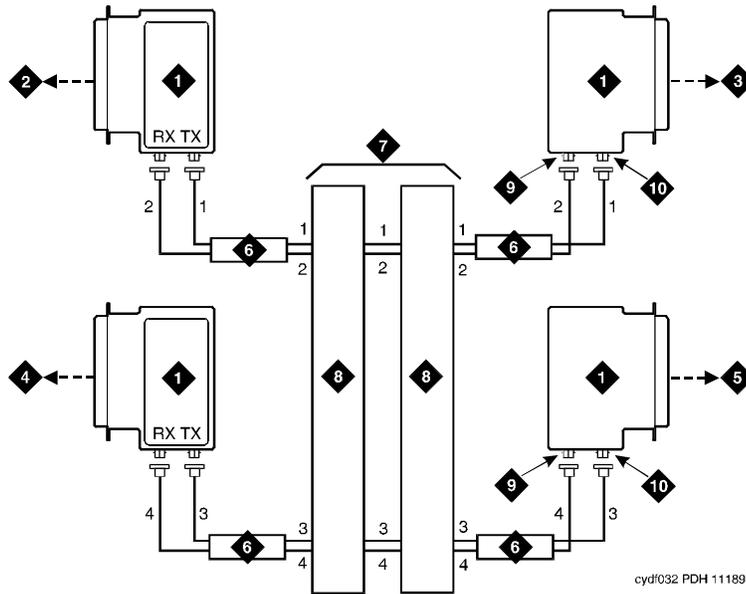


Figure Notes

- | | |
|--------------------------------|--------------------------------------|
| 1. Lightwave Transceiver | 6. Fiber Optic Cable |
| 2. To PPN Carrier A Slot 1A01 | 7. Optical Cross-Connect Facility |
| 3. To EPN1 Cabinet A Slot 2A01 | 8. 100A Lightguide Interconnect Unit |
| 4. To PPN Carrier B Slot 1B01 | 9. TX Connector |
| 5. To EPN1 Cabinet B Slot 2B02 | 10. RX Connector |

Figure 5-28. Fiber Optic Connections PPN to EPN1

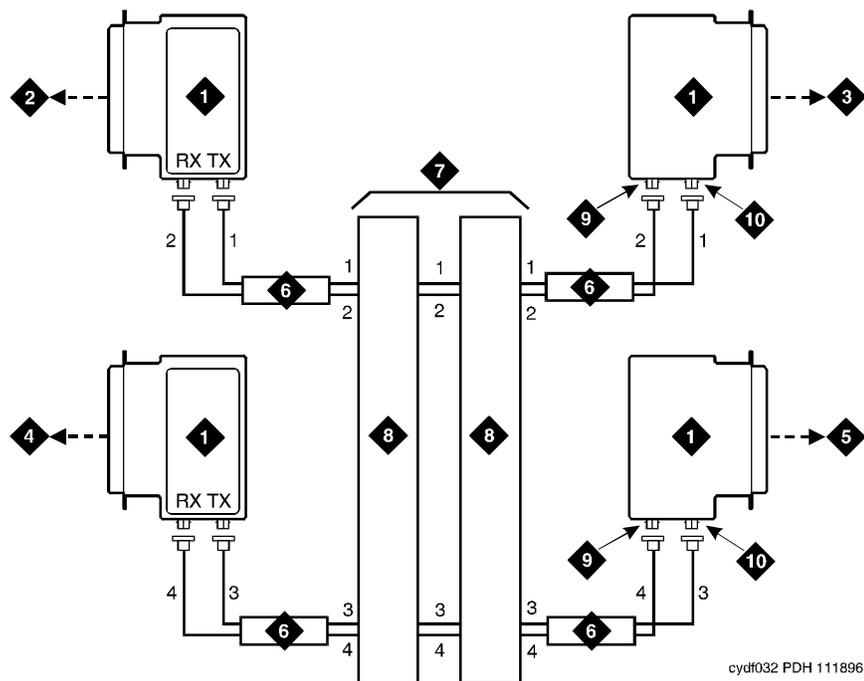


Figure Notes

- | | |
|--------------------------------|--------------------------------------|
| 1. Lightwave Transceiver | 6. Fiber Optic Cable |
| 2. To PPN Carrier A Slot 1A02 | 7. Optical Cross-Connect Facility |
| 3. To EPN2 Cabinet A Slot 3A01 | 8. 100A Lightguide Interconnect Unit |
| 4. To PPN Carrier B Slot 1B02 | 9. TX Connector |
| 5. To EPN2 Cabinet B Slot 3B02 | 10. RX Connector |

Figure 5-29. Fiber Optic Connections PPN to EPN2

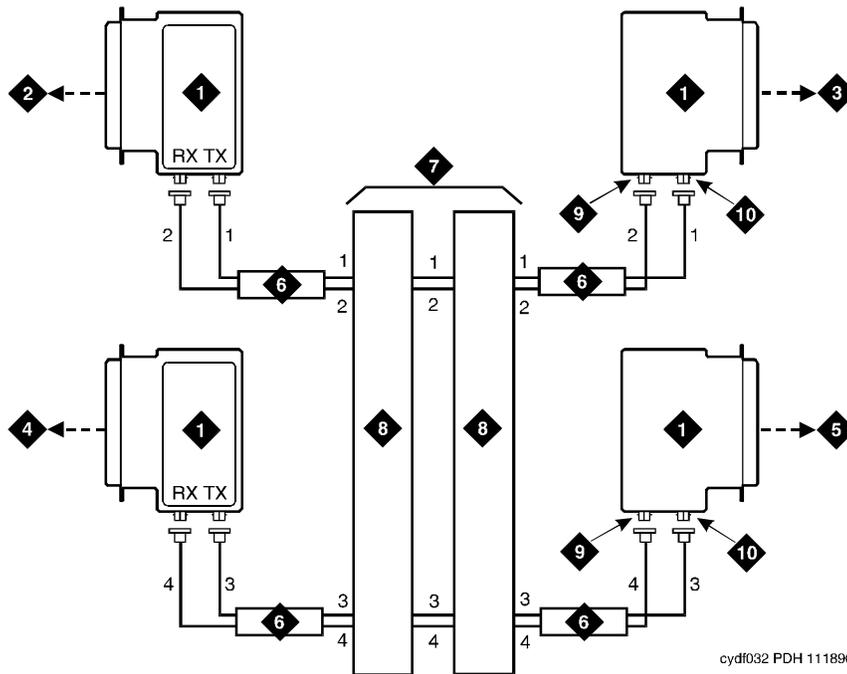


Figure Notes

- | | |
|--------------------------------|--------------------------------------|
| 1. Lightwave Transceiver | 6. Fiber Optic Cable |
| 2. To EPN1 Cabinet A Slot 2A02 | 7. Optical Cross-Connect Facility |
| 3. To EPN2 Cabinet A Slot 3A02 | 8. 100A Lightguide Interconnect Unit |
| 4. To EPN1 Cabinet B Slot 2B03 | 9. TX Connector |
| 5. To EPN2 Cabinet B Slot 3B03 | 10. RX Connector |

Figure 5-30. Fiber Optic Connections EPN1 to EPN2

Install Ground Plate(s)

⇒ NOTE:

If the system being upgraded has earthquake protection, do not install the ground plates at this time.

A ground plate is required between each stacked cabinet. See Figure 5-31. The ground plate not only provides the ground connection between cabinets, it also stabilizes the cabinets.

1. Behind the cabinets, replace the upper and lower covers (leave the screws loose).

⇒ NOTE:

The rear covers for Release 5 control carriers may need 2 detents (one for the TDM/LAN cable and another for the ICC cables). Therefore, if the G2 universal module being upgraded to a critical reliability Release 5's EPN was originally an R1V3 System 75, verify that the lower rear cover of the port cabinet in position "B" (serving as the duplicate expansion control cabinet) has been replaced with a new cover (846307817) so that the ICC cables and the new ground plate can be properly installed between cabinets "A" and "B." If not, replace this cover with the new cover.

2. Place the ground plate over the lower rear cover of the upper cabinet so that the four screws that attach the lower rear cover go through the four ground plate keyhole slots.
3. Slide the ground plate down over the upper rear cover of the lower cabinet so that the four screws that attach the upper rear cover go through the four lower ground plate slots.
4. Assure that the exposed portion of the TDM/LAN cable that is between the cabinets does not get pinched.
5. Tighten all screws.

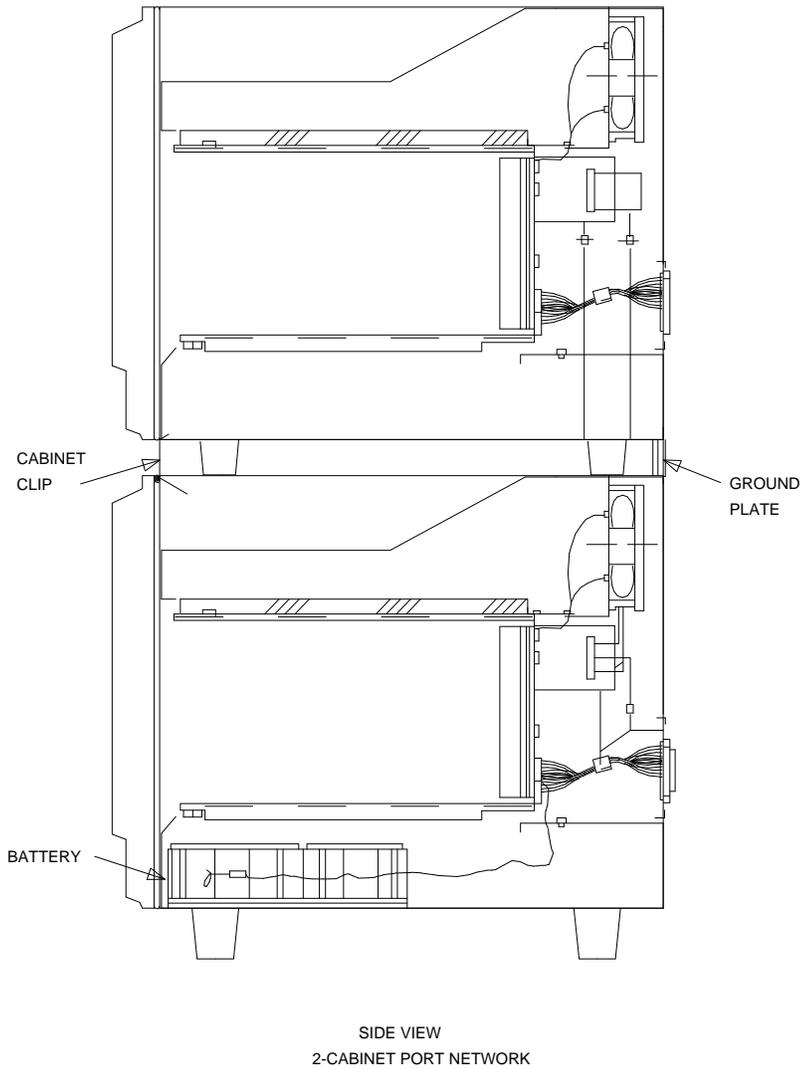


Figure 5-31. Locations of Ground Plate, Cabinet Clip, and Battery

Install Cabinet Clip(s)

NOTE:

This procedure is only used on systems without earthquake protection.

A cabinet clip, used to ground and stabilize the cabinets, is required between each stacked cabinet.

At the front of the cabinets, install cabinet clip between the cabinets by hooking the clip into the slot of the upper cabinet and snapping the straight leg of the clip into the slot on the lower cabinet. See Figure 5-31.

Connect Power and Ground

1. Reconnect the 6 AWG (#40) (4.115 mm) cabinet ground wire from the ground bar in the cabinet.
2. Reconnect the coupled bonding conductor.
3. Reconnect the cabinet power cords at the rear of each cabinet.

Verify Usable Circuit-Pack Vintages

Verify that every G2 circuit pack reused in the upgrade conforms to the usable vintage requirements for a DEFINITY ECS Release 5 system (see *Reference Guide for Circuit Pack Vintages and Change Notices*).

Remove Power-Failure Ground Wire

Remove the previously installed 10 AWG (#25) (2.588 mm) ground wire from the power-failure transfer unit.

Boot the Release 5 System

1. Connect the management terminal to the "TERMINAL" connector behind PPN control carrier "A," or install the G3-MA according to the "Set Up G3-MA" chapter of *DEFINITY Communications System Generic 3 Management Applications — Operations*, 585-229-202.
2. Insert that the translation cards in the TN777B faceplates.
3. At each EPN power distribution unit, set the main circuit breaker to ON.
4. At the PPN power distribution unit, set the main circuit breaker to ON.
5. The system performs a reset level 4 reboot, loading the default system translations from the translation cards. This takes 8 to 11 minutes.

6. Get the order number of the upgrade and call the regional CSA to request an “init” login so that the right-to-use options can be enabled on the upgraded system.
7. Enter **set time**, and press Enter to set the time and ensure that the system is booted properly.
8. Enter **list configuration software-version long**, and press Enter to compare the version number of the Release 5 software program (displayed on the management terminal or G3-MA) with the version number (written on a label on the processor’s faceplate). If the version numbers are not the same, change the version number on the processor label so that they agree.
9. Enter **change system-parameters customer-options**. Press Enter. Use this form to assign the customer’s other right-to-use options on the G2-to-DEFINITY ECS Release 5 upgrade order. See *DEFINITY Enterprise Communications Server Release 5 Administration and Feature Description*, for details on enabling these options.
10. Enter **change site-data**. Press Enter. Use this form to assign system-specific information (such as building, floor, stations, and so forth.)
11. Enter **status system 1**, and press Enter to verify that the system is in the “active/standby” mode.
12. Enter **save translation**. Press Enter. This instructs the system to write all translation information from memory to the translation cards.



WARNING:

If the terminal screen displays “translation corruption detected; call Lucent Technologies distributor immediately”, an error was detected in the translations. Call your Lucent Technologies representative.

Close Upgraded EPN Stack without Earthquake Protection and Reconnect Cables

1. Behind each EPN cabinet’s power supply, set the circuit breaker to OFF.



NOTE:

Powering down an EPN cabinet without powering down the PPN will set off alarms. However, these alarms should clear after power is restored to the EPN.

