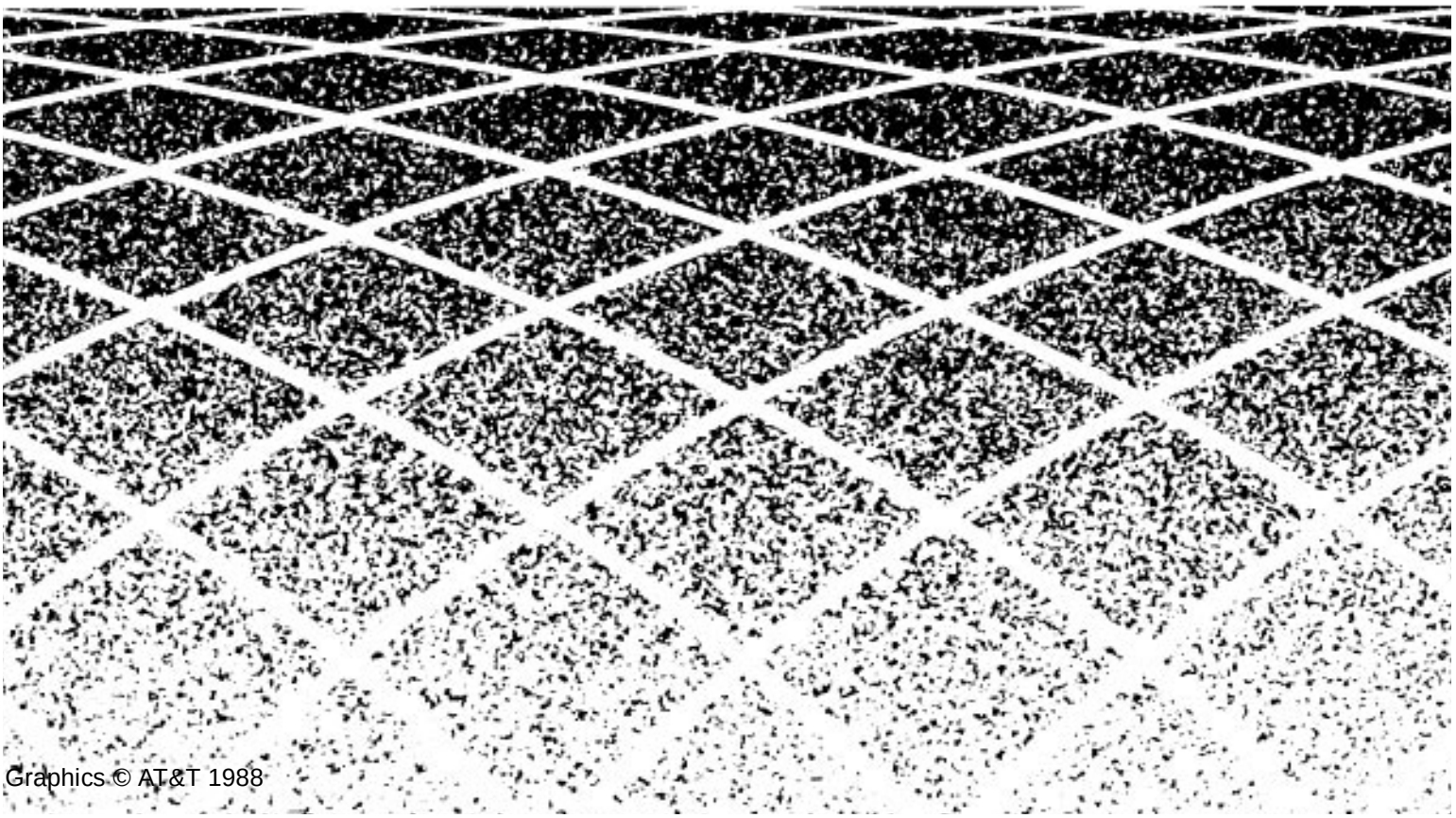
555-230-121
Issue 1
September

DEFINITY Enterprise Communications Server Release 5 Upgrades and Additions for R5r



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About This Document

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

This book is intended for use by a trained installation technician.

The following conventions are used to describe the systems referred to in this book:

- Older DEFINITY Communications Systems Generic 3vs, Generic 3s, Generic 3i, and Generic 3r are referred to as G3vs, G3s, G3i, and G3r
- DEFINITY Enterprise Communications Server is referred to as DEFINITY ECS
- DEFINITY ECS Release 5 is referred to as DEFINITY ECS R5
- Release 5 is sometimes referred to as R5
- Release 5r is sometimes referred to as R5r

Security Issues

CAUTION:

Login security is an attribute of the DEFINITY® Enterprise Communications Server Release 5 *software. Remember to:*

- *Advise customers that their existing passwords will expire 24 hours after the upgrade*
- *Explain that the new passwords must conform to strict requirements*

Upgrade Paths

For upgrades to the DEFINITY Enterprise Communications Server Release 5r, Table 1 correlates each software upgrade PEC, and an associated hardware upgrade PEC, to chapter numbers within this manual.

NOTE:
The upgrade paths described in this book assume that 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 the *DEFINITY Communications System Generic 3 Upgrades and Additions*.

Refer to Table 1 for the upgrade path and the associated chapter.

Table 1. Release 5 Software and Hardware Upgrade to Upgrade Chapters

Description	Chapter
G3r V2, V3, or V4 to DEFINITY ECS Release 5 Upgrades (hardware and software)	1
G3r V4 to DEFINITY ECS Release 5 Upgrades (software only)	2
DEFINITY ECS Release 5 with a TN790 Processor to a DEFINITY ECS Release 5r	3
Additions to DEFINITY ECS Release 5	4

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

Related Documents

As supplemental information, the following documents are useful for system-related information:

- *DEFINITY Enterprise Communications Server Release 5 Feature Description*, 555-230-301
- *DEFINITY Enterprise Communications Server Release 5 System Description and Specifications*, 555-230-210
- *DEFINITY Enterprise Communications Server Release 5 for R5vs/si Maintenance*, *Issue 9*, 555-204-105
- *DEFINITY Enterprise Communications Server Release 5 for R5r, Issue 5,* 555-230-105
- *AT&T Network and Data Connectivity Reference*, 555-025-201

- *GBCS 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 Implementation,* 555-230-302
- *DEFINITY Enterprise Communications Server Release 5 Upgrades and Additions for R5vs/si,* 555-230-120

Conventions Used in This Document

This manual 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: RETURN.
- Circuit-pack codes (for example, TN772, CFY1, or TN786B) are shown with the *minimum acceptable* alphabetic suffix (like the "B" in the code "'TN786B").

  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 DEFINITY ECS Release 5 system.

The following conventions are used to describe the systems referred to in this document.

- The word *system*, is a general term encompassing Release 5 and includes references to the DEFINITY Enterprise Communications Server
- DEFINITY Systems are called: G3V4, Release 5; Release 5vs; and Release 5si

- Older DEFINITY Communications Systems Generic 3vs, Generic 3s, Generic 3i, and Generic 3r are referred to as G3vs, G3s, G3i, and G3r
- All occurrences of G3siV4, G3siV4+m, Release 5si, and Release 5si +memory are called Release 5si unless a specific configuration is required to differentiate between product offerings
- Information in this document is applicable for G3V4 through Release 5, unless otherwise specified
- DEFINITY Enterprise Communications Server is abbreviated as DEFINITY ECS
- Release 5 is referred to as R5
- Release 5 is referred to as R5r
- DEFINITY ECS Release 5si is referred to as R5si
- DEFINITY ECS Release 5vs is referred to as R5vs

How to Order Documentation

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

This document and any other DEFINITY documentation 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 Document

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 document'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 Admin.)	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 & Caribeans - ITAC	1-303-538-4666

Trademarks

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

- ACCUNET®
- AUDIX®
- Callmaster™
- CallVisor™
- CONVERSANT®
- DEFINITY®
- FORUM™
- MEGACOM®
- SYSTIMAX®
- TELESEER®
- 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
- PORTA™ Systems is a trademark of PORTA Systems Corporation
- 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 document complies with the following (as appropriate):

- ITO-T (Formerly CCITT)
- ECMA
- ETSI
- IPNS
- DPNS
- National ISDN-1
- National ISDN-2
- ISO-9000
- ANSI
- FCC Part 15 and Part 68
- EN55022
- EN50081
- EN50082
- CISPR22
- Australia AS3548
- IEC950
- UL 1459
- UL1950
- CSA C222 Number 225

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

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 (EN55024, 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 document bearing the "CE" mark conforms to the European Union Electromagnetic Compatibility Directives.

The "CE" (Conformite/ Europe/enne) 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

Security Issues

CAUTION:

Login security is an attribute of the DEFINITY Enterprise Communications Server (ECS) Release 5 *software. Remember to:*

- *Advise customers that their existing passwords will expire 24 hours after the upgrade*
- *Explain that the new passwords must conform to strict requirements*

Administration

A terminal connected to the control carrier in a multi-carrier system or the control cabinet in a single-carrier system is used to administer the system. Commands are entered at the terminal to access and display screens (forms). The forms are used to list data, and to add, change, and remove system and voice terminal features. Screen 1 shows a typical administration form.

```
                                                                Page 1 of X
                                    STATION
Extension: 300_    BCC: _             TN: 1                        COR: 1
     Type: 8110_                Lock Messages? n                    COS: 1
     Port: _______________      Security Code: ____      Coverage Path 1: ____
     Name: ____________________________                  Coverage Path 2: ____


   STATION OPTIONS
               Data Module? ___            Personalized Ringing Pattern: ___
            Display Module? ___                      Message Lamp Ext: _____
          Display Language: __________
                                                     Coverage Module? ___
```

```
                                                                Page 2 of X
                                    STATION

   FEATURE OPTIONS
          LWC Reyeption? msa=spc       Auto Select Any Idle Appearance? _
        LWC Activation? y                      Coverage Msg Retrieval? y
           CDR Privacy? y                                Auto Answer? none
   Redirect Notification? y                        Data Restriction? n
 Per Button Ring Control? n                 Idle Appearance Preference? _
   Bridged Call Alerting? n
  Active Station Ringing: ______              Restrict Last Appearance? _
                                                        Feature Module? _


             AUDIX Name: ______
   Messaging Server Name: ______              Audible Message Waiting? _
                                                     Disp Client Redir? _
                                          Select Last Used Appearance? _
```

Screen 1. Typical Administration Form with Default Entries

System administration is detailed in the *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Comparisons Between Versions

Table 2 through Table 4 compare the system and cabinet versions.

Table 2. Comparing System Versions

System	Processor	PPN	Maximum EPNs	Direct- or CSS-Connected	Reliability Option
G3s/vsV1-V4	80386	1	0	Does Not Apply	Standard Only
G3i V2-V4	80386	1	2	Direct	Standard, High, or Critical
G3r	RISC	1	43	Direct or CSS	Standard, High, or Critical
G3siV4	80386	1	0	Direct	Standard, High, or Critical
G3siV4+m	80386	1	2	Direct	Standard, High, or Critical
R5vs	RISC	1	0	Does Not Apply	Standard Only
R5si	RISC	1	0	Direct	Standard, High, or Critical
R5si+m	RISC	1	2	Direct	Standard, High, or Critical
R5r	RISC	1	43	Direct or CSS	Standard, High, or Critical

Table 3. Comparing Carriers in Multi-Carrier Cabinets

Carrier	R5si	R5r
Control	PPN cabinet	PPN cabinet
Duplicated control	PPN cabinet	PPN cabinet
Port	PPN and EPN cabinets	PPN and EPN cabinets
Expansion control	EPN	EPN
Switch Node (SN)	None	PPN and EPN cabinets

Table 4. Comparing Carriers in Single-Carrier Cabinets

Cabinet	R5vs	R5si	R5si+m	R5r
Basic control	Does Not Apply	PPN	PPN	Does Not Apply
Duplicated control	Does Not Apply	Does Not Apply	PPN	Does Not Apply
Compact control	PPN	Does Not Apply	Does Not Apply	Does Not0 Apply
Port	Does Not Apply	PPN	PPN and EPN	EPN
Expansion control	Does Not Apply	Does Not Apply	EPN	EPN

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, 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.

G3r V2, V3, or V4 to DEFINITY ECS 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 Implementation*

— *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*

NOTE:
Find the correct chapter for your upgrade. Using the software- and sometimes the hardware-upgrade PEC on the customer's order, refer to Table 1-1 in "About This Document" for the correct chapter.

Installation Requirements

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

NOTE:
Release 5r systems require a third TN1650B Memory circuit pack in each PPN control carrier along with a Vintage 4 (or higher) TN1657 Disk Drive circuit pack.

Task Tables

Table 1-1 through Table 1-4 are provided for experienced technicians. These tables are high-level tasks to be used to perform the upgrades detailed in this chapter. Refer to the appropriate page for detailed instructions for each step.