2. Replace all cables that were labeled and removed.
3. Install the front door on each cabinet.
4. Install the top and bottom rear covers. Be sure that the correct rear covers are installed on the new J58890N Expansion Control Cabinet. Do not use these rear covers on the port cabinets.

Close Upgraded EPN Stack with Earthquake Mounting and Reconnect Cables

1. Behind each EPN cabinet's power supply, set the circuit breaker to OFF.

⇒ NOTE:

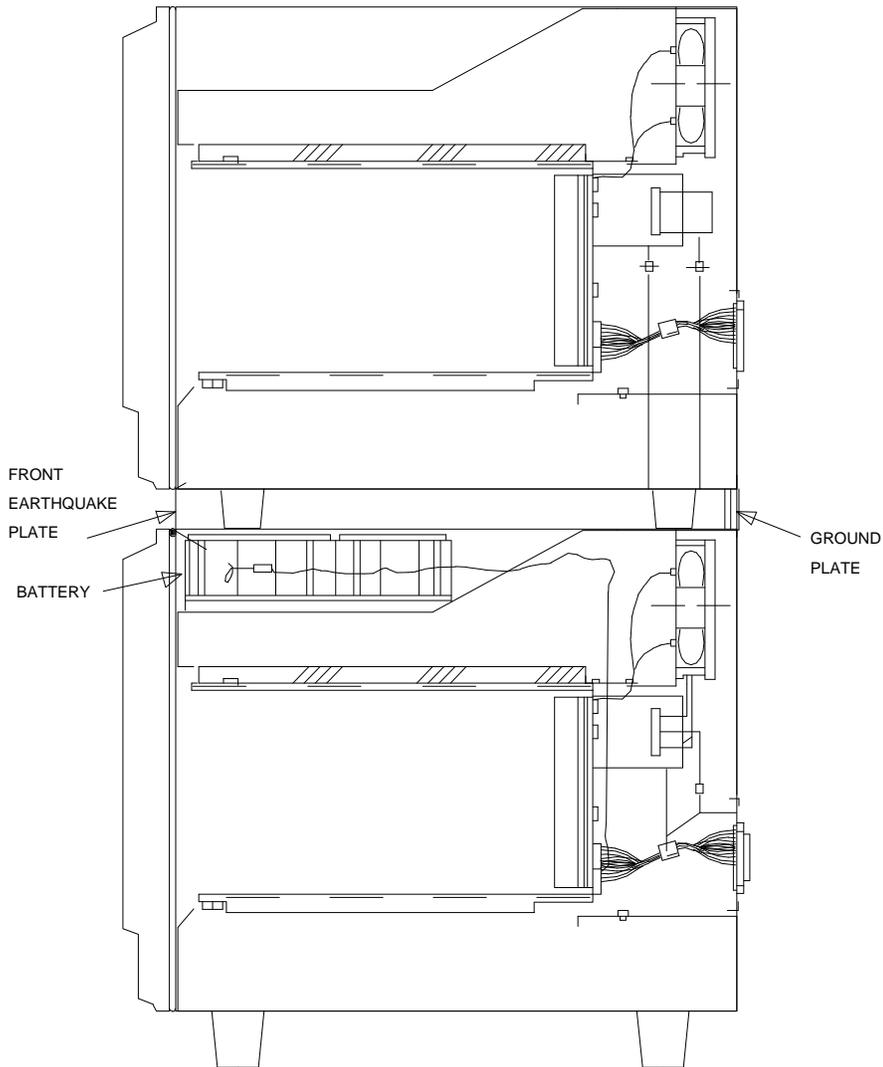
Powering down an EPN cabinet without powering down the PPN will set off alarms. However, these alarms should clear after power is restored to the EPN.

2. Replace all cables that were labeled and removed.
3. Install the upper and lower rear covers with all of the screws except for the screws that run along the top and bottom of the cabinet. Do not tighten the screws.

⇒ NOTE:

The rear covers for Release 5 control carriers may need 2 detents (one for the TDM/LAN cable and another for the ICC cables). Therefore, if the G2 universal module being upgraded to a critical reliability Release 5's EPN was originally an R1V3 System 75, verify that the lower rear cover of the port cabinet in position "B" (serving as the duplicate expansion control cabinet) has been replaced with a new cover (846307817) so that the ICC cables and the new ground plate can be properly installed between cabinets "A" and "B." If not, replace this cover with the new cover.

4. Line up the four holes in the ground plate with the 4 holes and install the screws, but do not tighten.
5. Line up the ground plate with the top holes of the upper rear cover of the lower cabinet. Install the four screws, but do not tighten.
6. At the front of the cabinet, align the earthquake front plate with the holes at the top and bottom of the cabinet. See Figure 5-32. Install the eight screws.
7. Tighten all screws.
8. Repeat Steps 3 through 7 for the remaining cabinets.
9. Install the front door on each cabinet.



SIDE VIEW
2-CABINET PORT NETWORK

Figure 5-32. Locations of Ground Plate, Earthquake Front Plate, and Battery

Install Cable Clamps

Behind the cabinets, using screws provided, install 2 cable clamps on each ground plate. See Figure 5-33. These clamps hold the port cables.

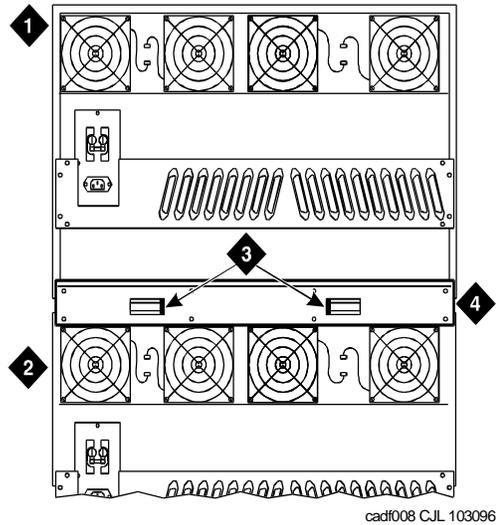


Figure Notes

- | | |
|--------------------|-----------------|
| 1. Port Cabinet | 3. Cable Clamps |
| 2. Control Cabinet | 4. Ground Plate |

Figure 5-33. Location of Ground Plate and Cable Clamps

Power Up the EPN Cabinets

1. Behind each EPN cabinet's power supply, set the circuit breaker to ON. After about 40 seconds, EPN power and PPN/EPN communications return.
2. After power returns to the EPN and all trouble is cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

Retranslate Port Circuits

If port circuit packs in the G2 module control cabinet were relocated in order to put one of the following into one of the slots of the expansion control cabinet:

- A critical port circuit pack, requiring longer nominal battery holdover (such as a DS1 or an Announcement circuit pack), in a port slot
- A TN755 power supply in port slots "16" and "17"
- A TN776 or TN570 Expansion Interface in port slot "1"
- A TN776 or TN570 in port slot "2" (for a second directly connected EPN)

Then, verify that they were retranslated during the off-site software upgrade. If not, they must be retranslated now.

Enable Customer Options

1. Enter **change system-parameters customer-options** and press Enter.
2. Use these forms to verify the customer options are properly set.



NOTE:

In the *Basic Call Setup* field, if *ISDN-PRI?* was set to *y* before the upgrade, be sure to set the field back to *y*.

Resolve Alarms

Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*.

Contact INADS to Enable Customer Options and Origination

Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.

Return Replaced Equipment

Return equipment to Lucent Technologies according to the requirements outlined in:

BCS/Material Logistics, MSL/Attended Stocking Locations

Methods and Procedures for Basic Material Returns

Earthquake Protection Installation

Install Concrete Floor Mounting

1. Position the cabinet in the exact position it is to occupy when the installation is complete.
2. Insert a pencil or marker through the holes previously occupied by the carriage bolts (front and rear) in the bottom of the cabinet and mark the floor directly beneath each hole.
3. Roll the cabinet out of the way and drill four 1/2-inch (1.27 cm) diameter holes about 1.5 inches (3.81 cm) deep at the locations marked in Step 2.
4. Insert concrete floor anchors (STARR part number 3425) into the holes.
5. Roll the cabinet back into place and align the cabinet holes over the concrete floor anchors.
6. Adjust the leveling legs until the cabinet is level. See Figure 5-34.



NOTE:

If the system is supplied with cable ductwork, the cabinets must be level from front to rear and from side to side. They must be square with respect to each other to within +/-1/8-inch (0.3 cm).

7. Secure the cabinet to the floor with four supplied 3/8-16 x 4.5-inch bolts and four 3/8-inch flat washers.
8. Repeat this procedure for each cabinet to be installed.

Install Raised Computer Floor Mounting

1. Position the cabinet in the exact position it is to occupy when the installation is complete.
2. Insert a pencil or marker through the holes previously occupied by the carriage bolts (front and rear) in the bottom of the cabinets and mark the raised floor panels directly beneath each hole.
3. Roll the cabinet out of the way and drill four holes 5/8-inch (1.58 cm) in diameter through the raised floor panels marked in Step 2.

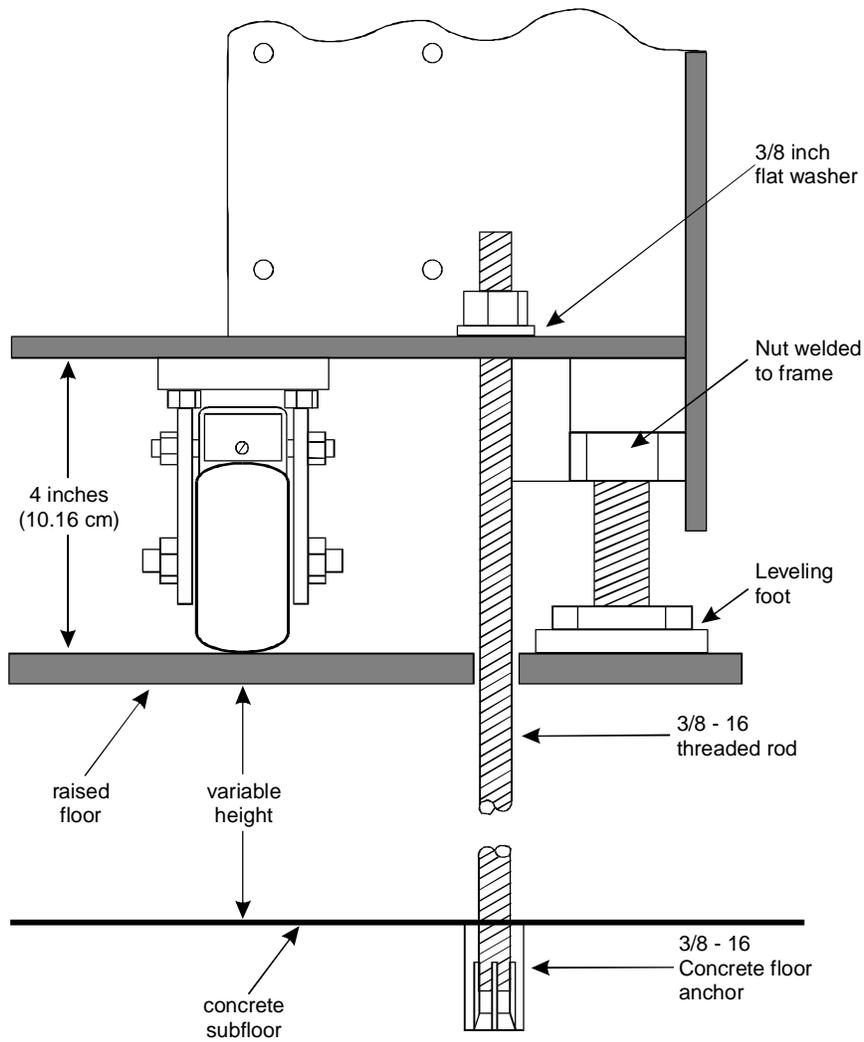


CAUTION:

Take care while drilling the holes through the raised floor that the drill bit does not penetrate any cables below the floor that could cause damage to the cable or injury to the installer.

4. Insert a long punch through the holes drilled in Step 3 and mark the concrete floor beneath the raised floor panels.

5. Remove the raised floor panels in which the holes were drilled.
 6. Using 1/2-inch (1.27 cm) anchor bits, drill a hole at each of the locations marked in Step 4. Stop drilling when the mark on the side of the bit reaches the floor level.
 7. Insert a concrete floor anchor (STARR part number 3425) into the hole until the mark on the bit reaches floor level again. Snap the top of the anchor bit off. Repeat for the remaining holes.
-



cab_base CJL 052096

Figure 5-34. Earthquake Mounting — Raised Computer Floor

8. A 3/8-16 threaded rod (part number 845557073) is used to secure the cabinet to each concrete floor anchor. See Figure 5-34.

Measure the distance from one of the anchors to the bottom of the cabinet. Add 1/2-inch (1.27 cm) to this measurement to allow the rod to be threaded into the floor anchor. Add an additional 1/2-inch (1.27 cm) to allow the rod to protrude up through the bottom of the cabinet. For example: if the distance from the floor anchor to the bottom of the cabinet is 10 inches (25 cm), cut the threaded rod 11 inches (27.9 cm) long.

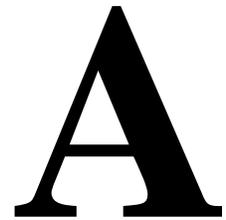
9. When all four threaded rods are cut, replace the raised floor panels removed in Step 5.
10. Position the cabinet over the holes and adjust the leveling legs until the cabinet is level.

 **NOTE:**

If the system is supplied with cable ductwork, the cabinets must be level from front to rear and from side to side. They must be square with respect to each other to within +/-1/8-inch (0.3 cm).

11. Insert the threaded rods through the cabinet bottom and thread into the concrete floor anchors.
12. Place a 3/8-inch flat washer onto each rod. Thread a 3/8-16 hex nut onto each rod and tighten securely.
13. Repeat this procedure for each cabinet to be installed (including the Auxiliary Cabinet and the Stratum 3 Clock Cabinet).

References



This section contains a list of user documents for the DEFINITY Enterprise Communications Server (ECS) Release 5.4.

To order these or other DEFINITY documents, contact the Lucent Technologies Publications Center at the address and phone number on the back of the title page of this document. A complete list of Business Communications Systems (BCS) documents, including previous issues of the documents listed here, is provided in *BCS Publications Catalog*, 555-000-010.