Table 1-1. Tasks to Upgrade from G3r V3 Release 32.0 or Later, or G3r V4 to Release 5r with Memory Addition (Standard Reliability)

√	Task Description	Page
	Disable Scheduled Maintenance	8
	Insert Tape into Tape Drive	8
	List Configuration Software Long	8
	Disable TTI	8
	Disable Alarm Origination to INADS	9
	Save Translations to Release 5 Tape	9
	Copy Announcement to Release 5 Tape	9
	Change the Disk Drive (if not TN1657 Vintage 4 or Later)	10
	Restore Disk Full	10
	Power Down SPE	10
	Install Memory Circuit Pack	11
	Power Up the SPE	11
	List Configuration Control	11
	Enable TTI	12
	Enable Alarm Origination to INADS	12
	Set Vector e	12
	Save Translations	12
	Back Up Disk	13
	Enabled Scheduled Maintenance	13
	Register System as DEFINITY ECS Release 5	13

Table 1-2. Tasks to Upgrade from G3r V3 Release 32.0 or Later or G3r V4 with Memory Addition (High or Critical Reliability)

√	Task Description	Page
	Disable Scheduled Maintenance	14
	Insert Tapes into Tape Drives	14
	List Configuration Software Long	15
	Disable TTI	15
	Disable Alarm Origination to INADS	15
	Save Translations to Release 5 Tape (Both)	15
	Copy Announcement to Tape (Both)	15
	Change the Disk Drive(s) if not TN1657 Vintage 4 or Later	16
	Restore Disk Full (Both)	16
	Set Tone to Active SPE	17
	Lock to Active SPE	17
	Power Down Standby SPE	17
	Install Memory Circuit Pack	17
	Power Up Standby SPE	17
	Unlock Active SPE	18
	Status SPE (Wait for Handshake; Do Not Wait for Shadowing)	18
	Set Tone to Upgraded SPE	18
	Lock to Upgraded SPE	18
	Power Down Standby SPE	18
	Install Memory Circuit Pack	18
	Power Up Standby SPE	19
	Unlock Active SPE (NOTE: System Performs Reset System 3)	19
	List Configuration Control	19
	Enable TTI	20
	Enable Alarm Origination to INADS	20
	Set Vector f SPE-Maint	20
	Save Translations	21
	Back Up Disk	21
	Enabled Scheduled Maintenance	21
	Register System as DEFINITY ECS Release 5	21

Table 1-3. Tasks to Upgrade from G3r V2 or G3r V3 Release 31.0 or Earlier to Release 5r with Memory Addition (Standard Reliability)

√	Task Description	Page
	Disable Scheduled Maintenance	8
	Insert Tape into Tape Drive	8
	Configure Tape Large	8
	List Configuration Software Long	8
	Disable TTI	8
	Disable Alarm Origination to INADS	9
	Save Translations to Release 5 Tape	9
	Copy Announcement to Release 5 Tape	9
	Change the Disk Drive (if not TN1657 Vintage 4 or Later)	10
	Restore Disk Full	10
	Power Down SPE	10
	Install Memory Circuit Pack	11
	Power Up the SPE	11
	List Configuration Control	11
	Configure Tape 3 Mem	11
	Enable TTI	12
	Enable Alarm Origination to INADS	12
	Set Vector e	12
	Save Translations	12
	Back Up Disk	13
	Enabled Scheduled Maintenance	13
	Register System as DEFINITY ECS Release 5	13

Table 1-4. Tasks to Upgrade from G3r V2 or G3r V3 Release 31.0 or Earlier to Release 5r with Memory Addition (High or Critical Reliability)

√	Task Description	Page
	Disable Scheduled Maintenance	14
	Insert Tapes into Tape Drives	14
	Configure Tape SPE-A Large	14
	Configure Tape SPE-B Large	15
	List Configuration Software Long	15
	Disable TTI	15
	Disable Alarm Origination to INADS	15
	Save Translations to Release 5 Tape (Both)	15
	Copy Announcement to Release 5 Tape (Both)	15
	Change the Disk Drive(s) if not TN1657 Vintage 4 or Later	16
	Restore Disk Full (Both)	16
	Set Tone to Active SPE	17
	Lock to Active SPE	17
	Power Down Standby SPE	17
	Install Memory Circuit Pack	17
	Power Up Standby SPE	17
	Unlock Active SPE	18
	Status SPE (Wait for Handshake; Do Not Wait for Shadowing)	18
	Set Tone to Standby SPE	18
	Lock to Upgraded SPE	18
	Power Down Standby SPE	18
	Install Memory Circuit Pack	18
	Power Up Standby SPE	19
	Unlock Active SPE (NOTE: System Performs Reset System 3)	19
	List Configuration Control	19
	Configure Tape SPE-A 3-Mem	19
	Configure Tape SPE-B 3-Mem	20
	Restore Disk Full (Both)	20
	Enable TTI	20
	Enable Alarm Origination to INADS	20

Continued on next page

Table 1-4. Tasks to Upgrade from G3r V2 or G3r V3 Release 31.0 or Earlier to Release 5r with Memory Addition (High or Critical Reliability) — *Continued*

√	Task Description	Page
	Set Vector f SPE-Maint	20
	Save Translations	21
	Back Up Disk	21
	Enabled Scheduled Maintenance	21
	Register System as DEFINITY ECS Release 5	21

Service Interruption

The Release 5 upgrade requires a non-call preserving service interruption (about 15 to 20 minutes for a simplex system and about 5 minutes for a duplicated SPE). This must be coordinated 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 via 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.

Return Replaced Equipment

The equipment replaced during the upgrade to DEFINITY ECS Release 5 should be returned 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 1-5 lists the equipment needed for the standard reliability Release 5 upgrade.

Table 1-5. 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 1-6 lists the equipment needed for the high or critical reliability Release 5 upgrade.

Table 1-6. 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, acquired from the Technical Service Center. For an upgrade, shipped from the factory.

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.

Standard-Reliability System

The following Release 31.0 and earlier installation instructions are identical to Release 32.0 and later instructions except where noted in parenthesis "(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 RETURN. 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 one 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 (Release 31.0 or Earlier Only)

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

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 RETURN to verify the tape contains the required Release 5 software.

Disable TTI

Enter **`change system-parameters features`** and press RETURN. 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 RETURN.
2. Enter **n** in the *Alarm Origination Activated* field and press RETURN.
3. For earlier releases of software, disable *Cleared Alarm Notification* and *Restart Notification* before the form is submitted.

NOTE:
If Alarm Origination is not disabled before making changes, the system may generate alarms, resulting in unnecessary trouble tickets.

Save Translations to Release 5 Tape

1. Enter **`list configuration control`** and press RETURN. 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 RETURN. This command instructs the system to write all translation information from memory to the tape.

Copy Announcement to Release 5 Tape

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

   If administered recorded announcements are listed, enter **`list configuration software-version`**, and press RETURN. 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 RETURN.

   NOTE:
   If multiple TN750 Announcement circuit packs are in the system, you *must* 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 Multiple Integrated Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is optional for additional backup purposes.

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

1. Enter **busyout host-adaptor** and press RETURN to prevent other applications from trying to access the disk or tape.
2. Replace the existing TN1657 Disk Drive circuit pack in the control carrier with a TN1657 Vintage 4 or later.

   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.

3. Enter **reset host-adaptor** and press RETURN to allow the disk to "spin up."
4. Enter **release host-adaptor** and press RETURN to release the disk from the maintenance-busyout condition and to put it back into service.
5. Enter **status spe** and press RETURN to verify the disk is in service.
6. Enter **test disk long** and press RETURN 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

1. Enter **restore disk full** and press RETURN.

   This command instructs the control carrier to copy the entire tape to disk and takes about 30 minutes to execute. Release 5 system software with translations and announcements are now resident on the disk.

   NOTE:
   Until this command is finished, the system provides no user feedback on the management terminal. Be careful not to press RETURN 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.

2. Enter **test stored-data** and press RETURN 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.

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.

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 for the yellow LED on the UN331B Processor circuit pack to 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 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 Control

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

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

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

NOTE:
Until this command is finished, the system provides no user feedback on the management terminal. Be careful not to press RETURN 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.

3. Enter **`list configuration software-versions`** and press RETURN to 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 RETURN.

Use this form to change the *TTI Security Code* field back to its previous value before the upgrade.

Enable Alarm Origination to INADS

1. Enter **`change system-parameters maintenance`** and press RETURN.
2. Enter **y** in the *Alarm Origination Activated* field and press RETURN.

Set Vector e

Enter **`set vector e`** and press RETURN to set the core dump vector to perform a core dump on any system restart.

Save Translations

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

```
WARNING: Translation corruption detected; call Lucent
Technologies distributor immediately.
```

NOTE:
The **`save translation`** command will not function if the translation corruption message appears.

Determine if the system is operating normally and escalate to the appropriate organization as listed in “About This Document”.

If the new load must be backed out (returned to the previous software load), the backup tape can be used to go back to the old release. The third memory board in the control carrier must be removed and the system must be booted from tape. Perform a full restore of the disk after rebooting.

The Services engineer can override the error by entering **`enable save-translation and press`** RETURN. The new check takes effect upon any upgrade or reset 3 and higher-level activity.

Back Up Disk

1. Enter **backup disk** and press RETURN to backup all changed files.
2. Enter **test stored-data long** and press RETURN. 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 RETURN. Use this form to enable scheduled daily maintenance.

Register System as DEFINITY ECS Release 5

After performing the Release 5 upgrade, get the system's serial number, and call the INADS Database Administrator at the Technical Service Center to register the upgraded system as a DEFINITY ECS Release 5.

The INADS Database Administrator at the TSC also enables Alarm Origination as part of the registration process.

High or Critical Reliability System

The following Release 31.0 and earlier installation instructions are identical to Release 32.0 and later instructions except where noted in parenthesis "(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 RETURN. 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 one 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

1. Clean the tape drives with the tape drive cleaning kit.
2. Insert new Release 5 system tapes.

Configure Tape SPE-A Large (Release 31.0 or Earlier Only)

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

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

Configure Tape SPE-B Large (Release 31.0 or Earlier Only)

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

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 RETURN to verify the tape contains the required Release 5 software.

Disable TTI

Enter **`change system-parameters features`** and press RETURN. 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 RETURN.
2. Enter **n** in the *Alarm Origination Activated* field and press RETURN.

NOTE:
If Alarm Origination is not disabled before making changes, the system may generate alarms, resulting in unnecessary trouble tickets.

NOTE:
For earlier releases of software, you also need to disable *Cleared Alarm Notification* and *Restart Notification* before the form can be submitted successfully.

Save Translations to Release 5 Tape (Both)

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

Copy Announcement to Release 5 Tape (Both)

1. If the PPN contains a TN750/B Announcement circuit pack, enter **`display announcements`** and press RETURN.
2. If administered recorded announcements are listed, enter **`list configuration software-version`**, and press RETURN. Check Page 2 of the form to see when the announcements were last saved. Save the current announcements using the following command:

   `copy announce spe-a tape` and press RETURN, and **`copy announce spe-b tape`** and press RETURN.

   NOTE:
   If multiple TN750 Announcement circuit packs are in the system, you *must* 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 Multiple Integrated Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is optional.

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

1. Enter **busyout host-adaptor** [**a** | **b**] for the standby carrier and press RETURN 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 RETURN to allow the disk to "spin up."
4. Enter **release host-adaptor spe** [**a** | **b**] for the standby carrier and press RETURN to release the disk from the maintenance-busyout condition and put it back into service.
5. Enter **status spe** and press RETURN to verify the disk is now in service.
6. Enter **test disk long** [**a** | **b**] for the standby disk and press RETURN 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 RETURN. This command instructs the control carrier to copy the entire tape to disk. This command takes about 30 minutes to execute.

   NOTE:
   Until this command is finished, the system provides no user feedback on the management terminal. Be careful not to press RETURN 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.

2. If active TN1657 Disk Drive circuit pack is Vintage 3 or less, enter **reset system interchange** and press RETURN, and repeat steps for new standby disk drive.

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

Set Tone to Active SPE

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

Lock to Active SPE

1. Enter **`status spe`** and press RETURN to determine which SPE is active and which is standby.
2. Lock the active SPE on line one SPE-SELECT switch at a time. Do this by moving the switch on each UN330B Duplication Interface circuit pack (first in the *active* control carrier, then in the *standby*) 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 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 standby control carrier.
2. Install a new TN1650B Memory circuit pack into the “MEMORY 3” slot of the standby control carrier.

WARNING:
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.

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 for the yellow LED on the UN331B Processor circuit pack to 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. Do this by moving each switch (first in the *standby* control carrier, then in the *active* control carrier) to the AUTO position.

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

Enter **`status spe`** and press RETURN 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 RETURN.
2. Enter **`set tone SPE-a or SPE-b`**, if needed.

Lock to Upgraded SPE

1. Enter **`status spe`** and press RETURN to determine which SPE is active and which is standby.
2. Lock the standby SPE on line one SPE-select switch at a time. Do this by moving the switch on each UN330B Duplication Interface circuit pack (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 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 standby control carrier.
2. Install a new TN1650B Memory circuit pack into the "MEMORY 3" slot of the standby control carrier.

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 for the yellow LED on the UN331B Processor circuit pack to 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. Do this by moving each switch (first in the *standby* control carrier, then in the *active* control carrier) to the AUTO position.
2. Enter status SPE and press RETURN until you have verified both SPEs are in a fully functional state.

List Configuration Control

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

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

1. Enter **`configure tape spe-a 3-mem`** and press RETURN. This command instructs the system to reconfigure the tape for a third TN1650B memory board. This commands takes about 1 minute to execute.
2. Enter **`list configuration software-versions`** and press RETURN to verify the entry *3 mem* resides in the *file system* field on Page 2 of the form.

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

1. Enter **`configure tape spe-b 3-mem`** and press RETURN for carrier B. This command instructs the system to reconfigure the tape for a third TN1650B memory board. This commands takes about 1 minute to execute.
2. Enter **`list configuration software-versions`** and press RETURN to verify the entry *3 mem* resides in the *file system* field on Page 2 of the form.

Restore Disk Full (Both) (Release 31.0 and Earlier Only)

1. Enter **`restore disk full both`** and press RETURN.

   This command instructs the control carrier to copy the entire tape to disk. This command takes about 30 minutes to execute. Release 5 system software with translations and announcements is now resident on the disk.

   NOTE:
   Until this command is finished, the system provides no user feedback on the management terminal. Be careful not to press RETURN 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.

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

Enable TTI

Enter **`change system-parameters features`** and press RETURN.

Use this form to change the TTI field back to its previous value before the upgrade.

Enable Alarm Origination to INADS

1. Enter **`change system-parameters maintenance`** and press RETURN.
2. Enter **`y`** in the *Alarm Origination Activated* field and press RETURN.

Set Vector f SPE-Maint

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

Save 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 RETURN. This instructs the system to backup the current information on disk to the spare Release 5 tape.
3. This command takes 20 to 30 minutes to execute. The system provides no feedback on the management terminal. Do not press RETURN during this time. Doing so causes the terminal screen to clear as the command finishes, erasing any success/failure messages the system may provide.

Back Up Disk

1. Enter **`backup disk`** and press RETURN to backup all changed files.
2. Enter **`test stored-data long`** and press RETURN. 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 RETURN. Use this form to enable scheduled daily maintenance.

Register System as DEFINITY ECS Release 5

After performing the Release 5 upgrade, get the system's serial number, and call the INADS Database Administrator at the Technical Service Center to register the upgraded system as a DEFINITY ECS Release 5.

The INADS Database Administrator at the TSC also enables Alarm Origination as part of the registration process.

G3r V4 to DEFINITY ECS Release 5 without Memory Addition

2

This chapter provides the information necessary to perform a software 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. Also refer to the following documents:

— *DEFINITY Enterprise Communications Server Release 5 Implementation*

— *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*

Find the correct chapter for your upgrade. Using the software- and sometimes the hardware-upgrade PEC on the customer's order, refer to Table 1-1 in "About This Document" for the correct chapter.

NOTE:
The upgrade procedure in this chapter assumes the TN1657 Disk Drive (Vintage 4 or higher) and the TN1650B Memory circuit packs are installed in each control carrier. To upgrade these circuit packs, use the procedures in Chapter 1, "G3r V2, V3, or V4 to DEFINITY ECS Release 5r with Memory Addition", for the upgrade to Release 5r. This chapter provides software-only upgrade information.

If the upgrade involves adding a new cabinet, refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

Task Tables

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

√	Task Description	Page
	Disable Scheduled Maintenance	6
	Insert Tape into Tape Drive	6
	List Configuration Software Long	6
	Disable TTI	6
	Disable Alarm Origination to INADS	7
	Save Translations to Release 5 Tape	7
	Copy Announcement Tape	7
	Restore Disk Full	8
	Enable TTI	8
	Enable Alarm Origination to INADS	8
	Set Vector e	8
	Save Translations to Release 5 Tape	9
	Back Up Translations/Announcements to Spare Release 5 Tape	9
	Enable Scheduled Maintenance	9

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

√	Task Description	Page
	Disable Scheduled Maintenance	10
	Insert Tapes into Tape Drives	10
	List Configuration Software Long	10
	Disable TTI	10
	Disable Alarm Origination to INADS	10
	Save Translations to Release 5 Tape (Both)	11
	Copy Announcement to Tape (Both)	11
	Restore Disk Full (Both)	12
	Enable TTI	12
	Enable Alarm Origination to INADS	12
	Set Vector f SPE-Maint	12
	Save Translations to Release 5 Tape	13
	Back Up Translations/Announcements to Spare Release 5 Tape	13
	Enable Scheduled Maintenance	14

Considerations

Service Interruption

The upgrade process requires a non-call preserving service interruption which occurs during a reboot with the R5 tapes. This service interruption (of about 15 to 20 minutes for a simplex system and about 5 minutes for a duplex system) must be closely coordinated with the customer and the local account team.

Changes to Run-Tape Compatible Update or Upgrade Procedures

The steps presented for a Release 5 upgrade in the "System Upgrades" section of this chapter are subject to change. Although these steps are accurate for the Release 5 tape issue available at the manual'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 via 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 V2, V3, or 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.

Since the Release 5 uses the same format and tape drive as the last three versions of the system, updating or upgrading the software to Release 5 is a simple task.

The instructions on how and when to perform the above operations are included in the appropriate sections of this chapter.

Between customer confirmation and the actual installation of an update or upgrade, the Software Specialist and Associate should check these forms to ensure the translations are appropriate for the customer's needs. After the system is rebooted, these translations can be entered 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 Communications System Generic 3 V2 to DEFINITY Enterprise Communications Server Release 5 Transition Reference*
- *DEFINITY Enterprise Communications Server Release 5 Implementation*

Required Hardware

Table 2-3 lists the equipment needed for the Release 5 upgrade.

Table 2-3. Required Hardware

Equipment	Description	Quantity
J58890TF L9	DEFINITY ECS Release 5 Tape	2[1]

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

Register System as DEFINITY ECS Release 5

After performing the DEFINITY ECS Release 5 upgrade, get the system's serial number, and call the INADS Database Administrator at the Technical Service Center to register the upgraded system as a DEFINITY ECS Release 5.

The INADS Database Administrator at the TSC also enables Alarm Origination as part of the registration process.

Standard-Reliability System

The following Release 31.0 and earlier installation instructions are identical to Release 32.0 and later instructions except where noted in parenthesis "(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.

A standard-reliability G3r V2, V3, or V4 is upgraded to a standard-reliability Release 5r by installing the Release 5 tape, downloading the existing translations onto it, copying the tape's translations to disk, and rebooting from disk.

Disable Scheduled Maintenance

Enter **`change system-parameters maintenance`**, and press RETURN. 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 one 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

1. Clean the tape drive with the tape drive cleaning kit.
2. Insert new Release 5 system tape.

List Configuration Software Long

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

Disable TTI

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

Disable Alarm Origination to INADS

1. Enter **`change system-parameters maintenance`** and press RETURN.
2. Enter **n** in the *Alarm Origination Activated* field and press RETURN.

NOTE:
If Alarm Origination is not disabled before making changes, the system may generate alarms, resulting in unnecessary trouble tickets.

NOTE:
For earlier releases of software, you need to disable *Cleared Alarm Notification* and *Restart Notification* before the form can be submitted.

Save Translations to Release 5 Tape

1. Enter **`list configuration control`** and press RETURN to verify the system contains three TN1650B Memory circuit packs and a TN1657 Disk Drive Vintage 4 (or later).

   If the system does not have hardware, use Chapter 1, "G3r V2, V3, or V4 to DEFINITY ECS Release 5r with Memory Addition" for the upgrade process.
2. Enter **`save translation tape`** and press RETURN. This command instructs the system to write all translation information from memory to the disk.

Copy Announcement to Release 5 Tape

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

   If administered recorded announcements are listed, enter **`list configuration software-version`**, and press RETURN. 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 RETURN.

   NOTE:
   If multiple TN750 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 Multiple Integrated Announcement circuit pack stores announcements in non-volatile memory; saving the announcements (on the TN750C only) is optional for additional backup purposes.

Restore Disk Full

1. Enter **restore disk full** and press RETURN.

   This command instructs the system to copy the entire tape to disk and takes about 30 minutes to execute. Release 5 system software with translations and announcements are now resident on the disk.

   NOTE:
   Until this command is finished, the system provides no user feedback on the management terminal. Be careful not to press RETURN 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.

2. Enter **upgrade software** (entire alphanumeric string of target software version) and press RETURN.

   This process takes about 15 minutes to execute. For an upgrade to a standard-reliability Release 5, the **upgrade software** command is *not* call preserving.

3. Log in as "craft" at the login: prompt.

Enable TTI

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

Enable Alarm Origination to INADS

1. Enter **change system-parameters maintenance** and press RETURN.
2. Enter **y** in the *Alarm Origination Activated* field and press RETURN.

Set Vector e

Enter **set vector e** and press RETURN to set the core dump vector to perform a core dump on any system restart.

Save Translations to Release 5 Tape

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

```
WARNING: Translation corruption detected; call Lucent
Technologies distributor immediately.
```

NOTE:
The **save translation** command will not function if the translation corruption message appears.

Determine if the system is operating normally and escalate to the appropriate organization as listed in “About This Document”.

If the new load must be backed out (returned to the previous software load), the backup tape can be used to go back to the old release. The third memory board in the control carrier must be removed and the system must be booted from tape. Perform a full restore of the disk after rebooting.

The Services engineer can override the error by entering **enable save-translation and press** RETURN. The new check takes effect upon any upgrade or reset 3 and higher-level activity.

Back Up Disk

1. Enter **backup disk** and press RETURN to backup all changed files.
2. Enter **test stored-data long** and press RETURN. 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 RETURN. Use this form to enable scheduled daily maintenance.

High or Critical Reliability Systems

A high or critical reliability G3r V4 is upgraded to a high or critical reliability Release 5 by installing the Release 5 tapes, downloading the existing translations, copying the translations to disks, and rebooting from the disks.

Disable Scheduled Maintenance

Enter **`change system-parameters maintenance`**, and press RETURN. 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 one 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

1. Clean the tape drives with the tape drive cleaning kit.
2. Insert new Release 5 system tapes.

List Configuration Software Long

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

Disable TTI

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

Disable Alarm Origination to INADS

1. Enter **change system-parameters maintenance** and press RETURN.
2. Enter **n** in the *Alarm Origination Activated* field and press RETURN.

NOTE:
If Alarm Origination is not disabled before making changes, the system may generate alarms, resulting in unnecessary trouble tickets.

NOTE:
For earlier releases of software, you also need to disable *Cleared Alarm Notification* and *Restart Notification* before the form can be submitted.

Save Translations to Release 5 Tape (Both)

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

Copy Announcement to Release 5 Tape (Both)

1. If the PPN contains a TN750/B Announcement circuit pack, enter **display announcements** and press RETURN.
2. If administered recorded announcements are listed, enter **list configuration software-version**, and press RETURN. Check Page 2 of this form to see when the announcements were last saved. Save the current announcements using the following command:

   copy announce spe-a tape and press RETURN, and **copy announce spe-b tape** and press RETURN.

   NOTE:
   If multiple TN750 Announcement circuit packs are in the system, you *must* 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 Multiple Integrated 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 RETURN. For both SPEs, this command instructs the system to copy the entire tape to disk. This command takes about 30 minutes to execute.

   NOTE:
   Until this command is finished, the system provides no user feedback on the management terminal screen. Be careful not to press RETURN 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.

2. Enter **`upgrade software`** `(entire alphanumeric string of target software version)` **`no-calls`** and press RETURN. This process takes about 15 minutes to execute.

   CAUTION:
   For a software-only upgrade to a Release 5 high- or critical-reliability system 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 will result in system restart problems.***

3. Log in as "craft" at the `login:` prompt.

Enable TTI

Enter **`change system-parameters features`** and press RETURN.

Use this form to change the *TTI Security Code* field back to its previous value before the upgrade.

Enable Alarm Origination to INADS

1. Enter **`change system-parameters maintenance`** and press RETURN.
2. Enter **`y`** in the *Alarm Origination Activated* field and press RETURN.

Set Vector f SPE-Maint

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

Save Translations to Release 5 Tape

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

```
WARNING: Translation corruption detected; call Lucent
Technologies distributor immediately.
```

NOTE:
The **save translation** command will not function if the translation corruption message appears.

Determine if the system is operating normally and escalate to the appropriate organization as listed in “About This Document”.

If the new load must be backed out (returned to the previous software load), the backup tape can be used to go back to the old release. The third memory board in the control carrier must be removed and the system must be booted from tape. Perform a full restore of the disk after rebooting.

The Services engineer can override the error by entering **enable save-translation and press** RETURN. The new check takes effect upon any upgrade or reset 3 and higher-level activity.

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 RETURN. 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 is finished, the system provides no user feedback on the management terminal. Be careful not to press RETURN 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.

3. Enter **test stored-data long** and press RETURN. This command 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 RETURN. Use this form to enable scheduled daily maintenance.

G3si TN790 to DEFINITY ECS R5r

3

This chapter provides the information necessary to upgrade a DEFINITY ECS Release 5si System to a DEFINITY ECS Release 5r System. The hardware and software involved in the upgrade procedures are also provided.

CAUTION:
Be careful to find the right chapter for your upgrade. Using the software- and sometimes the hardware-upgrade PEC on the customer's order, refer to Table 1-1 *in "About This Document" for the correct chapter.*

DEFINITY ECS Release 5 features and functions are listed in the *DEFINITY Communications System Generic 3 Feature Description*. *DEFINITY Communication System Generic 3 Release 5 Implementation*, provides the commands, procedures, and forms required to initialize and administer the DEFINITY ECS Release 5.

Task Tables

The following tables 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 3-1. Tasks to Upgrade from G3si with a TN790 Processor to DEFINITY ECS Release 5r System

✓	Task Description	Page
	Folow Routine Preventive Maintenance	16
	Verify System Status	16
	Label Cables	16
	Shut Down DEFINITY LAN Gateway System	16
	Shut Down DEFINITY AUDIX System	17
	Power Down System	17
	Disconnect Power and Grounding	17
	Install Power-Failure Transfer Ground Strap	18
	Remove Door and Panels and Disconnect Cables	18
	Remove Circuit Packs	18
	Disconnect TDM/LAN Cables and ICC Cables	19
	Remove the Existing Control Cabinet	19
	Unpack and Inspect Expansion Control Cabinet for Damage	19
	Remove Front Door	20
	Install Expansion Control Cabinet	21
	Add Earthquake Protection	21
	Install Port Cabinets	22
	Install Circuit Packs	23
	Change Cabinet Address Plugs	25
	Install TDM/LAN Bus Terminators	26
	Connect TDM/LAN Cables and ICC Cables	27
	Interconnect Port Networks with Fiber-Optic Cabling — Standard-Reliability DEFINITY ECS R5r System	31
	Interconnect Port Networks with Fiber-Optic Cabling — High-Reliability DEFINITY ECS R5r System	39
	Interconnect Port Networks with Fiber Cabling — Critical-Reliability DEFINITY ECS R5r System	49
	Install Ground Plate(s)	66

Continued on next page

Table 3-1. Tasks to Upgrade from G3si with a TN790 Processor to DEFINITY ECS Release 5r System — *Continued*

✓	Task Description	Page
	Install Cabinet Clip(s)	67
	Connect Power and Grounding	68
	Verify Usable Circuit-Pack Vintages	68
	Install System Access Ports	68
	Reseat DEFINITY LAN Gateway System	72
	Reseat DEFINITY AUDIX System	72
	Remove Power-Failure Ground Strap	73
	Reseat DEFINITY LAN Gateway System	73
	Reboot the System	73
	Restart DEFINITY LAN Gateway System	74
	Relabel Wall Field	74
	Close Upgraded EPN Stack without Earthquake Protection and Reconnect Cables	74
	Close Upgraded EPN Stack with Earthquake Mounting and Reconnect Cables	75
	Install Cable Clamps	76
	Power Up the EPN Cabinets	77
	Retranslate Port Circuits	77
	Rerecord Announcements	78
	Run Acceptance Tests	78
	Resolve Alarms	78
	Register System as DEFINITY ECS R5r	78
	Return Replaced DEFINITY G3si Equipment	78

Considerations

Service Interruption

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

Communication betweem 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 DEFINITY ECS Release 5 *does not* cause port circuit packs from the DEFINITY G3si control cabinet to be moved and manually retranslated. This is because a DEFINITY G3si PPN is always upgraded to an EPN. So, during the PPN upgrade to a DEFINITY ECS Release 5r EPN, a DEFINITY ECS Release 5r expansion control cabinet (with 14 to 16 available port slots) always replaces the DEFINITY G3si control cabinet (with 10 available port slots), providing a net gain of from 4 to 6 port slots.