Basic DEFINITY ECS Documents

These are the basic documents issued for DEFINITY ECS Release 5.4.

DEFINITY Enterprise Communications Server Release 5 — Overview, Issue 3, 555-230-024

Provides a detailed overview of the ECS including descriptions of many of the major features, applications, hardware, system capabilities, and the support provided with the system. This document is available in the following languages: English, German (DE), Dutch (NL), Brazilian Portuguese (PTB), European French (FR), Colombian Spanish (SPL), and Japanese (JA). To order, append the language suffix to the document number; for example, 555-230-894DE for German. No suffix is needed for the English version.

DEFINITY Enterprise Communications Server Release 5.4.0 — Change Description, Issue 1, 555-230-472.

Gives a high-level overview of the DEFINITY ECS Release 5.4. Describes the hardware and software enhancements and lists the problem corrections for this release.

DEFINITY Enterprise Communications Server Release 5 — System Description Pocket Reference, Issue 1, 555-230-207

Provides hardware descriptions, system parameters, listings of features and system configurations, and environmental and maintenance requirements. This compact reference combines and replaces Release 5 *System Description and Specifications* and Release 5 *Pocket Reference*.

DEFINITY Enterprise Communications Server Release 5 — Administration and Feature Description, Issue 1, 555-230-522

Provides descriptions of system features. Also provides step-by-step procedures for preparing the screens that are required to implement the features, functions, and services of the system. Includes the applications and benefits, feature interactions, administration requirements, hardware requirements, and procedures for voice terminal, data module, and trunk group administration.

This document combines and replaces Release 5 *Feature Description* and Release 5 *Implementation*.

DEFINITY Enterprise Communications Server Release 5 — Implementation Blank Forms, Issue 1, 555-230-303

Provides blank hardcopy forms corresponding to the screens that are required to implement the features, functions, and services of the system.

DEFINITY Enterprise Communications Server Release 5 — System Monitoring and Reporting, Issue 4, 555-230-511

Provides detailed descriptions of the measurement, status, security, and recent change history reports available in the system and is intended for administrators who validate traffic reports and evaluate system performance. Includes corrective actions for potential problems. Issue 2 of this document was titled *Traffic Reports*.

DEFINITY Enterprise Communications Server Release 5 — Installation and Test for Single-Carrier Cabinets, Issue 3, 555-230-894

Provides procedures and information for hardware installation and initial testing of single-carrier cabinets.

This document is available in the following languages: English, German (DE), Dutch (NL), Brazilian Portuguese (PTB), European French (FR), Castilian Spanish (SP), and Japanese (JA). To order, append the language suffix to the document number; for example, 555-230-894DE for German. No suffix is needed for the English version.

DEFINITY Enterprise Communications Server Release 5 — Installation and Test for Multi-Carrier Cabinets, Issue 2, 555-230-112

Provides procedures and information for hardware installation and initial testing of multi-carrier cabinets.

DEFINITY Communications System Generic 3vs and Generic 3si — Upgrades and Additions, Issue 1, 555-230-108

Provides procedures for an installation technician to convert an existing DEFINITY Communications System earlier than Generic 3 Version 4 to Generic 3vs/si Version 4.

DEFINITY Communications System Generic 3r — Upgrades and Additions, Issue 1, 555-230-109

Provides procedures for an installation technician to convert an existing DEFINITY Communications System earlier than Generic 3 Version 4 to Generic 3r Version 4.

DEFINITY Enterprise Communications Server Release 5 — Upgrades and Additions for R5r, Issue 2, 555-230-121

Provides procedures for an installation technician to convert an existing Generic 3 Version 4 DEFINITY Communications System to DEFINITY ECS and from DEFINITY ECS Release 5 to DEFINITY ECS Release 5.4.

Included are upgrade considerations, lists of required hardware, and step-by-step upgrade procedures. Also included are procedures to add control carriers, switch node carriers, port carriers, circuit packs, auxiliary cabinets, and other equipment.

DEFINITY Enterprise Communications Server Release 5 — Upgrades and Additions for R5vs/si, Issue 2, 555-230-120

Provides procedures for an installation technician to convert an existing DEFINITY Communications System Generic 3 Version 4 to DEFINITY ECS and from DEFINITY ECS Release 5 to DEFINITY ECS Release 5.4.

Included are upgrade considerations, lists of required hardware, and step-by-step upgrade procedures. Also included are procedures to add control carriers, switch node carriers, port carriers, circuit packs, auxiliary cabinets, and other equipment.

DEFINITY Enterprise Communications Server Release 5 — Maintenance and Test for R5r, Issue 1, 555-230-122

Provides detailed descriptions of the procedures for monitoring, testing, and maintaining the ECS. Included are maintenance commands, step-by-step trouble-clearing procedures, the procedures for using all tests, and explanations of the system's error codes.

DEFINITY Enterprise Communications Server Release 5 — Maintenance and Test for R5vs/si, Issue 1, 555-204-123

Provides detailed descriptions of the procedures for monitoring, testing, and maintaining the ECS. Included are maintenance commands, step-by-step trouble-clearing procedures, the procedures for using all tests, and explanations of the system's error codes.

DEFINITY Communications System Generic 3 Planning and Configuration, Issue 2, 555-230-601

Provides step-by-step procedures for the account team in determining the customer's equipment and hardware requirements to configure a system according to the customer specifications. Includes detailed requirements and block diagrams. This document reflects Generic 3 Version 2 software, but still contains relevant information for the ECS.

BCS Products Security Handbook, Issue 5, 555-025-600

Provides information about the risks of telecommunications fraud and measures for addressing those risks and preventing unauthorized use of BCS products. This document is intended for telecommunications managers, console operators, and security organizations within companies.

DEFINITY Enterprise Communications Server Release 5 — Terminals and Adjuncts Reference, Issue 8, 555-015-201

Provides descriptions of the peripheral equipment that can be used with System 75, System 85, DEFINITY Communications System, and DEFINITY ECS. This document is intended for customers and Lucent Technologies account teams for selecting the correct peripherals to accompany an ECS.

DEFINITY Enterprise Communications Server — Generic 1, Generic 3, System 75, and Voice Terminal Guide Builder, Issue 3, 555-230-755

Provides capability to produce laser-printed documentation for specific voice terminals. The software is supported by a comprehensive user's guide and on-line help. This product requires a 386 PC, minimum of 6MB disk space, minimum of 4MB RAM, a printer supported by Microsoft GDI printer drive, and Microsoft Windows 3.1 or higher. A mouse is recommended.

Call Center

These documents are issued for Call-Center applications of the DEFINITY ECS.

DEFINITY

DEFINITY Enterprise Communications Server Release 5 — Call Vectoring/EAS Guide, Issue 1, 585-230-521

Provides information on how to write, use, and troubleshoot vectors, which are command sequences that process telephone calls in an Automatic Call Distribution (ACD) environment. It is provided in two parts: tutorial and reference.

The tutorial provides step-by-step procedures for writing and implementing basic vectors.

The reference includes detailed descriptions of the call vectoring features, vector management, vector administration, adjunct routing, troubleshooting, and interactions with management information systems (including the Call Management System).

DEFINITY Enterprise Communications Server Release 5 — Basic Call Management System (BCMS) Operations, Issue 1, 555-230-706

Provides detailed instructions on how to generate reports and manage the system and is intended for telecommunications managers who wish to use Basic Call Management System (BCMS) reports and system managers responsible for maintaining the system.

CentreVu CMS

CentreVu Call Management System Release 3 Version 5 — Administration, Issue 1, 585-215-820

CentreVu Call Management System Release 3 Version 5 — Reports, Issue 1, 585-215-821

CentreVu Call Management System Release 3 Version 5 — Custom Reports, Issue 1, 585-215-822

CentreVu Call Management System Release 3 Version 5 — Upgrades and Migrations, Issue 1, 585-215-826

CentreVu Call Management System Release 3 Version 5 — External Call History Reference, Issue 1, 585-215-824

CentreVu Call Management System Release 3 Version 5 — Forecast, Issue 1, 585-215-825

Application-Specific Documents

These documents are application-specific.

DEFINITY Enterprise Communications Server Generic 2 to Release 5.4 — Transition Reference, Issue 1, 555-230-523

Provides information on the differences in features and administration between the old and new systems when upgrading from a Generic 2 system to DEFINITY ECS Release 5.4.

ASAI

DEFINITY Enterprise Communications Server Release 5 — CallVisor ASAI Planning Guide, Issue 5, 555-230-222

Provides procedures and directions for the account team and customer personnel for effectively planning and implementing the CallVisor Adjunct/Switch Application Interface (ASAI) PBX-Host environment. The CallVisor ASAI is a communications interface that allows adjunct processors to access switch features and to control switch calls. It is implemented using an Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI). Hardware and software requirements are included.

DEFINITY Enterprise Communications Server Release 5 — CallVisor ASAI Protocol Reference, Issue 6, 555-230-221

Provides detailed layer 3 protocol information regarding the CallVisor Adjunct/Switch Application Interface (ASAI) for the systems and is intended for the library or driver programmer of an adjunct processor to create the library of commands used by the applications programmers. Describes the ISDN message, facility information elements, and information elements.

DEFINITY Enterprise Communications Server Release 5 — CallVisor ASAI Technical Reference, Issue 6, 555-230-220

Provides detailed information regarding the CallVisor Adjunct/Switch Application Interface (ASAI) for the systems and is intended for the application designer responsible for building and/or programming custom applications and features.

DEFINITY Enterprise Communications Server Release 5 — Installation, Administration, and Maintenance of CallVisor ASAI Over the DEFINITY LAN Gateway, Issue 2, 555-230-223

Provides procedures for installation, administration, and maintenance of the CallVisor Adjunct/Switch Application Interface (ASAI) Ethernet application over the DEFINITY LAN Gateway and is intended for system administrators, telecommunications managers, Management Information System (MIS) managers, LAN managers, and Lucent personnel. The ASAI-Ethernet application

provides ASAI functionality using 10Base-T Ethernet rather than BRI as a transport media.

DEFINITY Enterprise Communications Server Release 5 — Call Visor ASAI Overview, Issue 2, 555-230-225

Provides a general description of Call Visor ASAI.

This document is available in the following languages: English, German (DE), Dutch (NL), Brazilian Portuguese (PTB), European French (FR), Colombian Spanish (SPL), and Japanese (JA). To order, append the language suffix to the document number; for example, 555-230-894DE for German. No suffix is needed for the English version.

DEFINITY Enterprise Communications Server Release 5 — CallVisor PC ASAI Installation and Reference, Issue 4, 555-246-205

Provides procedural and reference information for installers, Tier 3 support personnel, and application designers.

ACD

DEFINITY Enterprise Communications Server Release 5 — Automatic Call Distribution (ACD) Agent Instructions, Issue 5, 555-230-722

Provides information for use by agents after they have completed ACD training. Includes descriptions of ACD features and the procedures for using them.

DEFINITY Enterprise Communications Server Release 5 — Automatic Call Distribution (ACD) Supervisor Instructions, Issue 4, 555-230-724

Provides information for use by supervisors after they have completed ACD training. Includes descriptions of ACD features and the procedures for using them.

Call Detail Recording

Call Detail Acquisition & Processing Reference, 555-006-202

Contains call detail recording information.

Console Operations

DEFINITY Communications System Generic 1 and Generic 3 Console Operations, Issue 2, 555-230-700

Provides operating instructions for the attendant console. Included are descriptions of the console control keys and functions, call-handling procedures, basic system troubleshooting information, and routine maintenance procedures.

DEFINITY Enterprise Communications Server Release 5 — Console Operations Quick Reference, Issue 2, 555-230-890

Provides operating instructions for the attendant console. Included are descriptions of the console control keys and functions, call handling, basic system-troubleshooting information, and routine maintenance procedures.

This document is available in the following languages: English, German (DE), Dutch (NL), Brazilian Portuguese (PTB), European French (FR), Colombian Spanish (SPL), and Japanese (JA). To order, append the language suffix to the document number; for example, 555-230-894DE for German. No suffix is needed for the English version.

Hospitality

An Introduction to DEFINITY Communications System Generic 3 Hospitality Services, Issue 1, 555-230-021

Provides an overview of the features available for use by the lodging and health industries to improve their property management and to provide assistance to their employees and clients. Included are brief definitions of many of the system features, descriptions of the hardware, planning considerations, and list of the system capabilities.

DEFINITY Communications System Generic 1 and Generic 3 Hospitality Operations, Issue 3, 555-230-723

Provides step-by-step procedures for using the features available for the lodging and health industries to improve their property management and to provide assistance to their employees and clients. Includes detailed descriptions of reports.

Glossary and Abbreviations

Numerics

3B2 Message Server

A software application that combines voice and data messaging services for voice-terminal users whose extensions are connected to a system.

800 service

A service in the United States that allows incoming calls from certain areas to an assigned number for a flat-rate charge based on usage.

A

AA

Archangel. See [angel](#).

AAC

ATM access concentrator

AAR

See [Automatic Alternate Routing \(AAR\)](#).

abandoned call

An incoming call in which the caller hangs up before the call is answered.

Abbreviated Dialing (AD)

A feature that allows callers to place calls by dialing just one or two digits.

AC

1. Alternating current.
2. See [Administered Connection \(AC\)](#).

AAR

Automatic Alternate Routing

ACA

See [Automatic Circuit Assurance \(ACA\)](#).

ACB

See [Automatic Callback \(ACB\)](#).

ACD

See [Automatic Call Distribution \(ACD\)](#).

ACD agent

See [agent](#).

ACU

See [Automatic calling unit \(ACU\)](#).

ACW

See [after-call work \(ACW\) mode](#).

access code

A 1-, 2-, or 3-digit dial code used to activate or cancel a feature, or access an outgoing trunk.

access endpoint

Either a nonsignaling channel on a DS1 interface or a nonsignaling port on an analog tie-trunk circuit pack that is assigned a unique extension.

access tie trunk

A trunk that connects a main communications system with a tandem communications system in an electronic tandem network (ETN). An access tie trunk can also be used to connect a system or tandem to a serving office or service node. Also called access trunk.

access trunk

See [access tie trunk](#).

ACCUNET

A trademarked name for a family of digital services offered by AT&T in the United States.

ACD

See [Automatic Call Distribution \(ACD\)](#). ACD also refers to a work state in which an agent is on an ACD call.

ACD work mode

See [work mode](#).

active-notification association

A link that is initiated by an adjunct, allowing it to receive event reports for a specific switch entity, such as an outgoing call.

active-notification call

A call for which event reports are sent over an active-notification association (communication channel) to the adjunct. Sometimes referred to as a monitored call.

active notification domain

VDN or ACD split extension for which event notification has been requested.

ACU

See [Automatic calling unit \(ACU\)](#).

AD

See [Abbreviated Dialing \(AD\)](#).

ADAP

AUDIX Data Acquisition Package

ADC

See [analog-to-digital converter \(ADC\)](#).

adjunct

A processor that does one or more tasks for another processor and that is optional in the configuration of the other processor. See also [application](#).

adjunct-control association

A relationship initiated by an application via *Third Party Make Call*, the *Third Party Take Control*, or *Domain (Station) Control* capabilities to set up calls and control calls already in progress.

adjunct-controlled call

Call that can be controlled using an adjunct-control association. Call must have been originated via *Third Party Make Call* or *Domain (Station) Control* capabilities or must have been taken control of via *Third Party Take Control* or *Domain (Station) Control* capabilities.

adjunct-controlled split

An ACD split that is administered to be under adjunct control. Agents logged into such splits must do all telephony work, ACD login/ logout, and changes of work mode through the adjunct (except for auto-available adjunct-controlled splits, whose agents may not log in/out or change work mode).

adjunct-monitored call

An adjunct-controlled call, active-notification call, or call that provides event reporting over a domain-control association.

Adjunct-Switch Application Interface (ASAI)

A recommendation for interfacing adjuncts and communications systems, based on the CCITT Q.932 specification for layer 3.

ADM

Asynchronous data module

administer

To access and change parameters associated with the services or features of a system.

Administered Connection (AC)

A feature that allows the switch to automatically establish and maintain end-to-end connections between access endpoints (trunks) and/or data endpoints (data modules).

administration group

See *capability_group*.

administration terminal

A terminal that is used to administer and maintain a system. See also *terminal*.

Administration Without Hardware (AWOH)

A feature that allows administration of ports without associated terminals or other hardware.

ADU

See *asynchronous data unit (ADU)*.

AE

See *access endpoint*.

after-call work (ACW) mode

A mode in which agents are unavailable to receive ACD calls. Agents enter the ACW mode to perform ACD-related activities such as filling out a form after an ACD call.

AG

ASAI Gateway

agent

A person who receives calls directed to a split. A member of an ACD hunt group or ACD split. Also called an ACD agent.

agent report

A report that provides historical traffic information for internally measured agents.

AIM

Asynchronous interface module

AIOD

Automatic Identification of Outward Dialing

ALBO

Automatic Line Build Out

All trunks busy (ATB)

The state in which no trunks are available for call handling.

ALM-ACK

Alarm acknowledge

American Standard Code for Information Interchange

See ASCII (American Standard Code for Information Interchange).

AMW

Automatic Message Waiting

AN

Analog

analog

The representation of information by continuously variable physical quantities such as amplitude, frequency, and phase. See also digital.

analog data

Data that is transmitted over a digital facility in analog (PCM) form. The data must pass through a modem either at both ends or at a modem pool at the distant end.

analog telephone

A telephone that receives acoustic voice signals and sends analog electrical signals along the telephone line. Analog telephones are usually served by a single wire pair (tip and ring). The model-2500 telephone set is a typical example of an analog telephone.

analog-to-digital converter (ADC)

A device that converts an analog signal to digital form. See also digital-to-analog converter (DAC).

angel

A microprocessor located on each port card in a processor port network (PPN). The angel uses the control-channel message set (CCMS) to manage communications between the port card and the archangel on the controlling switch-processing element (SPE). The angel also monitors the status of other microprocessors on a port card and maintains error counters and thresholds.

ANI

See Automatic Number Identification (ANI).

ANSI

American National Standards Institute. A United States professional/technical association supporting a variety of standards.

answerback code

A number used to respond to a page from a code-calling or loudspeaker-paging system, or to retrieve a parked call.

AOL

Attendant-offered load

AP

Applications processor

APLT

Advanced Private-Line Termination

appearance

A software process that is associated with an extension and whose purpose is to supervise a call. An extension can have multiple appearances. Also called call appearance, line appearance, and occurrence. See also [call appearance](#).

application

An adjunct that requests and receives ASAI services or capabilities. One or more applications can reside on a single adjunct. However, the switch cannot distinguish among several applications residing on the same adjunct and treats the adjunct, and all resident applications, as a single application. The terms application and adjunct are used interchangeably throughout this document.

applications processor

A micro-computer based, program controlled computer providing application services for the DEFINITY switch. The processor is used with several user-controlled applications such as traffic analysis and electronic documentation.

application service element

See [capability group](#).

architecture

The organizational structure of a system, including hardware and software.

ARS

See [Automatic Route Selection \(ARS\)](#).

ASAI

See [Adjunct-Switch Application Interface \(ASAI\)](#).

ASCII (American Standard Code for Information Interchange)

The standard code for representing characters in digital form. Each character is represented by an 8-bit code (including parity bit).

association

A communication channel between adjunct and switch for messaging purposes. An active association is one that applies to an existing call on the switch or to an extension on the call.

asynchronous data transmission

A method of transmitting data in which each character is preceded by a start bit and followed by a stop bit, thus permitting data characters to be transmitted at irregular intervals. This type transmission is advantageous when transmission is not regular (characters typed at a keyboard). Also called asynchronous transmission. See also [synchronous data transmission](#).

asynchronous data unit (ADU)

A device that allows direct connection between RS-232C equipment and a digital switch.

asynchronous Transfer Mode (ATM)

A packet-like switching technology in which data is transmitted in fixed-size (53-byte) cells. ATM provides high-speed access for data communication in LAN, campus, and WAN environments.

ATB

See [All trunks busy \(ATB\)](#).

ATD

See [Attention dial \(ATD\)](#).

attendant

A person at a console who provides personalized service for incoming callers and voice-services users by performing switching and signaling operations. See also [attendant console](#).

ATM

See asynchronous Transfer Mode (ATM).

attendant console

The workstation used by an attendant. The attendant console allows the attendant to originate a call, answer an incoming call, transfer a call to another extension or trunk, put a call on hold, and remove a call from hold. Attendants using the console can also manage and monitor some system operations. Also called console. See also attendant.

Attention dial (ATD)

A command in the Hayes modem command set for asynchronous modems.

Audio Information Exchange (AUDIX)

A fully integrated voice-mail system. Can be used with a variety of communications systems to provide call-history data, such as subscriber identification and reason for redirection.

AUDIX

See Audio Information Exchange (AUDIX).

auto-in trunk group

Trunk group for which the CO processes all of the digits for an incoming call. When a CO seizes a trunk from an auto-in trunk group, the switch automatically connects the trunk to the destination — typically an ACD split where, if no agents are available, the call goes into a queue in which callers are answered in the order in which they arrive.

Auto-In Work mode

One of four agent work modes: the mode in which an agent is ready to process another call as soon as the current call is completed.

Automatic Alternate Routing (AAR)

A feature that routes calls to other than the first-choice route when facilities are unavailable.***

Automatic Callback (ACB)

A feature that enables internal callers, upon reaching a busy extension, to have the system automatically connect and ring both parties when the called party becomes available.

Automatic Call Distribution (ACD)

A feature that answers calls, and then, depending on administered instructions, delivers messages appropriate for the caller and routes the call to an agent when one becomes available.

Automatic Call Distribution (ACD) split

A method of routing calls of a similar type among agents in a call center. Also, a group of extensions that are staffed by agents trained to handle a certain type of incoming call.

Automatic calling unit (ACU)

A device that places a telephone call.

Automatic Circuit Assurance (ACA)

A feature that tracks calls of unusual duration to facilitate troubleshooting. A high number of very short calls or a low number of very long calls may signify a faulty trunk.

Automatic Number Identification (ANI)

Representation of the calling number, for display or for further use to access information about the caller. Available with Signaling System 7.

automatic restoration

A service that restores disrupted connections between access endpoints (nonsignaling trunks) and data endpoints (devices that connect the switch to data terminal and/or communications

equipment). Restoration is done within seconds of a service disruption so that critical data applications can remain operational.

Automatic Route Selection (ARS)

A feature that allows the system to automatically choose the least-cost way to send a toll call.

automatic trunk

A trunk that does not require addressing information because the destination is predetermined. A request for service on the trunk, called a seizure, is sufficient to route the call. The normal destination of an automatic trunk is the communications-system attendant group. Also called automatic incoming trunk and automatic tie trunk.

AUX

Auxiliary

auxiliary equipment

Equipment used for optional system features, such as Loudspeaker Paging and Music-on-Hold.

auxiliary trunk

A trunk used to connect auxiliary equipment, such as radio-paging equipment, to a communications system.

Aux-Work mode

A work mode in which agents are unavailable to receive ACD calls. Agents enter Aux-Work mode when involved in non-ACD activities such as taking a break, going to lunch, or placing an outgoing call.

AVD

Alternate voice/data

AWOH

See Administration Without Hardware (AWOH).

AWG

American Wire Gauge

AWT

Average work time

B

B8ZS

Bipolar Eight Zero Substitution.

bandwidth

The difference, expressed in hertz, between the defined highest and lowest frequencies in a range.

barrier code

A security code used with the Remote Access feature to prevent unauthorized access to the system.

baud

A unit of transmission rate equal to the number of signal events per second. See also bit rate and bits per second (bps).

BCC

See Bearer capability class (BCC).

BCMS

Basic Call Management System

BCT

See business communications terminal (BCT).

Bearer capability class (BCC)

Code that identifies the type of a call (for example, voice and different types of data).

Determination of BCC is based on the caller's characteristics for non-ISDN endpoints and on the Bearer Capability and Low-Layer Compatibility Information Elements of an ISDN endpoint.

Current BCCs are 0 (voice-grade data and voice), 1 (DMI mode 1, 56 kbps data transmission), 2 (DMI mode 2, synchronous/asynchronous data transmission up to 19.2 kbps) 3 (DMI mode 3, 64 kbps circuit/packet data transmission), 4 (DMI mode 0, 64 kbps synchronous data), 5 (temporary signaling connection, and 6 (wideband call, 128–1984 kbps synchronous data).

BER

Bit error rate

BHCC

Busy-hour call completions

bit (binary digit)

One unit of information in binary notation, having two possible values: 0 or 1.

bits per second (bps)

The number of binary units of information that are transmitted or received per second. See also baud and bit rate.

bit rate

The speed at which bits are transmitted, usually expressed in bits per second. Also called data rate. See also baud and bits per second (bps).

BLF

Busy Lamp Field

BN

Billing number

BOS

Bit-oriented signaling

BPN

Billed-party number

bps

See bits per second (bps).

bridge (bridging)

The appearance of a voice terminal's extension at one or more other voice terminals.

BRI

The ISDN Basic Rate Interface specification.

bridged appearance

A call appearance on a voice terminal that matches a call appearance on another voice terminal for the duration of a call.

BTU

British Thermal Unit

buffer

1. In hardware, a circuit or component that isolates one electrical circuit from another. Typically, a buffer holds data from one circuit or process until another circuit or process is ready to accept the data.
2. In software, an area of memory that is used for temporary storage.

bus

A multiconductor electrical path used to transfer information over a common connection from any of several sources to any of several destinations.

business communications terminal (BCT)

A digital data terminal used for business applications. A BCT can function via a data module as a special-purpose terminal for services provided by a processor or as a terminal for data entry and retrieval.

BX.25

A version of the CCITT X.25 protocol for data communications. BX.25 adds a fourth level to the standard X.25 interface. This uppermost level combines levels 4, 5, and 6 of the ISO reference model.

bypass tie trunks

A 1-way, outgoing tie trunk from a tandem switch to a main switch in an ETN. Bypass tie trunks, provided in limited quantities, are used as a last-choice route when all trunks to another tandem switch are busy. Bypass tie trunks are used only if all applicable intertandem trunks are busy.

byte

A sequence of (usually eight) bits processed together.

C

CACR

Cancellation of Authorization Code Request

cabinet

Housing for racks, shelves, or carriers that hold electronic equipment.

cable

Physical connection between two pieces of equipment (for example, data terminal and modem) or between a piece of equipment and a termination field.

cable connector

A jack (female) or plug (male) on the end of a cable. A cable connector connects wires on a cable to specific leads on telephone or data equipment.

CAG

Coverage answer group

call appearance

1. For the attendant console, six buttons, labeled a–f, used to originate, receive, and hold calls. Two lights next to the button show the status of the call appearance.
2. For the voice terminal, a button labeled with an extension and used to place outgoing calls,

receive incoming calls, or hold calls. Two lights next to the button show the status of the call appearance.

call-control capabilities

Capabilities (*Third Party Selective Hold, Third Party Reconnect, Third Party Merge*) that can be used in either of the Third Party Call Control ASE (cluster) subsets (Call Control and Domain Control).

Call Detail Recording (CDR)

A feature that uses software and hardware to record call data (same as CDRU).

Call Detail Recording utility (CDRU)

Software that collects, stores, optionally filters, and outputs call-detail records.

Call Management System (CMS)

An application, running on an adjunct processor, that collects information from an ACD unit. CMS enables customers to monitor and manage telemarketing centers by generating reports on the status of agents, splits, trunks, trunk groups, vectors, and VDNs, and enables customers to partially administer the ACD feature for a communications system.

call-reference value (CRV)

An identifier present in ISDN messages that associates a related sequence of messages. In ASAI, CRVs distinguish between associations.

call vector

A set of up to 15 vector commands to be performed for an incoming or internal call.

callback call

A call that automatically returns to a voice-terminal user who activated the Automatic Callback or Ringback Queuing feature.

call-waiting ringback tone

A low-pitched tone identical to ringback tone except that the tone decreases in the last 0.2 seconds (in the United States). Call-waiting ringback tone notifies the attendant that the Attendant Call Waiting feature is activate and that the called party is aware of the waiting call. Tones in international countries may sound different.

call work code

A number, up to 16 digits, entered by ACD agents to record the occurrence of customer-defined events (such as account codes, social security numbers, or phone numbers) on ACD calls.

CAMA

Centralized Automatic Message Accounting

carrier

An enclosed shelf containing vertical slots that hold circuit packs.

carried load

The amount of traffic served by traffic-sensitive facilities during a given interval.