See NOTE. If a port circuit pack does reside in slot “01’’ of control cabinet “A,’’ the STS software upgrade will retranslate this circuit pack to reside in an empty port slot in the new expansion control cabinet.

For an upgrade to a critical-reliability DEFINITY ECS Release 5r, if a port circuit pack resides in slot “02’’ of port cabinet “B,’’ the STS software upgrade will retranslate 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 of the R1V3 system, the STS software upgrade will relocate this circuit pack to occupy another empty port slot in the new expansion control cabinet.

Also, to ensure reliable DS1 timing in the upgraded DEFINITY ECS Release 5r system, the STS software upgrade will relocate the DS1 circuit packs serving as

the primary and secondary timing sources to occupy two empty port slots in the new multicarrier PPN.

Finally, when adjuncts are connected to an upgraded DEFINITY ECS Release 5r, STS will locate 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 provided with the new DEFINITY ECS R5r tape.

Usable Circuit Packs

Every circuit pack used in the upgraded DEFINITY ECS R5r system must conform to the minimum usable vintage requirements for DEFINITY ECS R5r. Those circuit packs shipped in the new DEFINITY ECS R5r 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 DEFINITY G3si circuit pack that will be reused in the upgraded DEFINITY ECS R5r 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 DEFINITY ECS R5r system.

Site Inspections

For the purposes of a DEFINITY ECS R5r upgrade, most G1 and G3si systems are already equipped with the correct lightwave transceivers. However, some G1 and G3si 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 (that is, 4A through 4F). These transceivers supported fiber connections up to 7,000 feet apart; whereas the 9823-A supports connections up to 5,000 feet, and the 9823-B supports connections up to 25,000 feet. If the site inspection reveals that the older transceivers reside in the system, the correct transceivers are ordered and shipped according to a separate PEC.

Power and Grounding

The new multicarrier 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 (see Figure 3-1).

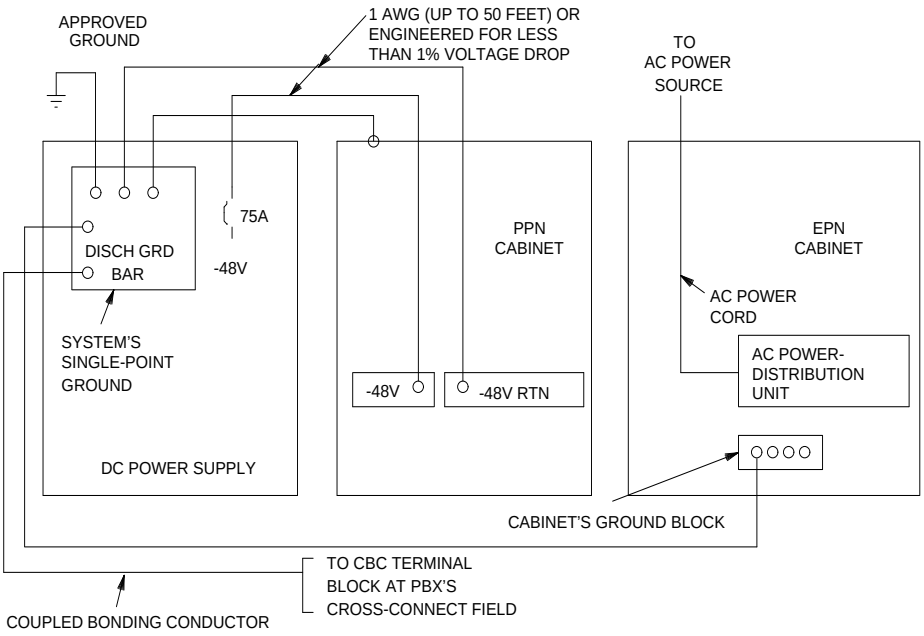


Figure 3-1. Typical Power and Grounding Arrangement for a Mixed AC/DC-Powered Configuration

If a new AC-powered cabinet is to be added, a separate AC receptacle is provided 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 cross-connect field.

NOTE:
In contrast to the AC power that is likely to be currently available in a DEFINITY G3si equipment room, the new AC-powered PPN added for a DEFINITY ECS R5r upgrade uses 4-wire, 30-A, 208-V, AC power. Whereas, each cabinet in a DEFINITY G3si stack used 3-wire, 15- or 20-A, 115-V power.

If a new DC-powered cabinet is to be added, refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, for DC power and grounding requirements.

116A Isolator

Each G3-MT connected to a DC-powered cabinet, via the asynchronous Electronic Industries Association (EIA) RS-232 interface (behind a PPN control carrier or behind an EPN expansion control carrier), requires a 116A isolator. The isolator is inserted at the RS-232 interface between the G3-MT and the interface connector to isolate grounding between the system and external adjuncts.

Power-Failure Stations

During routine switch operation, the ground for the power-failure stations is derived from the system's auxiliary cable. This ground will be disconnected during the upgrade, thus disabling the power-failure stations. Therefore, a ground strap will have to be run to the power-failure transfer panel. This strap should be connected shortly after power is removed and then disconnected just before power is restored to the upgraded system.

To minimize downtime during the DEFINITY ECS R5r upgrade, power-failure transfer equipment should be tested and, if need be, repaired before the hardware upgrade begins.

System Upgrades

There are many configurations of DEFINITY G3si in the field. Each system can have a unique configuration. To simplify DEFINITY ECS R5r upgrades, the existing PPN is always upgraded to an EPN, and an existing EPN is always upgraded to an EPN. A new multicarrier cabinet would always serve as the PPN.

Upgrading a DEFINITY G3si EPN to a DEFINITY ECS R5r EPN requires changing, and often restructuring, the expansion interface circuit packs. If a DEFINITY G3si PPN is upgraded to a DEFINITY ECS R5r EPN, hardware changes (including carrier replacement) are required.

Software

The DEFINITY ECS Release 5r software and translations will be saved on the TN1656 Tape Drive circuit pack. This tape format is not compatible with the format of the DEFINITY G3si TN774 Tape Drive circuit pack.

The translations in the DEFINITY G3si system must be copied to a spare tape and sent to Software Technical Support (STS) to be converted and written to a DEFINITY ECS R5r tape. This process takes two weeks. The DEFINITY ECS R5r tapes (including one with translations) must be on-site before the upgrade can begin. For each G1 or DEFINITY ECS R5r processor, two tapes (one system tape and one backup tape) must always be retained on site with the DEFINITY G3si 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 IR1Release 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.”

Table 3-2 contains a list of implementation forms that are either new or changed for DEFINITY ECS Release 5r.

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

ISDN Gateway

When a system is upgraded from a previous system to a DEFINITY ECS R5r, the ISDN Gateway (if installed) must be upgraded 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.

Table 3-2. Changed/New Administration Forms for DEFINITY ECS Release 5r — from G1

From G1	To DEFINITY ECS R5r
ARS fnpa	ARS Digit Analysis
ARS hnpa	ARS Digit Analysis
Allowed Call List	Toll Analysis
Code Restriction fnpa	Toll Analysis
Code Restriction hnpa	Toll Analysis
Interexchange Carrier	Interexchange Carrier
Permanent Switched Calls	Administered Connections
RNX Table	AAR Digit Analysis
Ten-Seven Digit Conversion	ARS/AAR Digit Conversion
None[1]	Alias Station
None	Alphanumeric Dialing
None	Call Vector
None	Signaling Group
None	Access Endpoints
None	Vector Directory Number

1. "None" represents a new form for DEFINITY ECS Release 5r.

Table 3-3. Changed/New Administration Forms for DEFINITY ECS Release 5r — from G3i

From G3i	To DEFINITY ECS R5r
ARS Digit Analysis	ARS Digit Analysis
Toll Analysis	Toll Analysis
Interexchange Carrier	Interexchange Carrier
Administered Connections	Administered Connections
AAR Digit Analysis	AAR Digit Analysis
ARS/AAR Digit Conversion	ARS/AAR Digit Conversion

Software-Translation Upgrade

The DEFINITY ECS R5r software and translations will be saved on the TN1656 Tape Drive circuit pack. This tape format is not compatible with the format of the DEFINITY G3si TN774 Tape Drive circuit pack.

During an upgrade from a DEFINITY G3si to a DEFINITY ECS R5r, STS must convert the DEFINITY G3si translations and write them to a DEFINITY ECS R5r tape. To enable this tape conversion, replace the system tape with a spare DEFINITY G3si tape. (Spare tape cartridges can be acquired from the QPPCN before the upgrade.) Then, copy the current DEFINITY G3si translations to the spare tape, and overnight mail this tape to STS. Also, 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 that 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 DEFINITY ECS R5r tapes after the upgrade.

The new DEFINITY ECS R5r tapes (one with the converted translations, two if duplicated and the rest blank) must be on-site before the upgrade begins.

Since a new DEFINITY ECS R5r PPN will be installed during the upgrade, STS tape conversion must change the port-network number of the DEFINITY G3si PPN that will be converted to a DEFINITY ECS R5r 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 will assign the next port-network number (after the highest-numbered port network in the system) to the DEFINITY G3si PPN that will become a DEFINITY ECS R5r EPN. For example, if a DEFINITY G3si system with two port networks (a PPN and an EPN) were upgraded to a DEFINITY ECS R5r, the tape-conversion software would assign port network "1" to the new PPN and port network "3" to the additional EPN derived from the old DEFINITY G3si PPN.

Save Translations and Announcements

1. Log in at the G3-MT or G3-MA terminal on the DEFINITY G3si.
2. If the system is duplex, enter **`status system`** and press RETURN to verify that the system is in the "active/standby" mode.
3. Enter **`save translation`**. Press RETURN. 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 RETURN.

If administered recorded announcements are listed, enter **`list configuration software-version`**, press RETURN. Check Page 2 of this form to find out when the announcements were last saved, and ask the customer whether any announcements have changed since then.

If so, the current announcements can be saved using the save announcements command. Enter **`save announcements`** and press RETURN.

5. Remove the system tape(s), install the backup tape(s), and wait for the tape(s) to retension.
6. If the system is duplex, enter **`status system`** and press RETURN to verify that the system is in the ''active/standby'' mode.
7. Enter **`save translation`**. Press RETURN.
8. Enter **`save announcements`** if appropriate. Press RETURN.

Make Source Tape and Mail to STS for Upgrade

A spare DEFINITY G3si 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 DEFINITY G3si system. Do not send a system or backup tape to STS.

After performing the previous procedures, copy the DEFINITY G3si translations to the spare tape that will be used to make the DEFINITY ECS R5r tapes. Perform the following procedures:

1. Remove the backup tape, install the spare tape, and wait for the tape to retension.
2. See NOTE. Enter **`save translation`**. Press RETURN. This command instructs the system to write all translation information from memory to the tape.

   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.
4. Insert the system tape.

Mail the tape removed in Step 3 to STS (with next-day delivery) for use in making the DEFINITY ECS R5r tapes.

DEFINITY G3si to DEFINITY ECS R5r

See NOTE. Refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, to install the new PPN cabinet.

NOTE:
During the wall-field wiring of the PPN installation, the wall field can also be relabeled with the new port-network number of the DEFINITY G3si PPN to be upgraded. (The STS software upgrade assigned the next port-network number, after the highest-numbered port network in the DEFINITY G3si system, to the upgraded DEFINITY ECS R5r EPN.)

If a second or third EPN is being added, refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets,* to install the new EPN.

Upgrade Single-Carrier Cabinet Stack

The existing PPN cabinet stack is always upgraded to an EPN. An existing EPN cabinet stack is also always upgraded to an EPN. Upgrade the port networks using the following procedures.

DEFINITY G3si PPN to DEFINITY ECS R5r EPN

You can upgrade a DEFINITY G3si PPN to a DEFINITY ECS R5r EPN by performing the following steps, as described in this chapter:

- Remove the control cabinet in position ‘‘A’’
- Remove the duplicate control cabinet in position ‘‘B’’ if required
- Install the J58890N expansion control cabinet in position ‘‘A’’
- Replace the duplicate control cabinet with a J58890H-1 port cabinet in position ‘‘B’’ (if desired) or change the port cabinets’ address plugs
- Install new R5r PPN (MCC)
- Add the DEFINITY ECS R5r circuit packs
- Restructure the port circuits as required
- Add DEFINITY ECS R5r circuit packs to the ‘‘B’’ port cabinet for critical reliability if required

Upgrading a DEFINITY G3si single-carrier cabinet PPN requires, at a minimum, that the control cabinet in the ‘‘A’’ position be replaced. Since the control cabinet is the bottom cabinet in the port network, the PPN will have to be completely dismantled. Properly label every cable to be disconnected so that reconnecting them is easier.

DEFINITY G3si EPN to DEFINITY ECS R5r EPN

You can upgrade a DEFINITY G3si EPN (either multicarrier or single-carrer) to a DEFINITY ECS R5r EPN by performing the following steps, as described in this chapter:

- Unduplicated DEFINITY G3si EPN to a standard-reliability DEFINITY ECS R5r EPN
  - — Replace the TN776 expansion interface circuit pack (in slot 2A01) with the DEFINITY ECS R5r TN570 expansion interface (may already have TN570)
- Duplicated DEFINITY G3si EPN to a high-reliability DEFINITY ECS R5r EPN
  - — Remove the TN776 expansion interface circuit packs (from slots 2A01 and 2B01)
  - — Install the DEFINITY ECS R5r TN570 expansion interface circuit packs (in slots 2A01 and 2A02) (may already have TN570)
  - — Restructure the port circuits as required
- Duplicated DEFINITY G3si EPN to a critical-reliability DEFINITY ECS R5r EPN
  - — Remove the TN776 expansion interface circuit packs (from slots 2A01 and 2B01)
  - — Install the DEFINITY ECS R5r TN570 expansion interface circuit packs (in slots 2A01, 2A02, 2B01, and 2B02) (may already have TN570)
  - — Restructure the port circuits as required

Prerequisite Hardware

The equipment in Table 3-4 *must* be on-site before the upgrade begins. Ensure that the tapes are DEFINITY ECS R5r tapes.