CARR-POW

Carrier Port and Power Unit for AC Powered Systems

CAS

Centralized Attendant Service or Call Accounting System

CCS or hundred call seconds

A unit of call traffic. Call traffic for a facility is scanned every 100 seconds. If the facility is busy, it is assumed to have been busy for the entire scan interval. There are 3600 seconds per hour. The Roman numeral for 100 is the capital letter C. The abbreviation for call seconds is CS. Therefore,

100 call seconds is abbreviated CCS. If a facility is busy for an entire hour, then it is said to have been busy for 36 CCS. See also [Erlang](#).

capability

A request or indication of an operation. For example, *Third Party Make Call* is a request for setting up a call; *event report* is an indication that an event has occurred.

capability group

Set of capabilities, determined by switch administration, that can be requested by an application. Capability groups denote association types. For example, *Call Control* is a type of association that allows certain functions (the ones in the capability group) to be performed over this type of association. Also referred to as administration groups or application service elements (ASEs).

CA-TSC

Call-Associated Temporary Signaling Connection

cause value

A value is returned in response to requests or in event reports when a denial or unexpected condition occurs. ASAI cause values fall into two coding standards: Coding Standard 0 includes any cause values that are part of AT&T and CCITT ISDN specifications; Coding standard 3 includes any other ASAI cause values. This document uses a notation for cause value where the coding standard for the cause is given first, then a slash, then the cause value. Example: CS0/100 is coding standard 0, cause value 100.

CBC

Call-by-call or coupled bonding conductor

CC

Country code

CCIS

Common-Channel Interoffice Signaling

CCITT

CCITT (Comite Consultatif International Telephonique et Telegraphique), now called *International Telecommunications Union* (ITU). See [International Telecommunications Union \(ITU\)](#).

CCMS

Control-Channel Message Set

CCS

See [CCS or hundred call seconds](#).

CCSA

Common-Control Switching Arrangement

CDM

Channel-division multiplexing

CDOS

Customer-dialed and operator serviced

CDR

See [Call Detail Recording \(CDR\)](#).

CDRP

Call Detail Record Poller

CDRR

Call Detail Recording and Reporting

CDRU

See Call Detail Recording utility (CDRU).

CEM

Channel-expansion multiplexing

center-stage switch (CSS)

The central interface between the processor port network and expansion port networks in a CSS-connected system.

central office (CO)

The location housing telephone switching equipment that provides local telephone service and access to toll facilities for long-distance calling.

central office (CO) codes

The first three digits of a 7-digit public-network telephone number in the United States.

central office (CO) trunk

A telecommunications channel that provides access from the system to the public network through the local CO.

CEPT

European Conference of Postal and Telecommunications Rate 1

channel

1. A circuit-switched call.
2. A communications path for transmitting voice and data.
3. In wideband, all of the time slots (contiguous or noncontiguous) necessary to support a call. Example: an H0-channel uses six 64-kbps time slots.
4. A DS0 on a T1 or E1 facility not specifically associated with a logical circuit-switched call; analogous to a single trunk.

channel negotiation

The process by which the channel offered in the Channel Identification Information Element (CIIE) in the SETUP message is negotiated to be another channel acceptable to the switch that receives the SETUP message and ultimately to the switch that sent the SETUP. Negotiation is attempted only if the CIIE is encoded as *Preferred*. Channel negotiation is not attempted for wideband calls.

CI

Clock input

circuit

1. An arrangement of electrical elements through which electric current flows.
2. A channel or transmission path between two or more points.

circuit pack

A card on which electrical circuits are printed, and IC chips and electrical components are installed. A circuit pack is installed in a switch carrier.

CISPR

International Special Committee on Radio Interference

Class of Restriction (COR)

A feature that allows up to 64 classes of call-origination and call-termination restrictions for voice terminals, voice-terminal groups, data modules, and trunk groups. See also Class of Service (COS).

Class of Service (COS)

A feature that uses a number to specify if voice-terminal users can activate the Automatic Callback, Call Forwarding All Calls, Data Privacy, or Priority Calling features. See also [Class of Restriction \(COR\)](#).

cm

Centimeter

CM

Connection Manager

CMDR

Centralized Message Detail Recording

CMS

Call Management System

CO

See [central office \(CO\)](#).

common-control switching arrangement (CCSA)

A private telecommunications network using dedicated trunks and a shared switching center for interconnecting company locations.

communications system

The software-controlled processor complex that interprets dialing pulses, tones, and keyboard characters and makes the proper connections both within the system and external to the system. The communications system itself consists of a digital computer, software, storage device, and carriers with special hardware to perform the connections. A communications system provides voice and data communications services, including access to public and private networks, for telephones and data terminals on a customer's premises. See also [switch](#).

confirmation tone

A tone confirming that feature activation, deactivation, or cancellation has been accepted.

connectivity

The connection of disparate devices within a single system.

console

See [attendant console](#).

contiguous

Adjacent DS0s within one T1 or E1 facility or adjacent TDM or fiber time slots. The first and last TDM bus, DS0, or fiber time slots are not considered contiguous (no wraparound). For an E1 facility with a D-channel, DS0s 15 and 17 are considered contiguous.

control cabinet

See [control carrier](#).

control carrier

A carrier in a multicarrier cabinet that contains the SPE circuit packs and, unlike an R5r control carrier, port circuit packs. Also called control cabinet in a single-carrier cabinet. See also [switch-processing element \(SPE\)](#).

controlled station

A station that is monitored and controlled via a domain-control association.

COR

See [Class of Restriction \(COR\)](#).

COS

See Class of Service (COS).

coverage answer group

A group of up to eight voice terminals that ring simultaneously when a call is redirected to it by Call Coverage. Any one of the group can answer the call.

coverage call

A call that is automatically redirected from the called party's extension to an alternate answering position when certain coverage criteria are met.

coverage path

The order in which calls are redirected to alternate answering positions.

coverage point

An extension or attendant group, VDN, or ACD split designated as an alternate answering position in a coverage path.

covering user

A person at a coverage point who answers a redirected call.

CP

Circuit pack

CPE

Customer-premises equipment

CPN

Called-party number

CPN/BN

Calling-party number/billing number

CPTR

Call-progress-tone receiver

CRC

Cyclical Redundancy Checking

critical-reliability system

A system that has the following duplicated items: control carriers, tone clocks, EI circuit packs, and cabling between port networks and center-stage switch in a CSS-connected system. See also duplicated common control, and duplication.

CSA

Canadian Safety Association

CSCC

Compact single-carrier cabinet

CSCN

Center-stage control network

CSD

Customer-service document

CSM

Centralized System Management

CSS

See center-stage switch (CSS).

CSSO

Customer Services Support Organization

CSU

Channel service unit

CTS

Clear to Send

CWC

See [call work code](#).

D

DAC

1. Dial access code or Direct Agent Calling
2. See [digital-to-analog converter \(DAC\)](#).

data channel

A communications path between two points used to transmit digital signals.

data-communications equipment (DCE)

The equipment (usually a modem, data module, or packet assembler/disassembler) on the network side of a communications link that makes the binary serial data from the source or transmitter compatible with the communications channel.

data link

The configuration of physical facilities enabling end terminals to communicate directly with each other.

data module

An interconnection device between a BRI or DCP interface of the switch and data terminal equipment or data communications equipment.

data path

The end-to-end connection used for a data communications link. A data path is the combination of all elements of an interprocessor communication in a DCS.

data port

A point of access to a computer that uses trunks or lines for transmitting or receiving data.

data rate

See [bit rate](#).

data service unit (DSU)

A device that transmits digital data on transmission facilities.

data terminal

An input/output (I/O) device that has either switched or direct access to a host computer or to a processor interface.

data terminal equipment (DTE)

Equipment consisting of the endpoints in a connection over a data circuit. In a connection between a data terminal and host, the terminal, the host, and their associated modems or data modules make up the DTE.

dB

Decibel

dba

Decibels in reference to amperes.

dBmC

Decibels above reference noise with C filter.

DC

Direct current

DCE

Data-communications equipment

D-channel backup

Type of backup used with Non-Facility Associated Signaling (NFAS). A primary D-channel provides signaling for an NFAS D-channel group (two or more PRI facilities). A second D-channel, on a separate PRI facility of the NFAS D-channel group, is designated as backup for the D-channel. Failure of the primary D-channel causes automatic transfer of call-control signaling to the backup D-channel. The backup becomes the primary D-channel. When the failed channel returns to service, it becomes the backup D-channel.

DCO

Digital central office

DCP

Digital Communications Protocol

DCS

Distributed Communications System

DDC

Direct Department Calling

DDD

Direct Distance Dialing

delay-dial trunk

A trunk that allows dialing directly into a communications system (digits are received as they are dialed).

denying a request

Sending a negative acknowledgement (NAK), done by sending an FIE with a *return error* component (and a cause value). It should not be confused with the denial event report that applies to calls.

designated voice terminal

The specific voice terminal to which calls, originally directed to a certain extension, are redirected. Commonly used to mean the forwarded-to terminal when Call Forwarding All Calls is active.

dial-repeating trunks

A PBX tie trunk that is capable of handling PBX station-signaling information without attendant assistance.

dial-repeating tie trunk

A tie trunk that transmits called-party addressing information between two communications systems.

DID

Direct Inward Dialing

digit conversion

A process used to convert specific dialed numbers into other dialed numbers.

digital

The representation of information by discrete steps. See also analog.

digital communications protocol (DCP)

- n A proprietary protocol used to transmit both digitized voice and digitized data over the same communications link. A DCP link is made up of two 64-kbps information (I-) channels and one 8-kbps signaling (S-) channel. Digital Communications Protocol. The DCP protocol supports 2 information-bearing channels, and thus two telephones/data modules. The I1 channel is the DCP channel assigned on the first page of the 8411 station form. The I2 channel is the DCP channel assigned on the analog adjunct page of the 8411 station form or on the data module page.
- n Digital Communications Protocol. The DCP protocol supports 2 information-bearing channels, and thus two telephones/data modules. The I1 channel is the DCP channel assigned on the first page of the 8411 station form. The I2 channel is the DCP channel assigned on the analog adjunct page of the 8411 station form or on the data module page.

digital data endpoints

In DEFINITY ECS, devices such as the 510D terminal or the 515-type business communications terminal (BCT).

digital multiplexed interface (DMI)

An interface that provides connectivity between a communications system and a host computer or between two communications systems using DS1 24th-channel signaling. DMI provides 23 64-kbps data channels and 1 common-signaling channel over a twisted-pair connection. DMI is offered through two capabilities: bit-oriented signaling (DMI-BOS) and message-oriented signaling (DMI-MOS).

digital signal level 0 (DS0)

A single 64-kbps voice channel. A DS0 is a single 64-kbps channel in a T1 or E1 facility and consists of eight bits in a T1 or E1 frame every 125 microseconds.

digital signal level 1 (DS1)

A single 1.544-Mbps (United States) or 2.048-Mbps (outside the United States) digital signal carried on a T1 transmission facility. A DS1 converter complex consists of a pair, one at each end, of DS1 converter circuit packs and the associated T1/E1 facilities.

digital terminal data module (DTDM)

An integrated or adjunct data module that shares with a digital telephone the same physical port for connection to a communications system. The function of a DTDM is similar to that of a PDM and MPDM in that it converts RS-232C signals to DCP signals.

digital-to-analog converter (DAC)

A device that converts data in digital form to the corresponding analog signals. See also analog-to-digital converter (ADC).

digital transmission

A mode of transmission in which information to be transmitted is first converted to digital form and then transmitted as a serial stream of pulses.

digital trunk

A circuit that carries digital voice and/or digital data in a telecommunications channel.

DIOD

Direct Inward and Outward Dialing

direct agent

A feature, accessed only via ASAI, that allows a call to be placed in a split queue but routed only to a specific agent in that split. The call receives normal ACD call treatment (for example, announcements) and is measured as an ACD call while ensuring that a particular agent answers.

Direct Extension Selection (DXS)

A feature on an attendant console that allows an attendant direct access to voice terminals by pressing a group-select button and a DXS button.

Direct Inward Dialing (DID)

A feature that allows an incoming call from the public network (not FX or WATS) to reach a specific telephone without attendant assistance.

Direct Inward Dialing (DID) trunk

An incoming trunk used for dialing directly from the public network into a communications system without help from the attendant.

disk drive

An electromechanical device that stores data on and retrieves data from one or more disks.

distributed communications system (DCS)

A network configuration linking two or more communications systems in such a way that selected features appear to operate as if the network were one system.

DIVA

Data In/Voice Answer

DLC

Data line circuit

DLDM

Data-line data module

DMI

Digital-multiplexed interface

DND

Do not disturb

DNIS

Dialed-Number Identification Service

DOD

Direct Outward Dialing

domain

VDNs, ACD splits, and stations. The VDN domain is used for active-notification associations. The ACD-split domain is for active-notification associations and domain-control associations. The station domain is used for the domain-control associations.

domain-control association

A *Third Party Domain Control Request* capability initiates a unique CRV/link number combination, which is referred to as a domain-control association.

domain-controlled split

A split for which *Third Party Domain Control* request has been accepted. A domain-controlled split provides an event report for logout.

domain-controlled station

A station for which a *Third_Party_Domain_Control* request has been accepted. A domain-controlled station provides event reports for calls that are alerting, connected, or held at the station.

domain-controlled station on a call

A station that is active on a call, and which provides event reports over one or two domain-control associations.

DOSS

Delivery Operations Support System

DOT

Duplication Option Terminal

DPM

Dial Plan Manager

DPR

Dual-port RAM

DS1

Digital Signal Level 1

DS1C

Digital Signal Level-1 protocol C

DS1 CONV

Digital Signal Level-1 converter

DSI

Digital signal interface

DSU

Data service unit

DTDM

Digital-terminal data module

DTE

Data-terminal equipment

DTGS

Direct Trunk Group Select

DTMF

Dual-tone multifrequency

DTS

Disk-tape system

duplicated common control

Two processors ensuring continuous operation of a communications system. While one processor is online, the other functions as a backup. The backup processor goes online periodically or when a problem occurs.

duplication

The use of redundant components to improve availability. When a duplicated subsystem fails, its backup redundant system automatically takes over.

duplication option

A system option that duplicates the following: control carrier containing the SPE, EI circuit packs in carriers, fiber-optic cabling between port networks, and center-stage switch in a CSS-connected system.