Table 3-4. 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	w/o CSS: 2, 4, 6, or 12[1] w/CSS: 1 or 2 per port network
103281812	TN573B Switched Node Interface	w/CSS: 1 or 2 per port network
63300	Fiber Optic Cable	1 to 12[2]
106455348 or 106455363	9823-A Lightwave Transceiver 9823-B Lightwave Transceiver	2 to 12[3+4] 2 to 12[5+6]
J58890TF L9	DEFINITY ECS R5 Tape Cartridge	2 or 4[7]
106689516	TN771D Maintenance Test	1 or 2[8]
846307817	Lower Rear Cover	1[9]
846307809	Ground Plate	1
H600-248 G1	ICC Cables	2 [10]
846408268	Earthquake Front Panel	1[11]
846408386	Earthquake Ground Plate	1[12]
846408250	Stiffener	1[13]
846408243	Earthquake Front Mounting Angle	1[14]

1. Depending on the reliability type and on the number of DEFINITY ECS R5r port networks. Two TN570s are required for a standard- or high-reliability switch with two port networks; six with three port networks. Four are required for a critical-reliability system with two port networks; twelve with three port networks. The factory has installed the necessary TN570s in the new PPN. The rest are shipped loose with the EPN equipment.
2. Depending on the reliability type and on the number of DEFINITY ECS R5r port networks. Two transceivers are required for a standard- or high-reliability switch with two port networks; six with three port networks. Four are required for a critical-reliability system with two port networks; twelve with three port networks.
3. Depending on the reliability type and on the number of DEFINITY ECS R5r port networks. Two transceivers are required for a standard- or high-reliability switch with two port networks; six with three port networks. Four are required for a critical-reliability system with two port networks; twelve with three port networks.

4. For each fiber connection, one 9823-type lightwave transceiver is installed in one port network, and a like transceiver in the adjacent port network. 4E transceivers cannot be reused from the upgraded DEFINITY G3si system. Additional 9823-type transceivers, ordered separately, are also shipped loose with the EPN equipment.
5. Depending on the reliability type and on the number of DEFINITY ECS R5r port networks. Two transceivers are required for a standard- or high-reliability switch with two port networks; six with three port networks. Four are required for a critical-reliability system with two port networks; twelve with three port networks.
6. For each fiber connection, one 9823-type lightwave transceiver is installed in one port network, and a like transceiver in the adjacent port network. 4E transceivers cannot be reused from the upgraded DEFINITY G3si system. Additional 9823-type transceivers, ordered separately, are also shipped loose with the EPN equipment
7. Depending on the reliability type of the DEFINITY ECS R5r system. Two tapes are required for a standard-reliability system; four for a high- or critical-reliability system.
8. Depending on the number of EPNs in a critical-reliability DEFINITY ECS R5r system.
9. Required for the ''B'' port cabinet of a critical-reliability DEFINITY ECS R5r EPN. (May not have been installed during R1V3-to-G1 or -G3i upgrade.)
10. Required for a critical-reliability DEFINITY ECS R5r EPN..
11. Required if earthquake protection is provided.
12. Required if earthquake protection is provided.
13. Required if earthquake protection is provided.
14. Required if earthquake protection is provided.

Required Tools

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

- Flashlight or high-intensity AC drop light
- Power screwdriver (optional)
- 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
- Receptacle for holding screws
- 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 Implementation*

Follow Routine Preventive Maintenance

During the DEFINITY ECS R5r 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*.

Verify System Status

Before proceeding, the system should be examined for alarms, and every problem should be corrected. The system must be alarm-free.

Label Cables

To make reconnecting the cables simpler and more reliable, label every connector cable associated with the system (if not already labeled).

Shut Down DEFINITY LAN Gateway System

If a DEFINITY LAN Gateway system resides in the PPN to be upgraded, prepare to shut down the DEFINITY LAN Gateway assembly and allow the disk to completely spin down. See Caution. See WARNING.

CAUTION:
Before using this procedure to shut down the DEFINITY LAN Gateway, make sure that you save the system parameters if you plan to reuse the current system.

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

1. Log onto the DEFINITY LAN Gateway if you have not previously logged on. *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 in.
2. When the main menu appears, select *Maintenance*.
3. Select *Reset System* from the *Maintenance* menu.
4. Select *Shutdown* from the *Reset System* menu.

Shut Down DEFINITY AUDIX System

1. See WARNING. 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. See WARNING. To avoid an unexpected AUDIX reboot after an unplanned switch reboot, unseat the AUDIX assembly from its backplane connectors.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Power Down System

1. See CAUTION. At each PPN cabinet's 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 the "Software Updates" section in DEFINITY Enterprise Communications Server Release 5 for R5r and G3r Maintenance, for information about preparing the system for a power down.

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

Disconnect Power and Grounding

1. Disconnect the cabinet power cords from the rear of each cabinet.
2. Disconnect the coupled bonding conductor.
3. Disconnect the 6-AWG cabinet ground wire from the ground bar in the cabinet.

Install Power-Failure Transfer Ground Strap

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

1. Connect a strap's lead 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 other lead to an approved ground source.
3. Connect the lead to the approved ground source.

Remove Door and Panels and Disconnect Cables

1. Remove the front door from all of the PPN cabinets.
2. Disconnect the previously labeled connector cables attached to PPN.
3. Disconnect the G1 Manager I or G3i G3-MT terminal from the TERM connector.
4. Remove the ground plate(s) from between all of the PPN cabinets.
5. 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. See WARNING and NOTE. Remove all circuit packs and power units from the control cabinet. Store the circuit packs in the static-proof packaging.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

NOTE:
If a TN756 tone-detector/generator was removed from the DEFINITY G3si control cabinet, a new DEFINITY ECS R5r 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. They will be reused.

   NOTE:
   Before disconnecting each cable, note the position of the cable.

2. See preceding NOTE. If the DEFINITY G3si system being upgraded is duplicated, remove the ICC cables. They will be replaced with new ICC cables (H600-248 G1).

Remove the Existing Control Cabinet

Since the control cabinet is located at the bottom of the port network, the stack will have to be completely dismantled. At this point in the upgrade, all the power, grounding, TDM, ICC, and connector cables should be disconnected. Before you proceed, ensure that there is adequate space available to place each cabinet in an out-of-the-way location as the stack is dismantled.

1. Remove the cabinet clip between each cabinet or front earthquake plate as provided.
2. Remove rear ground plate.
3. See DANGER. Remove the port cabinets from the stack, and put them in a safe place.

   DANGER:
   A port cabinet may weigh as much as 125 pounds and requires two handlers to unstack the cabinet. If a third or fourth cabinet is to be removed, remove the front door, power supply, and circuit packs from the cabinet to lighten the load. Make sure the two handlers are capable (size and strength) of lifting the cabinet from its position.

4. See preceding DANGER. If the DEFINITY G3si system being upgraded is duplicated, remove the control cabinet in position ‘‘B.’’ It will not be reused, so it can be removed at this time.
5. If the control cabinet in position ‘‘A’’ is earthquake mounted, remove the hardware securing the cabinet to the floor.
6. Move the existing control cabinet out of its present location. It will not be reused, so it can be removed at this time.

Unpack and Inspect Expansion Control Cabinet for Damage

1. See DANGER. Unpack cabinet.

   DANGER:
   Take care to avoid injury while cutting and removing bands.

2. Visually inspect cabinet for any physical damage caused during shipping. Report any damage for appropriate action per local procedures.

Remove Front Door

Remove the front door of expansion control cabinet.

1. Use a screwdriver, and turn door-latch screw counterclockwise one quarter turn to release door (see Figure 3-2).
2. Lift door from lower slots and remove from cabinet.

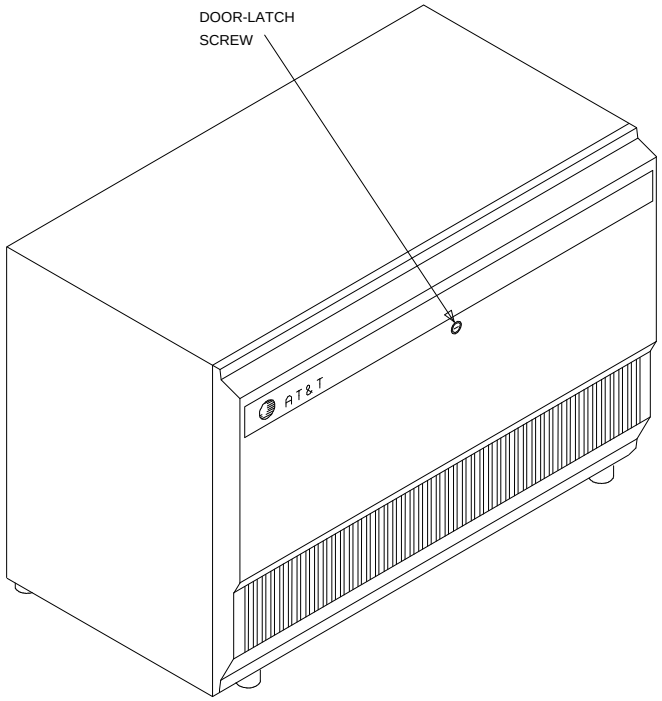


Figure 3-2. Location of Door-Latch Screw

Install Expansion Control Cabinet

1. Position the J58890N expansion control cabinet ‘‘A’’ at the desired location.

   CAUTION:
   The cabinet may weigh as much as 130 pounds and may require two handlers. Use caution 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

If earthquake protection is required, perform the following steps:

1. Place the front mounting angle at the location selected for the front of the expansion control cabinet.
2. Using the angle as a template, mark the locations of the two mounting bolts.
3. Drill two holes 1/2 inch in diameter and 1-1/2 inches deep at the spots marked in Step 2.
4. Mount the front mounting angle to the floor (Figure 3-3).
5. Move the cabinet back into place, and temporarily stabilize the cabinet by attaching the cabinet to the angle with two #12-24 by 1/2-inch thread-forming screws.
6. Insert a pencil or marker through the two holes (previously occupied with carriage bolts) in the bottom rear of the cabinet, and mark the floor directly beneath each hole.
7. Remove the two screws installed in Step 5, and move the cabinet out of the way.
8. Drill two holes 1/2 inch in diameter and 1-1/2 inches deep at the spots marked in Step 6.
9. Move the cabinet back into place.
10. Attach the cabinet to the front mounting angle using four #12-24 by 1/2-inch thread-forming screws.
11. In the rear of the cabinet, lay the stiffener on the bottom of the cabinet, aligning the stiffener with the holes in the bottom of the cabinet.
12. Fasten the cabinet to the floor (Figure 3-3).

NOTE:
This procedure is only a portion of the complete earthquake protection package. According to the logical installation sequence, instructions for adding the earthquake front plate and earthquake ground plate will be given at the appropriate location in this chapter.

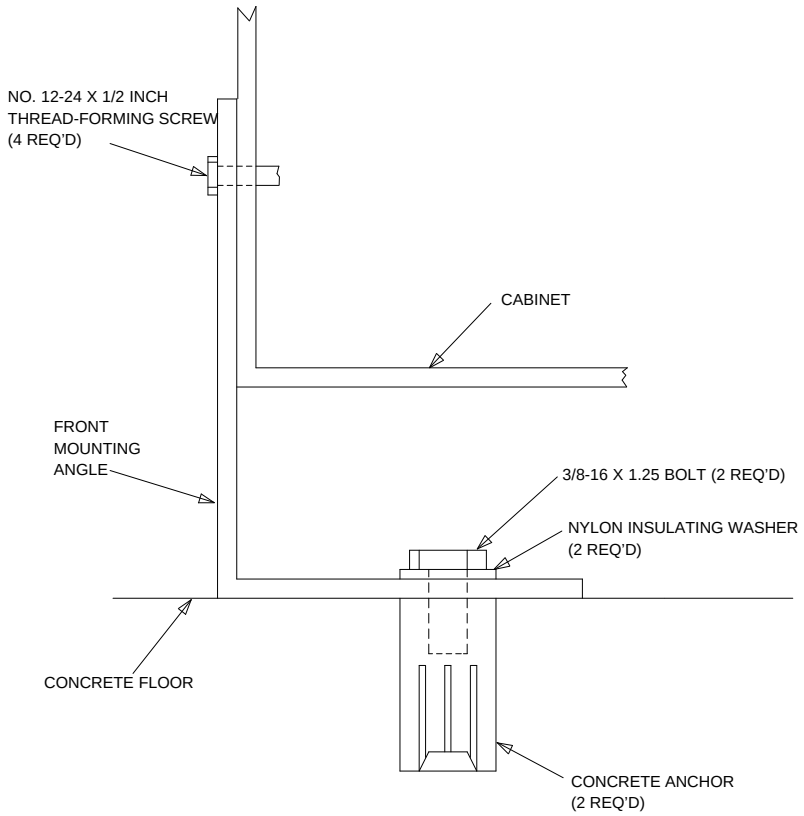


Figure 3-3. Cabinet Earthquake Mounting — Concrete Floor

Install Port Cabinets

See DANGER and NOTE. Place the port cabinets into the positions from which they were previously removed (see Figure 3-4).

DANGER:
The cabinet may weigh as much as 130 pounds and requires two handlers. Use caution to avoid injury.

NOTE:
If a duplicated DEFINITY G3si PPN is being upgraded to a DEFINITY ECS R5r EPN, the second control cabinet (J58890M) can be replaced by a new J58890H port cabinet in position ''B.''