DWBS

DEFINITY Wireless Business System

DXS

Direct extension selection

E

E1

A digital transmission standard that carries traffic at 2.048 Mbps. The E1 facility is divided into 32 channels (DSOs) of 64 kbps information. Channel 0 is reserved for framing and synchronization information. A D-channel occupies channel 16.

E & M

Ear and mouth (receive and transmit)

EA

Expansion archangel

EAL

Expansion archangel link

ear and mouth (E & M) signaling

Trunk supervisory signaling, used between two communications systems, whereby signaling information is transferred through 2-state voltage conditions (on the E and M leads) for analog applications and through a single bit for digital applications.

EEBCDIC

Extended Binary-Coded Decimal Interexchange Code

ECC

Error Correct Code

ECMA

European Computer Manufacturers Association

EPF

Electronic power feed

EI

Expansion interface

EIA

Electronic Industries Association

EIA-232

A physical interface specified by the EIA. EIA-232 transmits and receives asynchronous data at speeds of up to 19.2 kbps over cable distances of up to 50 feet. EIA-232 replaces RS-232 protocol in some DEFINITY applications.

electronic tandem network (ETN)

A tandem tie-trunk network that has automatic call-routing capabilities based on the number dialed and the most preferred route available. Each switch in the network is assigned a unique private network office code (RNX), and each voice terminal is assigned a unique extension.

Electronics Industries Association (EIA)

A trade association of the electronics industry that establishes electrical and functional standards.

emergency transfer

If a major system failure occurs, automatic transfer is initiated to a group of telephones capable of making outgoing calls. The system operates in this mode until the failure is repaired and the system automatically returns to normal operation. Also called power-failure transfer.

EMI

Electromagnetic interference

end-to-end signaling

The transmission of touch-tone signals generated by dialing from a voice terminal to remote computer equipment. These digits are sent over the trunk as DTMF digits whether the trunk signaling type is marked as tone or rotary and whether the originating station is tone or rotary. Example: a call to a voice-mail machine or automated-attendant service. A connection is first established over an outgoing trunk. Then additional digits are dialed to transmit information to be processed by the computer equipment.

enhanced private-switched communications service (EPSCS)

An analog private telecommunications network based on the No. 5 crossbar and 1A ESS that provides advanced voice and data telecommunications services to companies with many locations.

EPN

Expansion-port network

EPROM

Erasable programmable read-only memory

EPSCS

Enhanced Private Switched Communications Services

ERL

Echo return loss

Erlang

A unit of traffic intensity, or load, used to express the amount of traffic needed to keep one facility busy for one hour. One Erlang is equal to 36 CCS. See also CCS or hundred call seconds.

ESF

Extended superframe format

ESPA

European Standard Paging Access

ETA

Extended Trunk Access; also Enhanced Terminal Administration

ETN

Electronic tandem network

ETSI

European Telecommunications Standards Institute

expansion archangel (EAA)

A network-control microprocessor located on an expansion interface (EI) port circuit pack in an expansion port network. The EA provides an interface between the EPN and its controlling switch-processing element.

expansion-archangel link (EAL)

A link-access function on the D-channel (LAPD) logical link that exists between a switch-processing element and an expansion archangel (EA). The EAL carries control messages from the SPE to the EA and to port circuit packs in an expansion port network.

expansion control cabinet

See expansion control carrier.

expansion control carrier

A carrier in a multicarrier cabinet that contains extra port circuit packs and a maintenance interface. Also called expansion control cabinet in a single-carrier cabinet.

expansion interface (EI)

A port circuit pack in a port network that provides the interface between a PN's TDM bus/ packet bus and a fiber-optic link. The EI carries circuit-switched data, packet-switched data, network control, timing control, and DS1 control. In addition, an EI in an expansion port network communicates with the master maintenance circuit pack to provide the EPN's environmental and alarm status to the switch-processing element.

expansion port network (EPN)

A port network (PN) that is connected to the TDM bus and packet bus of a processor port network (PPN). Control is achieved by indirect connection of the EPN to the PPN via a port-network link (PNL). See also port network (PN).

extension-in

Extension-In (ExtIn) is the work state agents go into when they answer (receive) a non-ACD call. If the agent is in Manual-In or Auto-In and receives an extension-in call, it is recorded by CMS as an AUX-In call.

extension-out

The work state that agents go into when they place (originate) a non-ACD call.

external measurements

Those ACD measurements that are made by the External CMS adjunct.

extension

A 1- to 5-digit number by which calls are routed through a communications system or, with a Uniform Dial Plan (UDP) or main-satellite dialing plan, through a private network.

external call

A connection between a communications system user and a party on the public network or on another communications system in a private network.

F

FAC

Feature Access Code

facility

A telecommunications transmission pathway and associated equipment.

facility-associated signaling (FAS)

Signaling for which a D-channel carries signaling only for those channels on the same physical interface.

FAS

Facility-associated signaling

FAT

Facility access trunk

FAX

Facsimile

FCC

Federal Communications Commission

FEAC

Forced Entry of Account Codes

feature

A specifically defined function or service provided by the system.

feature button

A labeled button on a telephone or attendant console used to access a specific feature.

FEP

Front-end processor

FIC

Facility interface codes

fiber optics

A technology using materials that transmit ultrawideband electromagnetic light-frequency ranges for high-capacity carrier systems.

fixed

A trunk allocation term. In the fixed allocation scheme, the time slots necessary to support a wideband call are contiguous, and the first time slot is constrained to certain starting points.

flexible

A trunk allocation term. In the flexible allocation scheme, the time slots of a wideband call can occupy noncontiguous positions within a single T1 or E1 facility.

floating

A trunk allocation term. In the floating allocation scheme, the time slots of a wideband call are contiguous, but the position of the first time slot is not fixed.

FNPA

Foreign Numbering-Plan Area

foreign-exchange (FX)

A CO other than the one providing local access to the public telephone network.

foreign-exchange trunk

A telecommunications channel that directly connects the system to a CO other than its local CO.

foreign numbering-plan area code (FNPAC)

An area code other than the local area code, that must be dialed to call outside the local geographical area.

FRL

Facilities Restriction Level

FX

Foreign exchange

G

G3-MA

Generic 3 Management Applications

G3-MT

Generic 3 Management Terminal

G3r

Generic 3, RISC (Reduced Instruction Set Computer)

generalized route selection (GRS)

An enhancement to Automatic Alternate Routing/Automatic Route Selection (AAR/ARS) that performs routing based on call attributes, such as Bearer Capability Classes (BCCs), in addition to the address and facilities restriction level (FRL), thus facilitating a Uniform Dial Plan (UDP) that is independent of the type of call being placed.

glare

The simultaneous seizure of a 2-way trunk by two communications systems, resulting in a standoff.

GM

Group manager

GPTR

General-purpose tone receiver

grade of service

The number of call attempts that fail to receive service immediately. Grade of service is also expressed as the quantity of all calls that are blocked or delayed.

ground-start trunk

A trunk on which, for outgoing calls, the system transmits a request for services to a distant switching system by grounding the trunk ring lead. To receive the digits of the called number, that system grounds the trunk tip lead. When the system detects this ground, the digits are sent.

GRS

Generalized Route Selection

H

H0

An ISDN information transfer rate for 384-kbps data defined by CCITT and ANSI standards.

H11

An ISDN information transfer rate for 1536-kbps data defined by CCITT and ANSI standards.

H12

An ISDN information transfer rate for 1920-kbps data defined by CCITT and ANSI standards.

handshaking logic

A format used to initiate a data connection between two data module devices.

hertz (Hz)

A unit of frequency equal to one cycle per second.

high-reliability system

A system having the following: two control carriers, duplicate expansion interface (EI) circuit packs in the PPN (in R5r with CSS), and duplicate switch node clock circuit packs in the switch node (SN) carriers. See also [duplicated common control](#), [duplication](#), [duplication option](#), and [critical-reliability system](#).

HNPA

See [home numbering-plan area code \(HNPA\)](#).

holding time

The total length of time in minutes and seconds that a facility is used during a call.

home numbering-plan area code (HNPA)

The local area code. The area code does not have to be dialed to call numbers within the local geographical area.

hop

Nondirect communication between two switch communications interfaces (SCI) where the SCI message passes automatically without intermediate processing through one or more intermediate SCIs.

host computer

A computer, connected to a network, that processes data from data-entry devices.

hunt group

A group of extensions that are assigned the Station Hunting feature so that a call to a busy extension reroutes to an idle extension in the group. See also [ACD work mode](#).

Hz

See [hertz \(Hz\)](#).

I

I1

The first information channel of DCP.

I2

The second information channel of DCP.

I2 Interface

A proprietary interface used for the DEFINITY Wireless Business System for the radio-controller circuit packs. Each interface provides communication between the radio-controller circuit pack and up to two wireless fixed bases.

I3 Interface

A proprietary interface used for the DEFINITY Wireless Business System for the cell antenna units. Each wireless fixed base can communicate to up to four cell antenna units.

IAS

Inter-PBX Attendant Service

ICC

Intercabinet cable or intercarrier cable

ICD

Inbound Call Director

ICDOS

International Customer-Dialed Operator Service

ICHT

Incoming call-handling table

ICI

Incoming call identifier

ICM

Inbound Call Management

IDDD

International Direct Distance Dialing

IDF

Intermediate distribution frame

IE

Information element

immediate-start tie trunk

A trunk on which, after making a connection with a distant switching system for an outgoing call, the system waits a nominal 65 ms before sending the digits of the called number. This allows time for the distant system to prepare to receive digits. On an incoming call, the system has less than 65 ms to prepare to receive the digits.

IMT

Intermachine trunk

in

Inch

INADS

Initialization and Administration System

incoming gateway

A PBX that routes an incoming call on a trunk *not* administered for Supplementary Services Protocol B to a trunk *not* administered for Supplementary Services Protocol B.

information exchange

The exchange of data between users of two different systems, such as the switch and a host computer, over a LAN.

Information Systems Network (ISN)

A WAN and LAN with an open architecture combining host computers, minicomputers, word processors, storage devices, PCs, high-speed printers, and nonintelligent terminals into a single packet-switching system.

INS

ISDN Network Service

inside call

A call placed from one telephone to another within the local communications system.

Integrated Services Digital Network (ISDN)

A public or private network that provides end-to-end digital communications for all services to which users have access by a limited set of standard multipurpose user-network interfaces defined by the CCITT. Through internationally accepted standard interfaces, ISDN provides digital circuit-switched or packet-switched communications within the network and links to other ISDNs to provide national and international digital communications. See also [Integrated Services Digital Network Basic Rate Interface \(ISDN-BRI\)](#) and [Integrated Services Digital Network Primary Rate Interface \(ISDN-PRI\)](#).

Integrated Services Digital Network Basic Rate Interface (ISDN-BRI)

The interface between a communications system and terminal that includes two 64-kbps B-channels for transmitting voice or data and one 16-kbps D-channel for transmitting associated B-channel call control and out-of-band signaling information. ISDN-BRI also includes 48 kbps for transmitting framing and D-channel contention information, for a total interface speed of 192 kbps. ISDN-BRI serves ISDN terminals and digital terminals fitted with ISDN terminal adapters. See also [Integrated Services Digital Network \(ISDN\)](#) and [Integrated Services Digital Network Primary Rate Interface \(ISDN-PRI\)](#).

Integrated Services Digital Network Primary Rate Interface (ISDN-PRI)

The interface between multiple communications systems that in North America includes 24 64-kbps channels, corresponding to the North American digital signal level-1 (DS1) standard rate of 1.544 Mbps. The most common arrangement of channels in ISDN-PRI is 23 64-kbps B-channels for transmitting voice and data and 1 64-kbps D-channel for transmitting associated B-channel call control and out-of-band signaling information. With nonfacility-associated signaling (NFAS), ISDN-PRI can include 24 B-channels and no D-channel. See also [Integrated Services Digital Network \(ISDN\)](#) and [Integrated Services Digital Network Basic Rate Interface \(ISDN-BRI\)](#).

intercept tone

An tone that indicates a dialing error or denial of the service requested.

interface

A common boundary between two systems or pieces of equipment.

internal call

A connection between two users within a system.

International Telecommunications Union (ITU)

Formerly known as International Telegraph and Telephone Consultative Committee (CCITT), ITU is an international organization that sets universal standards for data communications, including ISDN. ITU members are from telecommunications companies and organizations around the world. See also [BX.25](#).

International Telegraph and Telephone Consultative Committee

See [International Telecommunications Union \(ITU\)](#).

interflow

The ability for calls to forward to other splits on the same PBX or a different PBX using the Call Forward All Calls feature.

intraflow

The ability for calls to redirect to other splits on the same PBX on a conditional or unconditional basis using call coverage busy, don't answer, or all criteria.

internal measurements

BCMS measurements that are made by the system. ACD measurements that are made external to the system (via External CMS) are referred to as external measurements.

in-use lamp

A red light on a multiappearance voice terminal that lights to show which call appearance will be selected when the handset is lifted or which call appearance is active when a user is off-hook.

INWATS

Inward Wide Area Telephone Service

IO

Information outlet

ISDN

See [Integrated Services Digital Network \(ISDN\)](#).

ISDN Gateway (IG)

A feature allowing integration of the switch and a host-based telemarketing application via a link to a gateway adjunct. The gateway adjunct is a 3B-based product that notifies the host-based telemarketing application of call events.

ISDN trunk

A trunk administered for use with ISDN-PRI. Also called ISDN facility.

ISDN-PRI terminal adapter

An interface between endpoint applications and an ISDN PRI facility. ISDN-PRI terminal adapters are currently available from other vendors and are primarily designed for video conferencing applications. Accordingly, currently available terminal adapters adapt the two pairs of video codec data (V.35) and dialing (RS-366) ports to an ISDN PRI facility.