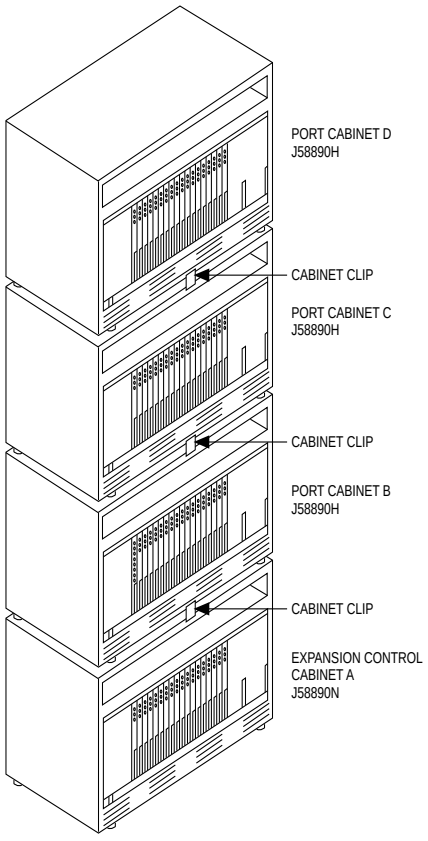


Figure 3-4. 4-Cabinet DEFINITY ECS R5r EPN Using R5si Cabinets — Front View, Doors Removed

Install Circuit Packs

1. See WARNINGS. Replace the circuit packs and power supplies in port cabinets ‘‘C’’ and ‘‘D’’ if they were previously removed.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet’s frame.

   WARNING:
   These replaced port circuit packs must conform to the usable vintage requirements for a DEFINITY ECS R5r system (see Reference Guide for Circuit-Pack Vintages and Change Notices).

2. Using Figure 3-5, the label, and the annotated ‘‘list configuration all’’ (provided with the DEFINITY ECS R5r tape), install the DEFINITY ECS R5r control circuit packs into the new expansion control cabinet.

   NOTE:
   If a TN756 tone-detector/generator was removed from the DEFINITY G3si control cabinet, a new DEFINITY ECS R5r 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.

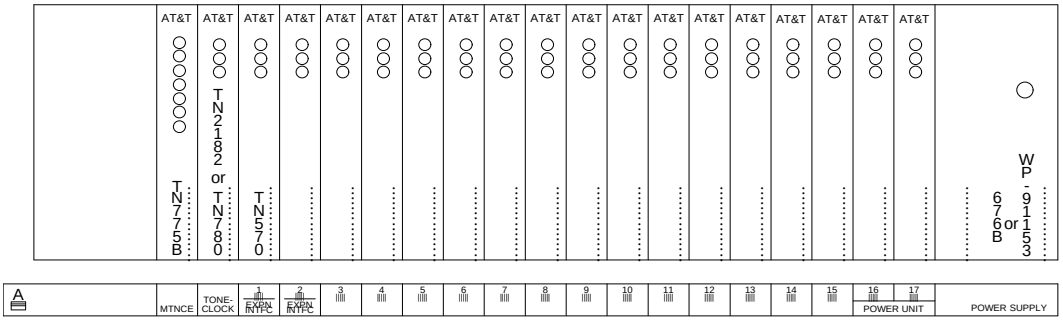


Figure 3-5. Circuit-Pack Locations in DEFINITY ECS R5r Expansion Control Cabinet

3. See preceding WARNINGS and following NOTE. Install the port circuit packs, previously removed, into the "A" cabinet using the decal and the annotated "list configuration all" (provided with the equipment) as a guide.

   NOTE:
   Since the new DEFINITY ECS R5r expansion control carrier has six more port slots than the removed control carrier, there should not be a need to move and retranslate these circuit packs.

4. See preceding WARNINGS and NOTE. For an EPN in a critical reliability DEFINITY ECS R5r system, install a TN2182 Tone-Clock and a TN570 EI (see Table 3-5) in slots "1" and "2" of port cabinet "B."

Table 3-5. 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 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, the location of each port cabinet's address plug must be changed to reflect the cabinet's current position (see Figure 3-6).

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."

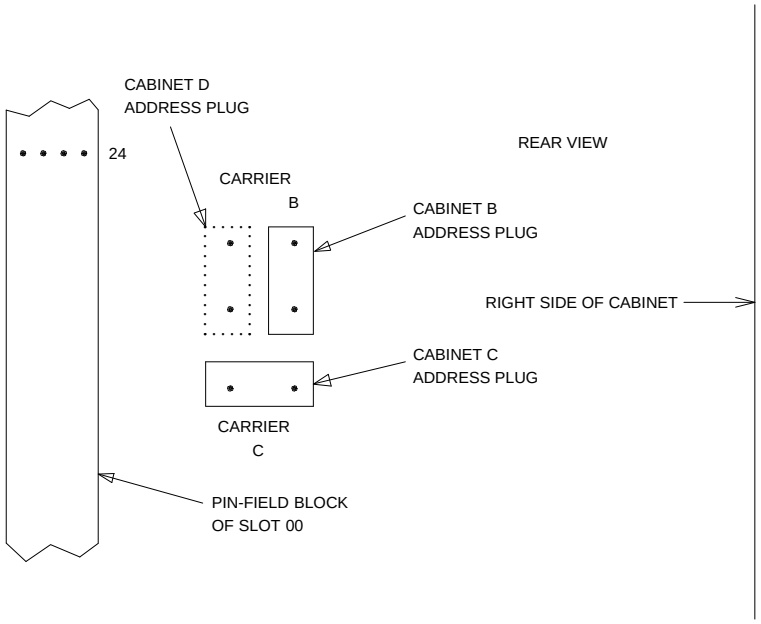


Figure 3-6. Cabinet Address-Plug Location

Install TDM/LAN Bus Terminators

1. If the DEFINITY G3si PPN being upgraded to a DEFINITY ECS R5r EPN has only one cabinet, verify that the two AHF110 TDM/LAN bus terminators are located per Figure 3-7.
2. If the DEFINITY G3si PPN has more than one cabinet, perform the following steps:
    a. Verify that the AHF110 TDM/LAN bus terminator is installed on the right side of the control cabinet looking from the back of the cabinet as shown in Figure 3-8.
    b. Verify that the AHF110 TDM/LAN bus terminator is installed on the top port cabinet (see Figure 3-8), at the end of the daisy chain of the bus.

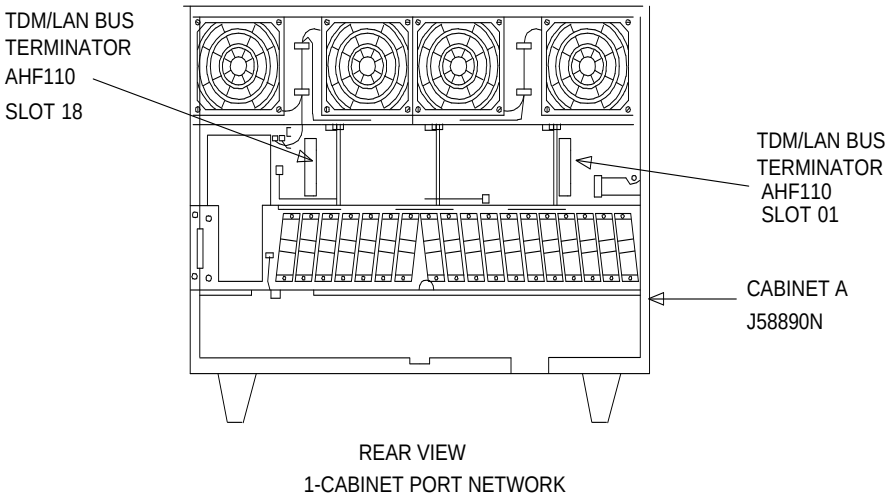


Figure 3-7. Locations of TDM/LAN Bus Terminators for Single-Cabinet EPN

Connect TDM/LAN Cables and ICC Cables

1. Route and connect the TDM/LAN cables (see Figure 3-8). If any of the DEFINITY G3si port cabinets (being upgraded to DEFINITY ECS R5r 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 two left (as viewed from the rear) 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. See NOTE. Connect the ICC cables as shown in Table 3-6 and Figure 3-9 and Figure 3-10, only if critical reliability system.

NOTE:
Do not use the ICC cables (H600-259 G1) that were removed from the duplicated DEFINITY G3si PPN. Use the new ICC cables (H600-248 G1).

3. On the ‘‘A’’ carrier, verify the CFY1 current limiter (CURL) is connected to pin-field block ‘‘00’’ (see Figure 3-9). Note the position in Figure 3-6.

Table 3-6. Intercabinet Cable Connections

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

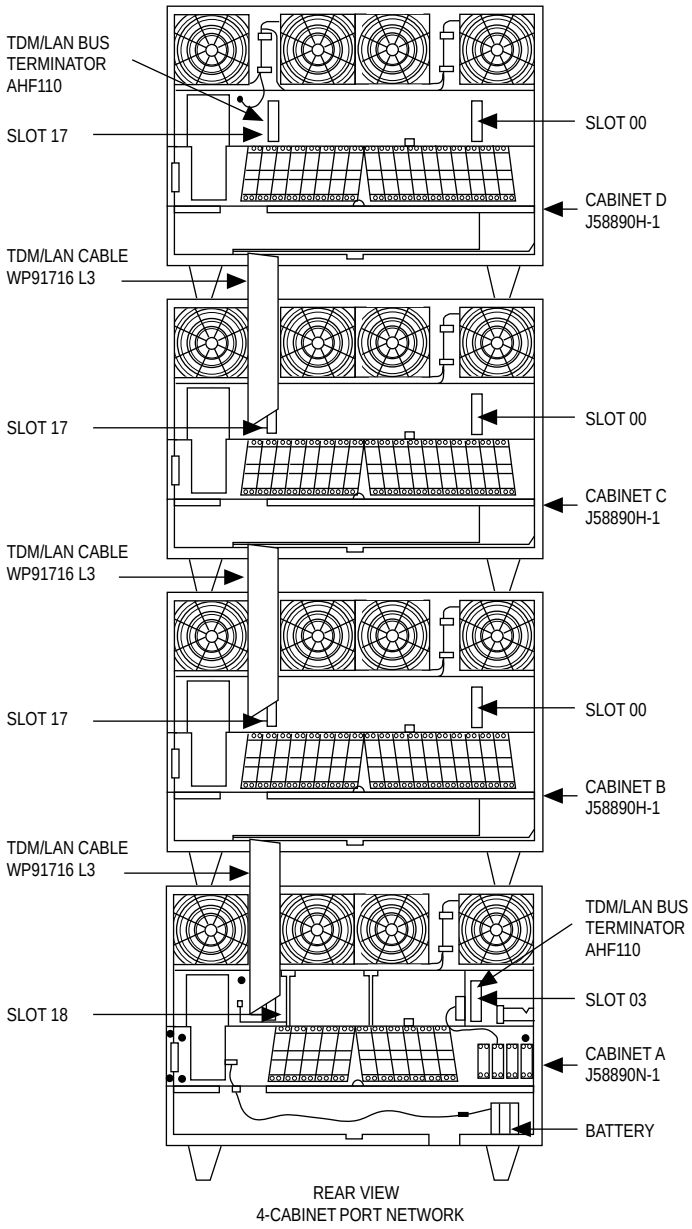


Figure 3-8. TDM/LAN Connections for DEFINITY ECS EPN

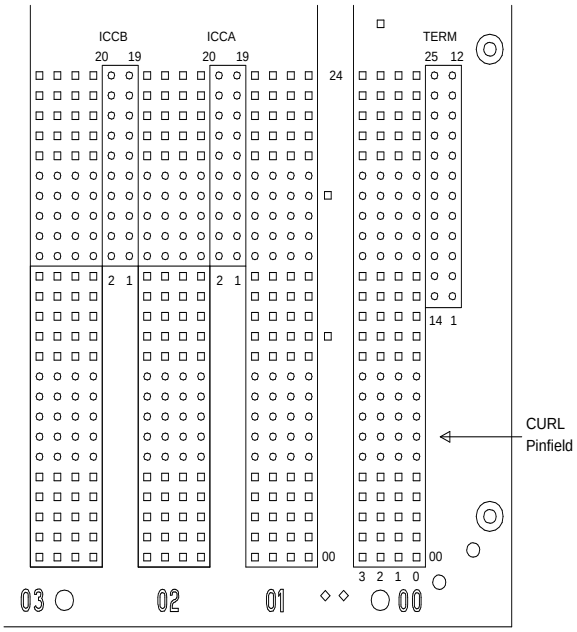


Figure 3-9. ICC Pin-Field Blocks on J58890N Expansion Control Cabinet

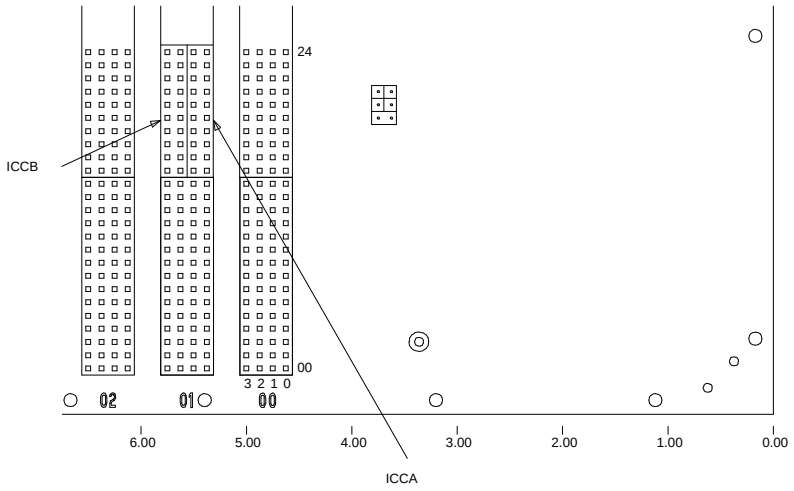


Figure 3-10. ICC Pin-Field Blocks on J58890H Port Cabinet

Interconnect Port Networks with Fiber-Optic Cabling — Standard-Reliability DEFINITY ECS R5r System

See NOTES. Fiber-optic cabling terminated to the various lightwave transceivers can interconnect port networks (PNs) to various maximum distances:

- 9823A transceivers can support multi-mode fiber connections up to 4,900 ft. (about 0.9 miles)
- 9823B transceivers can support multi-mode fiber connections up to 25,000 ft (about 4.7 miles)
- 300A transceivers can support single-mode fiber connections up to 115,000 ft (about 22 miles)

When available and whenever the desired distance between the port networks is less than 25,000 feet, fiber is the preferred medium for interconnecting port networks, providing significantly higher-bandwidth connectivity than DS1C remoting.