IS/DTT

Integrated Services/digital tie trunk

ISN

Information Systems Network

ISO

International Standards Organization

ISV

Independent software vendor

ITP

Installation test procedure

ITU

International Telecommunications Union

IXC
Interexchange carrier code

K

kHz
Kilohertz

kbps
Kilobits per second

kbyte
Kilobyte

kg
Kilogram

L

LAN
Local area network

LAP-D
Link Access Procedure on the D-channel

LAPD
Link Access Procedure data

LATA
Local access and transport area

lb
Pound

LBO
Line buildout

LDN
Listed directory number

LDS
Long-distance service

LEC
Local exchange carrier

LED
See light-emitting diode (LED).

light-emitting diode (LED)

A semiconductor device that produces light when voltage is applied. LEDs provide a visual indication of the operational status of hardware components, the results of maintenance tests, the alarm status of circuit packs, and the activation of telephone features.

lightwave transceiver

Hardware that provides an interface to fiber-optic cable from port circuit packs and DS1 converter circuit packs. Lightwave transceivers convert electrical signals to light signals and vice versa.

line

A transmission path between a communications system or CO switching system and a voice terminal or other terminal.

line appearance

See [appearance](#).

line buildout

A selectable output attenuation is generally required of DTE equipment because T1 circuits require the last span to lose 15–22.5 dB.

line port

Hardware that provides the access point to a communications system for each circuit associated with a telephone or data terminal.

link

A transmitter-receiver channel that connects two systems.

link-access procedure on the D-channel (LAPD)

A link-layer protocol on the ISDN-BRI and ISDN-PRI data-link layer (level 2). LAPD provides data transfer between two devices, and error and flow control on multiple logical links. LAPD is used for signaling and low-speed packet data (X.25 and mode 3) on the signaling (D-) channel and for mode-3 data communications on a bearer (B-) channel.

LINL

Local indirect neighbor link

local area network (LAN)

A networking arrangement designed for a limited geographical area. Generally, a LAN is limited in range to a maximum of 6.2 miles and provides high-speed carrier service with low error rates. Common configurations include daisy chain, star (including circuit-switched), ring, and bus.

logical link

The communications path between a processor and a BRI terminal.

loop-start trunk

A trunk on which, after establishing a connection with a distant switching system for an outgoing call, the system waits for a signal on the loop formed by the trunk leads before sending the digits of the called number.

LSU

Local storage unit

LWC

Leave Word Calling

M

MAC

Medium access

MADU

Modular asynchronous data unit

main distribution frame (MDF)

A device that mounts to the wall inside the system equipment room. The MDF provides a connection point from outside telephone lines to the PBX switch and to the inside telephone stations.

main-satellite-tributary

A private network configuration that can either stand alone or access an ETN. A main switch provides interconnection, via tie trunks, with one or more subtending switches, called satellites; all attendant positions for the main/satellite configuration; and access to and from the public network. To a user outside the complex, a main/satellite configuration appears as one switch, with one listed directory number (LDN). A tributary switch is connected to the main switch via tie trunks, but has its own attendant positions and LDN.

maintenance

Activities involved in keeping a telecommunications system in proper working condition: the detection and isolation of software and hardware faults, and automatic and manual recovery from these faults.

management terminal

The terminal that is used by the system administrator to administer the switch. The terminal may also be used to access the BCMS feature.

major alarm

An indication of a failure that has caused critical degradation of service and requires immediate attention. Major alarms are automatically displayed on LEDs on the attendant console and maintenance or alarming circuit pack, logged to the alarm log, and reported to a remote maintenance facility, if applicable.

Manual-In work mode

One of four agent work modes: the mode in which an agent is ready to process another call manually. See *Auto-In Work mode* for a contrast.

MAP

Maintenance action process

MAPD

Multiapplication platform for DEFINITY

MA-UUI

Message-Associated User-to-User Signaling

Mbps

Megabits per second

M-Bus

Memory bus

Mbyte

Megabyte

MCC

Multicarrier cabinet

MCS

Message Center Service

MCT

Malicious Call Trace

MCU

Multipoint control unit

MDF

Main distribution frame

MDM

Modular data module

MDR

Message detail record

MEM

Memory

memory

A device into which information can be copied and held, and from which information can later be obtained.

memory shadowing link

An operating-system condition that provides a method for memory-resident programs to be more quickly accessed, allowing a system to reboot faster.

message center

An answering service that supplies agents to and stores messages for later retrieval.

message center agent

A member of a message-center hunt group who takes and retrieves messages for voice-terminal users.

MET

Multibutton electronic telephone

MF

Multifrequency

MFB

Multifunction board

MFC

Multifrequency code

MHz

Megahertz

MIM

Management information message

minor alarm

An indication of a failure that could affect customer service. Minor alarms are automatically displayed on LEDs on the attendant console and maintenance or alarming circuit pack, sent to the alarm log, and reported to a remote maintenance facility, if applicable.

MIPS

Million instructions per second

MIS

Management information system

MISCID

Miscellaneous identification

MMCS

Multimedia Call Server

MMCH

Multimedia call handling

MMI

Multimedia interface

MMS

Material Management Services

MO

Maintenance object

modem

A device that converts digital data signals to analog signals for transmission over telephone circuits. The analog signals are converted back to the original digital data signals by another modem at the other end of the circuit.

modem pooling

A capability that provides shared conversion resources (modems and data modules) for cost-effective access to analog facilities by data terminals. When needed, modem pooling inserts a conversion resource into the path of a data call. Modem pooling serves both outgoing and incoming calls.

modular processor data module (MPDM)

A processor data module (PDM) that can be configured to provide several kinds of interfaces (RS-232C, RS-449, and V.35) to customer-provided data terminal equipment (DTE). See also *processor data module (PDM)*.

modular trunk data module (MTDM)

A trunk data module that can be configured to provide several kinds of interfaces (RS-232, RS-449, and V.35) to customer-provided data terminal equipment.

modulator-demodulator

See *modem*.

monitored call

See *active-notification call*.

MOS

Message-oriented signaling

MPDM

Modular processor data module

MS

Message server

ms

Millisecond

MS/T

Main satellite/tributary

MSA

Message servicing adjunct

MSG

Message service

MSL

Material stocking location

MSM

Modular System Management

MSS

Mass storage system

MSSNET

Mass storage/network control

MT

Management terminal

MTDM

Modular trunk data module

MTP

Maintenance tape processor

MTT

Multitasking terminal

multiappearance voice terminal

A terminal equipped with several call-appearance buttons for the same extension, allowing the user to handle more than one call on that same extension at the same time.

Multicarrier cabinet

A structure that holds one to five carriers. See also [single-carrier cabinet](#).

Multifrequency Compelled (MFC) Release 2 (R2) signaling

A signal consisting of two frequency components, such that when a signal is transmitted from a switch, another signal acknowledging the transmitted signal is received by the switch. R2 designates signaling used in the United States and in countries outside the United States.

multiplexer

A device used to combine a number of individual channels into a single common bit stream for transmission.

multiplexing

A process whereby a transmission facility is divided into two or more channels, either by splitting the frequency band into a number of narrower bands or by dividing the transmission channel into successive time slots. See also [time-division multiplexing \(TDM\)](#).

multirate

The new N x DS0 service (see N x DS0).

MWL

Message-waiting lamp

N

N+1

Method of determining redundant backup requirements. Example: if four rectifier modules are required for a DC-powered single-carrier cabinet, a fifth rectifier module is installed for backup.

N x DS0

N x DS0, equivalently referred to as N x 64 kbps, is an emerging standard for wideband calls separate from H0, H11, and H12 ISDN channels. The emerging N x DS0 ISDN multirate circuit mode bearer service will provide circuit-switched calls with data-rate multiples of 64 kbps up to 1536 kbps on a T1 facility or up to 1920 kbps on an E1 facility. In the switch, N x DS0 channels will range up to 1984 kbps using NFAS E1 interfaces.

NANP

North American Numbering Plan

narrowband

A circuit-switched call at a data rate up to and including 64 kbps. All nonwideband switch calls are considered narrowband.

native terminal support

A predefined terminal type exists in switch software, eliminating the need to alias the terminal (that is, manually map call appearances and feature buttons onto some other natively supported terminal type).

NAU

Network access unit

NCA/TSC

Noncall-associated/temporary-signaling connection

NCOSS

Network Control Operations Support Center

NCSO

National Customer Support Organization

NEC

National Engineering Center

NEMA

National Electrical Manufacturer's Association

NETCON

Network-control circuit pack

network

A series of points, nodes, or stations connected by communications channels.

network-specific facility (NSF)

An information element in an ISDN-PRI message that specifies which public-network service is used. NSF applies only when Call-by-Call Service Selection is used to access a public-network service.

network interface

A common boundary between two systems in an interconnected group of systems.

NFAS

See Nonfacility-associated signaling (NFAS).

NI

Network interface

NID

Network Inward Dialing

NM

Network management

NN

National number

node

A switching or control point for a network. Nodes are either tandem (they receive signals and pass them on) or terminal (they originate or terminate a transmission path).

Nonfacility-associated signaling (NFAS)

A method that allows multiple T1 and/or E1 facilities to share a single D-channel to form an ISDN-PRI. If D-channel backup is not used, one facility is configured with a D-channel, and the other facilities that share the D-channel are configured without D-channels. If D-channel backup is used, two facilities are configured to have D-channels (one D-channel on each facility), and the other facilities that share the D-channels are configured without D-channels.

NPA

Numbering-plan area

NPE

Network processing element

NQC

Number of queued calls

NSE

Night-service extension

NSU

Network sharing unit

null modem cable

Special wiring of an RS-232-C cable such that a computer can talk to another computer (or to a printer) without a modem.

NXX

Public-network office code

O

OA

Operator assisted

occurrence

See appearance.

OCM

Outbound Call Management

offered load

The traffic that would be generated by all the requests for service occurring within a monitored interval, usually one hour.

ONS

On-premises station

OPS

Off-premises station

OPX

Off-premises extension

OQT

Oldest queued time

OSHA

Occupational Safety and Health Act

OSI

Open Systems Interconnect

OSS

Operations Support System

OSSI

Operational Support System Interface

OTDR

Optical time-domain reflectometer

othersplit

The work state that indicates that an agent is currently active on another split's call, or in ACW for another split.

OTQ

Outgoing trunk queuing

outgoing gateway

A PBX that routes an incoming call on a trunk administered for Supplementary Services Protocol B to a trunk *not* administered for Supplementary Services Protocol B.

P

PACCON

Packet control

packet

A group of bits (including a message element, which is the data, and a control information element (IE), which is the header) used in packet switching and transmitted as a discrete unit. In each packet, the message element and control IE are arranged in a specified format. See also **packet bus** and **packet switching**.

packet bus

A wide-bandwidth bus that transmits packets.

packet switching

A data-transmission technique whereby user information is segmented and routed in discrete data envelopes called packets, each with its own appended control information, for routing, sequencing, and error checking. Packet switching allows a channel to be occupied only during the transmission of a packet. On completion of the transmission, the channel is made available for the transfer of other packets. See also **BX.25** and **packet**.

PAD

Packet assembly/disassembly

paging trunk

A telecommunications channel used to access an amplifier for loudspeaker paging.

party/extension active on call

A party is on the call if he or she is actually connected to the call (in active talk or in held state). An originator of a call is always a party on the call. Alerting parties, busy parties, and tones are not parties on the call.

PBX

Private branch exchange

PC

See **personal computer (PC)**.

PCM

See **pulse-code modulation (PCM)**.

PCOL

Personal central-office line

PCOLG

Personal central-office line group

PCS

Permanent switched calls

PDM

See **processor data module (PDM)**.

PDS

Premises Distribution System

PE

Processing element

PEC

Price element code

PEI

Processor element interchange

personal computer (PC)

A personally controllable microcomputer.

PGATE

Packet gateway

PGN

Partitioned group number

PI

Processor interface

PIB

Processor interface board

pickup group

A group of individuals authorized to answer any call directed to an extension within the group.

PIDB

Product image database

PKTINT

Packet interface

PL

Private line

PLS

Premises Lightwave System

PMS

Property Management System

PN

Port network

PNA

Private network access

POE

Processor occupancy evaluation

POP

Point of presence

port

A data- or voice-transmission access point on a device that is used for communicating with other devices.

port carrier

A carrier in a multicarrier cabinet or a single-carrier cabinet containing port circuit packs, power units, and service circuits. Also called a port cabinet in a single-carrier cabinet.

port network (PN)

A cabinet containing a TDM bus and packet bus to which the following components are connected: port circuit packs, one or two tone-clock circuit packs, a maintenance circuit pack, service circuit packs, and (optionally) up to four expansion interface (EI) circuit packs in DEFINITY ECS. Each PN is controlled either locally or remotely by a switch processing element (SPE). See also expansion port network (EPN) and processor port network (PPN).

port-network connectivity

The interconnection of port networks (PNs), regardless of whether the configuration uses direct or switched connectivity.

PPM

1. Parts per million
2. Periodic pulse metering

PPN

See processor port network (PPN).

PRI

See Primary Rate Interface (PRI).

primary extension

The main extension associated with the physical voice or data terminal.

Primary Rate Interface (PRI)

A standard ISDN frame format that specifies the protocol used between two or more communications systems. PRI runs at 1.544 Mbps and, as used in North America, provides 23 64-kbps B-channels (voice or data) and one 64-kbps D-channel (signaling). The D-channel is the 24th channel of the interface and contains multiplexed signaling information for the other 23 channels.

PRI endpoint (PE)

The wideband switching capability introduces PRI endpoints on switch line-side interfaces. A PRI endpoint consists of one or more contiguous B-channels on a line-side T1 or E1 ISDN PRI facility and has an extension. Endpoint applications have call-control capabilities over PRI endpoints.

principal

A terminal that has its primary extension bridged on one or more other terminals.

principal (user)

A person to whom a telephone is assigned and who has message-center coverage.

private network

A network used exclusively for the telecommunications needs of a particular customer.

private network office code (RNX)

The first three digits of a 7-digit private network number.

PROCR

Processor

processor carrier

See control carrier.

processor data module (PDM)

A device that provides an RS-232C DCE interface for connecting to data terminals, applications processors (APs), and host computers, and provides a DCP interface for connection to a communications system. See also modular processor data module (MPDM).

processor port network (PPN)

A port network controlled by a switch-processing element that is directly connected to that PN's TDM bus and LAN bus. See also port network (PN).

processor port network (PPN) control carrier

A carrier containing the maintenance circuit pack, tone/clock circuit pack, and SPE circuit packs for a processor port network (PPN) and, optionally, port circuit packs.

Property Management System (PMS)

A stand-alone computer used by lodging and health-services organizations for services such as reservations, housekeeping, and billing.

protocol

A set of conventions or rules governing the format and timing of message exchanges to control data movement and correction of errors.

PSC

Premises service consultant

PSDN

Packet-switch public data network

PT

Personal terminal

PTC

Positive temperature coefficient

PTT

Postal Telephone and Telegraph

public network

The network that can be openly accessed by all customers for local and long-distance calling.

pulse-code modulation (PCM)

An extension of pulse-amplitude modulation (PAM) in which carrier-signal pulses modulated by an analog signal, such as speech, are quantized and encoded to a digital, usually binary, format.

Q

QPPCN

Quality Protection Plan Change Notice

quadrant

A group of six contiguous DS0s in fixed locations on an ISDN-PRI facility. Note that this term comes from T1 terminology (one-fourth of a T1), but there are five quadrants on an E1 ISDN-PRI facility (30B + D).

queue

An ordered sequence of calls waiting to be processed.

queuing

The process of holding calls in order of their arrival to await connection to an attendant, to an answering group, or to an idle trunk. Calls are automatically connected in first-in, first-out sequence.

R

RAM

See *random-access memory (RAM)*.

random-access memory (RAM)

A storage arrangement whereby information can be retrieved at a speed independent of the location of the stored information.

RBS

Robbed-bit signaling

RC

Radio controller

RCL

Restricted call list

read-only memory (ROM)

A storage arrangement primarily for information-retrieval applications.

recall dial tone

Tones signalling that the system has completed a function (such as holding a call) and is ready to accept dialing.

redirection criteria

Information administered for each voice terminal's coverage path that determines when an incoming call is redirected to coverage.

Redirection on No Answer

An optional feature that redirects an unanswered ringing ACD call after an administered number of rings. The call is then redirected back to the agent.

remote home numbering-plan area code (RHNPA)

A foreign numbering-plan area code that is treated as a home area code by the Automatic Route Selection (ARS) feature. Calls can be allowed or denied based on the area code and the dialed CO code rather than just the area code. If the call is allowed, the ARS pattern used for the call is determined by these six digits.

Remote Operations Service Element (ROSE)

A CCITT and ISO standard that defines a notation and services that support interactions between the various entities that make up a distributed application.

REN

Ringer equivalency number

reorder tone

A tone to signal that at least one of the facilities, such as a trunk or a digit transmitter, needed for the call was not available.

report scheduler

Software that is used in conjunction with the system printer to schedule the days of the week and time of day that the desired reports are to be printed.

RFP

Request for proposal

RHNPA

See remote home numbering-plan area code (RHNPA).

RINL

Remote indirect neighbor link

RISC

Reduced-instruction-set computer

RLT

Release-link trunk

RMATS

Remote Maintenance, Administration, and Traffic System

RNX

Route-number index (private network office code)

ROM

See read-only memory (ROM).

RPN

Routing-plan number

RS-232C

A physical interface specified by the Electronic Industries Association (EIA). RS-232C transmits and receives asynchronous data at speeds of up to 19.2 kbps over cable distances of up to 50 feet.

RS-449

Recommended Standard 449

RSC

Regional Support Center

ROSE

See Remote Operations Service Element (ROSE).

S

S1

The first logical signalling channel of DCP. The channel is used to provide signaling information for DCP's I1 channel.

S2

The second logical signaling channel of DCP. The channel is used to provide signaling information for DCP's I2 channel.

SABM

Set Asynchronous Balance Mode

SAC

Send All Calls

SAKI

See sanity and control interface (SAKI).

sanity and control interface (SAKI)

A custom VLSI microchip located on each port circuit pack. The SAKI provides address recognition, buffering, and synchronization between the angel and the five control time slots that make up the control channel. The SAKI also scans and collects status information for the angel on its port circuit pack and, when polled, transmits this information to the archangel.

SAT

System access terminal

SCC

1. See [single-carrier cabinet](#).
2. Serial communications controller

SCD

Switch-control driver

SCI

Switch communications interface

SCO

System control office

SCOTCH

Switch Conferencing for TDM Bus in Concentration Highway

SCSI

See [small computer system interface \(SCSI\)](#).

SDDN

Software-Defined Data Network

SDI

Switched Digital International

SDLC

Synchronous data-link control

SDN

Software-defined network

SFRL

Single-frequency return loss

SID

Station-identification number

simplex system

A system that has no redundant hardware.

simulated bridged appearance

The same as a temporary bridged appearance; allows the terminal user (usually the principal) to bridge onto a call that had been answered by another party on his or her behalf.

single-carrier cabinet

A combined cabinet and carrier unit that contains one carrier. See also [Multicarrier cabinet](#).

single-line voice terminal

A voice terminal served by a single-line tip and ring circuit (models 500, 2500, 7101A, 7103A).

SIT

Special-information tones

small computer system interface (SCSI)

An ANSI bus standard that provides a high-level command interface between host computers and peripheral devices.

SMDR

Station Message Detail Recording

SN

Switch Node

SNA

Systems Network Architecture

SNC

Switch Node Clock

SNI

Switch Node Interface

SNMP

Simple Network Management Protocol

software

A set of computer programs that perform one or more tasks.

SPE

Switch Processing Element

SPID

Service Profile Identifier

split

See [ACD work mode](#).

split condition

A condition whereby a caller is temporarily separated from a connection with an attendant. A split condition automatically occurs when the attendant, active on a call, presses the start button.

split number

The split's identity to the switch and BCMS.

split report

A report that provides historical traffic information for internally measured splits.

split (agent) status report

A report that provides real-time status and measurement data for internally measured agents and the split to which they are assigned.

SSI

Standard serial interface

SSM

Single-site management

SSV

Station service

ST3

Stratum 3 clock board

staffed

Indicates that an agent position is logged in. A staffed agent functions in one of four work modes: Auto-In, Manual-In, ACW, or AUX-Work.

STARLAN

Star-Based Local Area Network

Station Message Detail Recording (SMDR)

An obsolete term now called CDR — a switch feature that uses software and hardware to record call data. See [Call Detail Recording \(CDR\)](#).

standard serial interface (SSI)

A communications protocol developed for use with 500-type business communications terminals (BCTs) and 400-series printers.

status lamp

A green light that shows the status of a call appearance or a feature button by the state of the light (lit, flashing, fluttering, broken flutter, or unlit).

stroke counts

A method used by ACD agents to record up to nine customer-defined events per call when CMS is active.

SVN

Security-violation notification

switch

Any kind of telephone switching system. See also [communications system](#).

switchhook

The buttons located under the receiver on a voice terminal.

switch-node (SN) carrier

A carrier containing a single switch node, power units, and, optionally, one or two DS1 converter circuit packs. An SN carrier is located in a center-stage switch.

switch-node (SN) clock

The circuit pack in an SN carrier that provides clock and maintenance alarm functions and environmental monitors.

switch-node interface (SNI)

The basic building block of a switch node. An SNI circuit pack controls the routing of circuit, packet, and control messages.

switch-node link (SNL)

The hardware that provides a bridge between two or more switch nodes. The SNL consists of the two SNI circuit packs residing on the switch nodes and the hardware connecting the SNIs. This hardware can include lightwave transceivers that convert the SNI's electrical signals to light signals, the copper wire that connects the SNIs to the lightwave transceivers, a full-duplex fiber-optic cable, DS1 converter circuit cards and DS1 facilities if a company does not have rights to lay cable, and appropriate connectors.

switch-processing element (SPE)

A complex of circuit packs (processor, memory, disk controller, and bus-interface cards) mounted in a PPN control carrier. The SPE serves as the control element for that PPN and, optionally, for one or more EPNs.

SXS

Step-by-step

synchronous data transmission

A method of sending data in which discrete signal elements are sent at a fixed and continuous rate and specified times. See also [association](#).

SYSAM

System Access and Administration

system administrator

The person who maintains overall customer responsibility for system administration. Generally, all administration functions are performed from the Management Terminal. The switch requires a special login, referred to as the system administrator login, to gain access to system-administration capabilities.

system printer

An optional printer that may be used to print scheduled reports via the report scheduler.

system report

A report that provides historical traffic information for internally measured splits.

system-status report

A report that provides real-time status information for internally measured splits.

system manager

A person responsible for specifying and administering features and services for a system.

system reload

A process that allows stored data to be written from a tape into the system memory (normally after a power outage).

T

T1

A digital transmission standard that in North America carries traffic at the DS1 rate of 1.544 Mbps. A T1 facility is divided into 24 channels (DS0s) of 64 kbps. These 24 channels, with an overall digital rate of 1.536 Mbps, and an 8-kbps framing and synchronization channel make up the 1.544-Mbps transmission. When a D-channel is present, it occupies channel 24. T1 facilities are also used in Japan and some Middle-Eastern countries.

TAAS

Trunk Answer from Any Station

TABS

Telemetry asynchronous block serial

TAC

Trunk-access code

tandem switch

A switch within an electronic tandem network (ETN) that provides the logic to determine the best route for a network call, possibly modifies the digits outpulsed, and allows or denies certain calls to certain users.

tandem through

The switched connection of an incoming trunk to an outgoing trunk without human intervention.

tandem tie-trunk network (TTTN)

A private network that interconnects several customer switching systems.

TC

Technical consultant

TCM

Traveling class mark

TDM

See [time-division multiplexing \(TDM\)](#).

TDR

Time-of-day routing

TEG

Terminating extension group

terminal

A device that sends and receives data within a system. See also [administration terminal](#).

tie trunk

A telecommunications channel that directly connects two private switching systems.

time-division multiplex (TDM) bus

A bus that is time-shared regularly by preallocating short time slots to each transmitter. In a PBX, all port circuits are connected to the TDM bus, permitting any port to send a signal to any other port.

time-division multiplexing (TDM)

Multiplexing that divides a transmission channel into successive time slots. See also [multiplexing](#).

time interval

The period of time, either one hour or one-half hour, that BCMS measurements are collected for a reports.

time slice

See [time interval](#).

time slot

64 kbps of digital information structured as eight bits every 125 microseconds. In the switch, a time slot refers to either a DS0 on a T1 or E1 facility or a 64-kbps unit on the TDM bus or fiber connection between port networks.

time slot sequence integrity

The situation whereby the N octets of a wideband call that are transmitted in one T1 or E1 frame arrive at the output in the same order that they were introduced.

to control

An application can invoke *Third Party Call Control* capabilities using either an adjunct-control or domain-control association.

to monitor

An application can receive *event reports* on an active-notification, adjunct-control, or domain-control association.

TOD

Time of day

tone ringer

A device with a speaker, used in electronic voice terminals to alert the user.

TOP

Task-oriented protocol

trunk

A dedicated telecommunications channel between two communications systems or COs.

trunk allocation

The manner in which trunks are selected to form wideband channels.

trunk-data module

A device that connects off-premises private-line trunk facilities and DEFINITY ECS. The trunk-data module converts between the RS-232C and the DCP, and can connect to DDD modems as the DCP member of a modem pool.

trunk group

Telecommunications channels assigned as a group for certain functions that can be used interchangeably between two communications systems or COs.

TSC

Technical Service Center

TTI

Terminal translation initialization

TTR

Touch-tone receiver

TTT

Terminating trunk transmission

TTTN

See tandem tie-trunk network (TTTN).

TTY

Teletypewriter

U

UAP

Usage-allocation plan

UART

Universal asynchronous transmitter

UCD

Uniform call distribution

UCL

Unrestricted call list

UDP

See Uniform Dial Plan (UDP).

UL

Underwriter Laboratories

UM

User manager

Uniform Dial Plan (UDP)

A feature that allows a unique 4- or 5-digit number assignment for each terminal in a multiswitch configuration such as a DCS or main-satellite-tributary system.

UNMA

Unified Network Management Architecture

UNP

Uniform numbering plan

UPS

Uninterruptible power supply

USOP

User service-order profile

UUCP

UNIX-to-UNIX Communications Protocol

UUI

User-to-user information

V

VAR

Value-added reseller

VDN

See vector directory number (VDN).

vector directory number (VDN)

An extension that provides access to the Vectoring feature on the switch. Vectoring allows a customer to specify the treatment of incoming calls based on the dialed number.

vector-controlled split

A hunt group or ACD split administered with the vector field enabled. Access to such a split is possible only by dialing a VDN extension.

VIS

Voice Information System

VLSI

Very-large-scale integration

VM

Voltmeter

VNI

Virtual nodepoint identifier

voice terminal

A single-line or multiappearance telephone.

W

WATS

See [Wide Area Telecommunications Service \(WATS\)](#).

WCC

World-Class Core

WCR

World-Class Routing

WCTD

World-Class Tone Detection

WFB

Wireless fixed base

Wide Area Telecommunications Service (WATS)

A service in the United States that allows calls to certain areas for a flat-rate charge based on expected usage.

wideband

A circuit-switched call at a data rate greater than 64 kbps. A circuit-switched call on a single T1 or E1 facility with a bandwidth between 128 and 1536 (T1) or 1984 (E1) kbps in multiples of 64 kbps. H0, H11, H12, and N x DS0 calls are wideband.

wideband access endpoint

Access endpoints, extended with wideband switching to include wideband access endpoints. A wideband access endpoint consists of one or more contiguous DS0s on a line-side T1 or E1 facility and has an extension. The Administered Connections feature provides call control for calls originating from wideband access endpoints.

wink-start tie trunk

A trunk with which, after making a connection with a distant switching system for an outgoing call, the system waits for a momentary signal (wink) before sending the digits of the called number. Similarly, on an incoming call, the system sends the wink signal when ready to receive digits.

work mode

One of four states (Auto-In, Manual-In, ACW, AUX-Work) that an ACD agent can be in. Upon logging in, an agent enters AUX-Work mode. To become available to receive ACD calls, the agent enters Auto-In or Manual-In mode. To do work associated with a completed ACD call, an agent enters ACW mode.

work state

An ACD agent may be a member of up to three different splits. Each ACD agent continuously exhibits a work state for every split of which it is a member. Valid work states are Avail, Unstaffed, AUX-Work, ACW, ACD (answering an ACD call), ExtIn, ExtOut, and OtherSpl. An agent's work state for a particular split may change for a variety of reasons (example: when a call is answered or abandoned, or the agent changes work modes). The BCMS feature monitors work states and uses this information to provide BCMS reports.

write operation

The process of putting information onto a storage medium, such as a hard disk.

WSA

Waiting session accept

WSS

Wireless Subscriber System

Z

ZCS

Zero Code Suppression

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