NOTE:
As always, 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. For details, refer to the section, *Labels for Fiber-Optic Cables*, in Appendix E of the installation manual.

NOTE:
Throughout these procedures, remember to keep track of which fiber is attached 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 (that is, ‘‘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 3-12.

NOTE:
For implementation details, refer to the ‘‘Fiber Link Administration’’ sections of *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Collocated Port Networks

For a standard-reliability system with one collocated expansion port network, one fiber-optic cable (FL2P-P-XX or 86290-YYYY) and two lightwave transceivers (9823-type or 300A) are required to directly connect the networks.

For a standard-reliability system with two collocated expansion port networks, three fiber-optic cables (FL2P-P-XX or 86290-YYYY) and six lightwave transceivers (9823-type or 300A) are required to directly connect the networks.

NOTE:
For the FL2P-P-XX (multi-mode) fiber-optic cable, the -XX suffix represents the length of the cable in feet.

For the 86290-YYYY (single-mode) fiber-optic cable, the -YYYY suffix represents which cable is used. The YYYY number is different, depending upon the length of the cable, which can vary from 20 feet to 150 feet.

Based on floor-plan considerations, the length of these cables may vary. However, 20-foot cables are normally adequate for a DEFINITY ECS R5r with two port networks.

See NOTE. 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'' multicarrier 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 and rules about fiber routing.

Fiber-Remoted Port Networks

For a standard-reliability system with one fiber-remoted expansion port network, two fiber-optic cables (FL2P-P-XX or 86290-YYYY), two lightwave transceivers (9823-type or 300A), and two lightwave-interface units (provided by the PSC) are required.

For a standard-reliability system with two fiber-remoted expansion port networks, six fiber-optic cables (FL2P-P-XX or 86290-YYYY), six lightwave transceivers

(9823-type or 300A), and six lightwave-interface units (provided by the PSC) are required.

DS1 CONV-Remoted Port Networks

For a standard-reliability system with one DS1 CONV-remoted expansion port network, two DS1 CONV circuit packs (TN1654), two DS1C-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) are required.

For a standard-reliability system with two DS1 CONV-remoted expansion port networks, 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 channel service units (CSUs)
- Three, six, nine, or twelve pairs of wall-field cables (provided with the CSUs)

For One or Two Collocated Expansion Port Networks

1. Behind port carrier B of the multicarrier PPN (see Figure 3-11, Figure 3-12, Figure 3-13, and Figure 3-14):
    - Install a lightwave transceiver (9823-type or 300A) on the connector at slot 1B02.
    - Connect one end of the appropriate fiber-optic cable to the lightwave transceiver at slot 1B02.
    - Route the fiber-optic cable from the lightwave transceiver to the cabinet's cable tray and downward out of the cabinet to the EPN stack.
    - Delicately 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 the same kind of lightwave transceiver (either 9823-A, 9823-B, or 300A) on the connector at slot 2A01.
    - Connect the other end of the fiber-optic cable coming from the PPN to the lightwave transceiver at slot 2A01.
    - Delicately attach the fiber-optic cable (with cable ties) to the rear covers of the EPN stack.
    - 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.

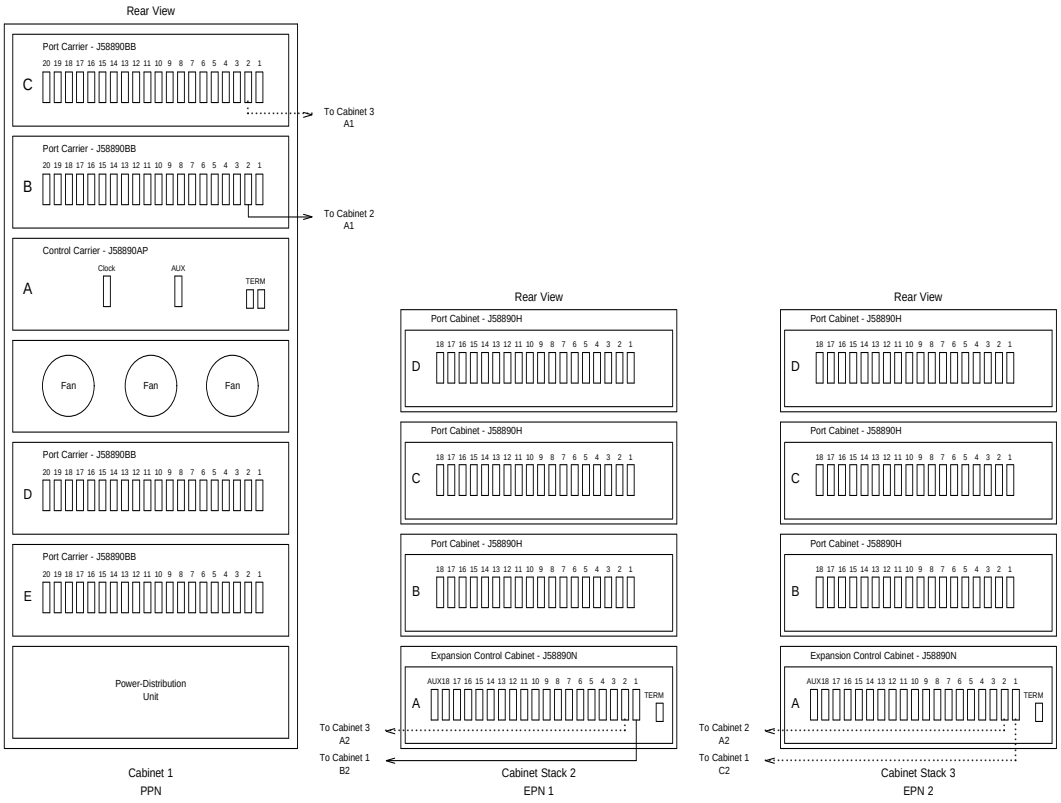


Figure 3-11. Standard-Reliability DEFINITY ECS R5r with Two or Three Port Networks

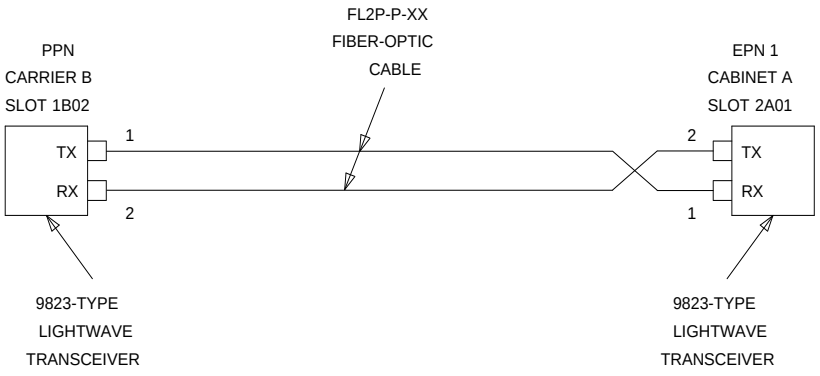


Figure 3-12. Fiber-Optic Connections PPN to EPN1

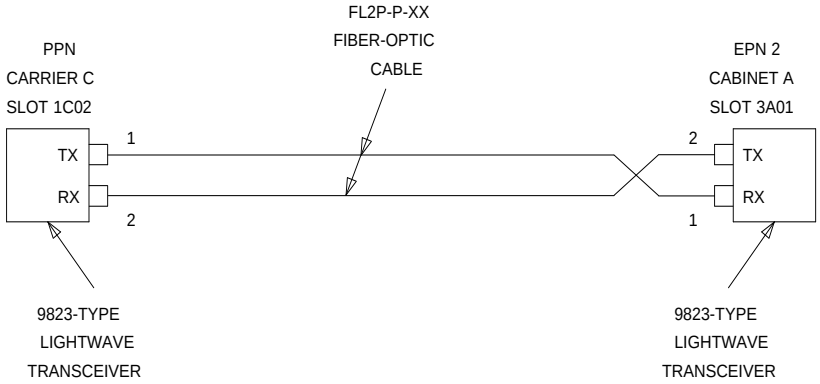


Figure 3-13. Fiber-Optic Connections PPN to EPN2

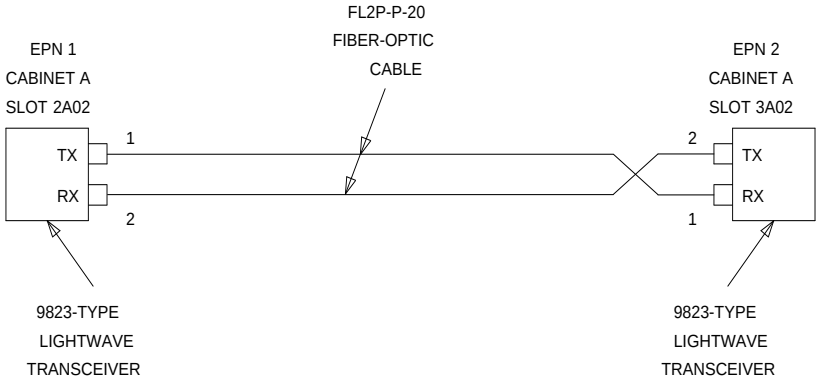


Figure 3-14. Fiber-Optic Connections EPN1 to EPN2

For One or Two Fiber-Remoted Expansion Port Networks

1. Behind port carrier B of the multicarrier PPN (Figure 3-15, Figure 3-16, Figure 3-17, and Figure 3-18):
   - Install a lightwave transceiver (9823-type or 300A) 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 from the lightwave transceiver to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
   - At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave-interface unit provided.
   - Delicately 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 the same kind of lightwave transceiver (either 9823-A, 9823-B, or 300A) on the connector at slot 2A01.
   - Connect the fiber-optic cable to the lightwave transceiver at slot 2A01.
   - Route the fiber-optic cable from the lightwave transceiver down the outside of the rear covers and through the cable manager to the PDS cross-connect facility.
   - At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave-interface unit provided.
   - Delicately attach the fiber-optic cable (with cable ties) to the rear covers of the EPN stack.
   - Coil up the surplus length of fiber-optic cable, and place the coil in the cable manager.

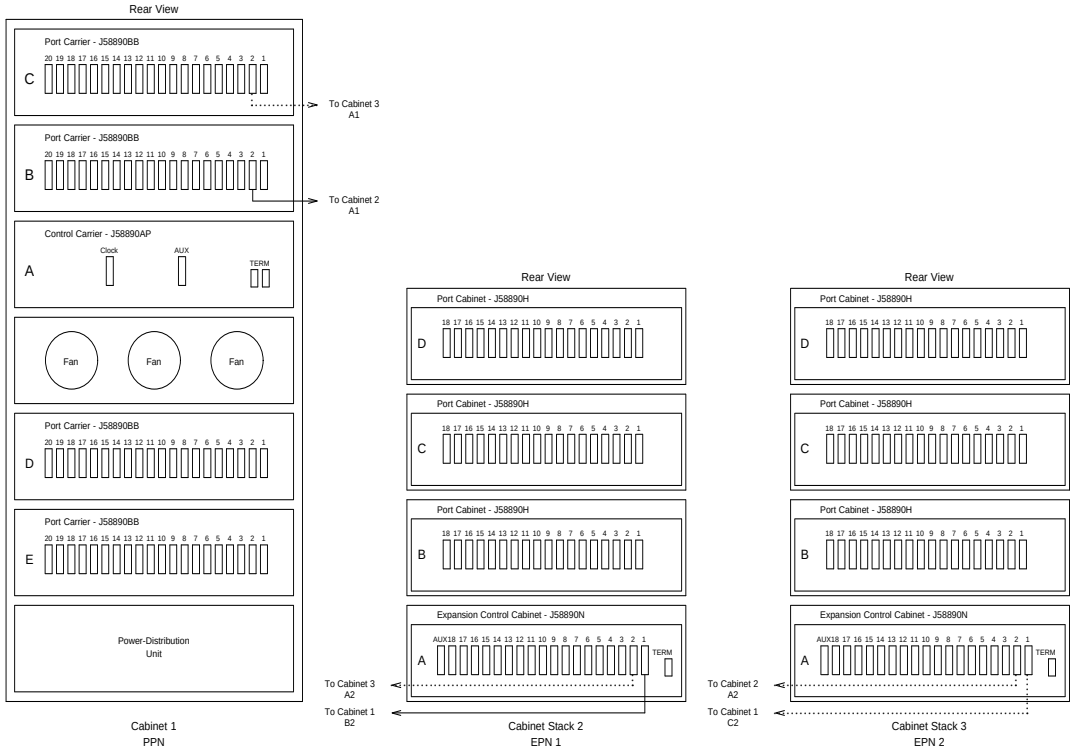


Figure 3-15. Standard-Reliability DEFINITY ECS R5r with Two or Three Port Networks

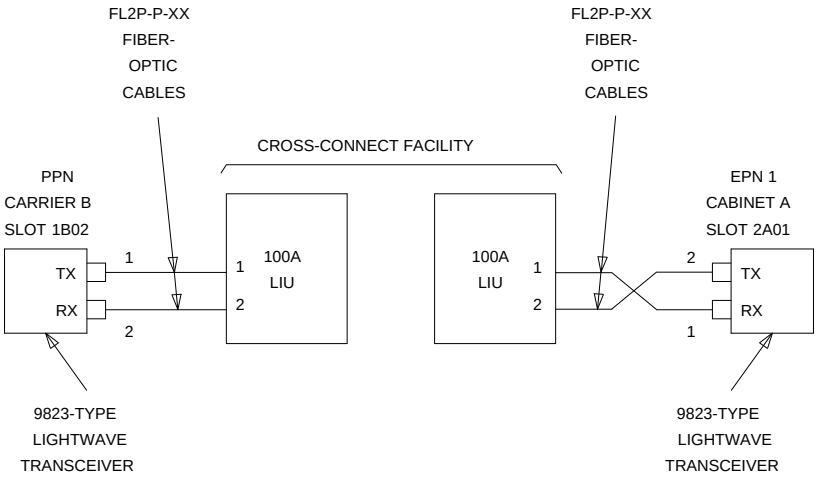


Figure 3-16. Fiber-Optic Connections PPN to EPN1

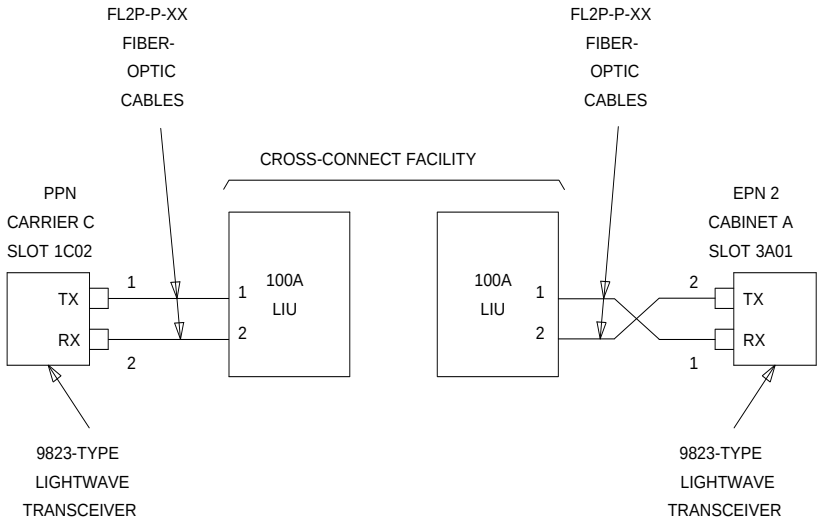


Figure 3-17. Fiber-Optic Connections PPN to EPN2

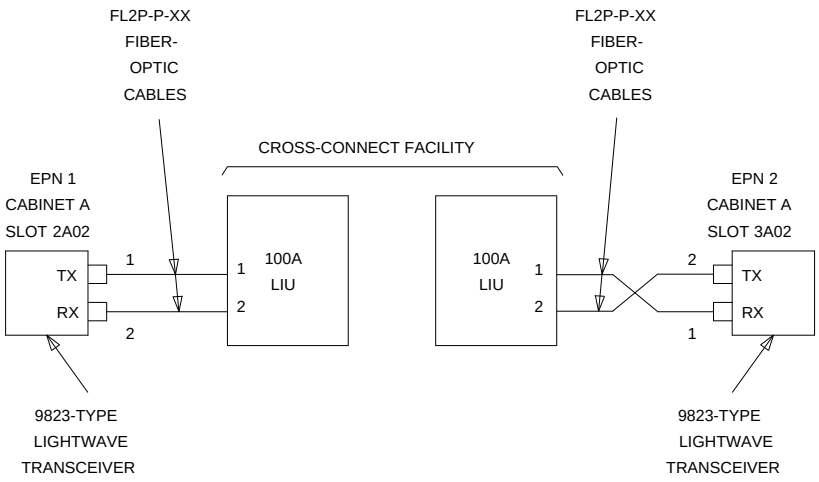


Figure 3-18. Fiber-Optic Connections EPN1 to EPN2

Interconnect Port Networks with Fiber-Optic Cabling — High-Reliability DEFINITY ECS R5r System

See NOTES. Fiber-optic cabling terminated to the various lightwave transceivers can interconnect port networks (PNs) to various maximum distances:

- 9823A transceivers can support multi-weight fiber connections up to 4,900 ft. (about 1 mile)
- 9823B transceivers can support multi-weight fiber connections up to 25,000 ft (about 5 miles)
- 300A transceivers can support single-mode fiber connections up to 115,000 feet (about 22 miles)

When available and whenever the desired distance between the port networks is less than 25,000 feet, fiber is the preferred medium for interconnecting port networks, providing significantly higher-bandwidth connectivity than DS1C remoting.

NOTE:
As always, 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.

NOTE:
Throughout these procedures, remember to keep track of which fiber is attached 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 (that is, "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 3-20.

NOTE:
For implementation details, refer to the "Fiber Link Administration" sections of *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Collocated Port Networks

For a high-reliability system with one collocated expansion port network, one fiber-optic cable (FL2P-P-XX) and two lightwave transceivers (9823-type), or one single-mode fiber-optic cable (86290-YYYY) and two single-mode lightwave transceivers (300A-type), are required to directly connect the networks.

For a high-reliability system with two collocated expansion port networks, three fiber-optic cables (FL2P-P-XX) and six lightwave transceivers (9823-type), or three single-mode fiber-optic cable (86290-YYYY) and six single-mode lightwave transceivers (300A-type), are required to directly connect the networks.

NOTE:
For the FL2P-P-XX (multi-mode) fiber-optic cable, the -XX suffix represents the length of the cable in feet.

For the 86290-YYYY (single-mode) fiber-optic cable, the -YYYY suffix represents which cable is used. The YYYY number is different, depending upon the length of the cable, which can vary from 20 feet to 150 feet.

Based on floor-plan considerations, the length of these cables may vary. However, 20-foot cables are normally adequate for a DEFINITY ECS R5r with two port networks.

See NOTE. 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" multicarrier 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.

Fiber-Remoted Port Networks

For a high-reliability system with one fiber-remoted expansion port network, two fiber-optic cables (FL2P-P-XX or 86290-YYYY), two lightwave transceivers (9823-type or 300A), and two lightwave-interface units (provided by the PSC) are required.

For a high-reliability system with two fiber-remoted expansion port networks, six fiber-optic cables (FL2P-P-XX 86290-YYYY), six lightwave transceivers (9823-type or 300A), and six lightwave-interface units (provided by the PSC) are required.

DS1C-Remoted Port Networks

For a high-reliability system with one DS1C-remoted expansion port network, two DS1C circuit packs (TN1654), two DS1C-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) are required.

For a high-reliability system with two DS1C-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 channel service units (CSUs)
- Three, six, nine, or twelve pairs of wall-field cables (provided with the CSUs)

For One or Two Collocated Expansion Port Networks

1. Behind port carrier C of the multicarrier PPN (see Figure 3-19, Figure 3-20, Figure 3-21, and Figure 3-22):
   - Install a lightwave transceiver (9823-type or 300A) on the connector at slot 1C02.
   - Connect one end of the appropriate fiber-optic cable to the lightwave transceiver at slot 1C02.
   - Route the fiber-optic cable from the lightwave transceiver to the cabinet's cable tray and downward out of the cabinet to the EPN stack.
   - Delicately 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:
   - Install the same kind of lightwave transceiver (either 9823-A, 9823-B, or 300A) on the connector at slot 2A01.
   - Connect the other end of the fiber-optic cable coming from the PPN to the lightwave transceiver at slot 2A01.
   - Delicately attach the fiber-optic cable (with cable ties) to the rear covers of the EPN stack.
   - 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.

For Two Collocated Expansion Port Networks

1. Behind port carrier D of the multicarrier PPN:
   - Install a lightwave transceiver (9823-type or 300A) on the connector at slot 1D02.
   - Connect one end of the appropriate fiber-optic cable to the lightwave transceiver at slot 1D02.
   - Route the fiber-optic cable from the lightwave transceiver to the cabinet's cable tray and downward out of the cabinet to the EPN stack.
   - Delicately 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 the same kind of lightwave transceiver (either 9823-A, 9823-B, or 300A) 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.
   - Delicately attach the fiber-optic cable (with cable ties) to the rear covers of the EPN stack.
   - 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.
3. Behind control cabinet A of EPN stack 2:
   - Install a lightwave transceiver (9823-type or 300A) 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 from the lightwave transceiver down the outside of the rear covers to the other EPN stack.
   - Delicately 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 the same kind of lightwave transceiver ((either 9823-A, 9823-B, or 300A) 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.
   - Delicately attach the fiber-optic cable (with cable ties) to the rear covers of the EPN stack.
   - Coil up the surplus length of fiber-optic cable, and delicately attach the coil (with a cable tie) to a leg of an EPN cable clamp.

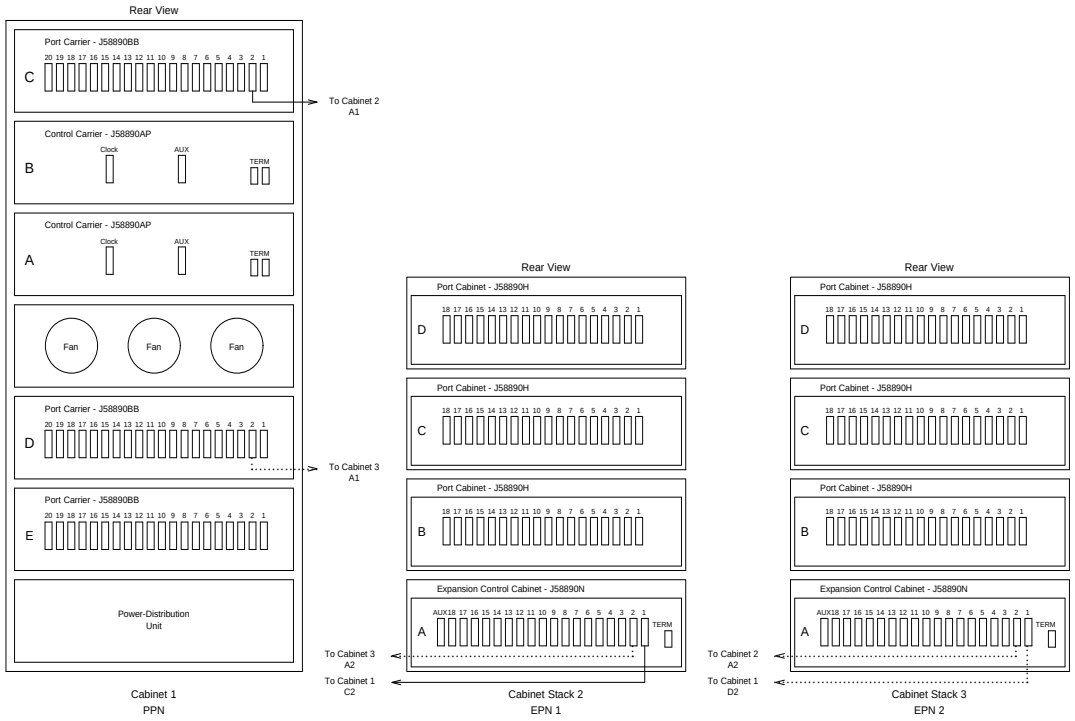


Figure 3-19. High-Reliability DEFINITY ECS R5r with Two or Three Port Networks

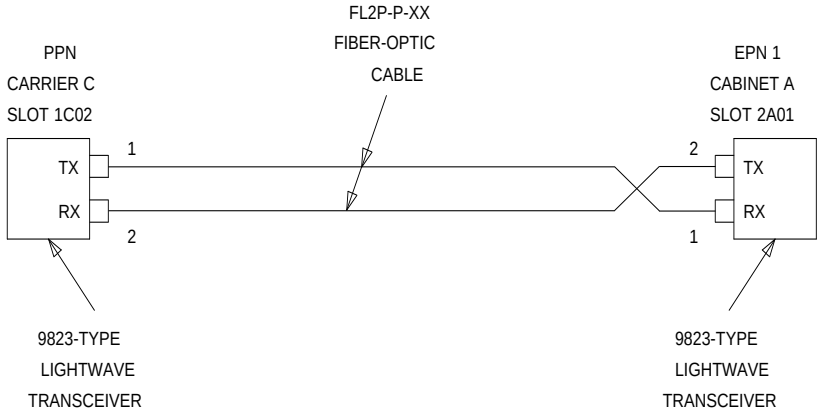


Figure 3-20. Fiber-Optic Connections PPN to EPN1

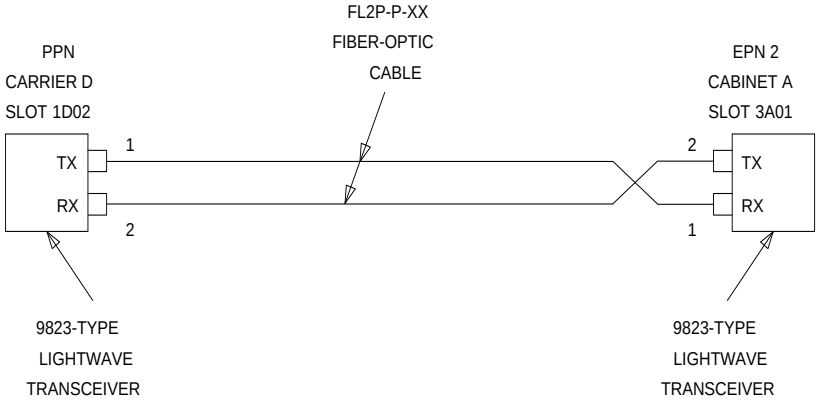


Figure 3-21. Fiber-Optic Connections PPN to EPN2

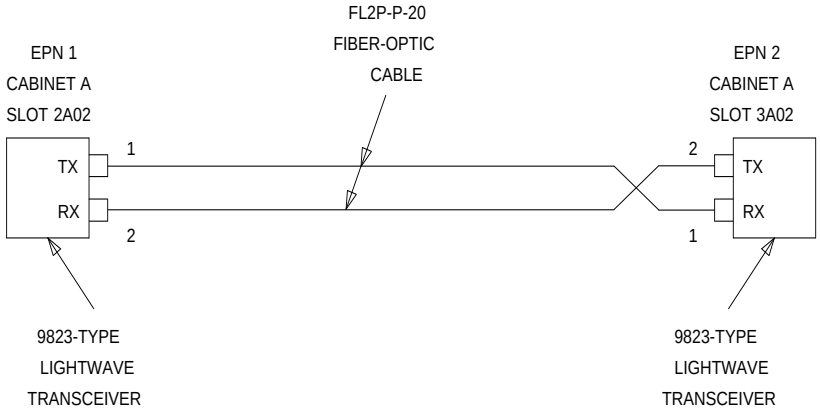


Figure 3-22. Fiber-Optic Connections EPN1 to EPN2

For One or Two Fiber-Remoted Expansion Port Networks

1. Behind port carrier C of the multicarrier PPN (Figure 3-23, Figure 3-24, Figure 3-25, and Figure 3-26):
   - Install a lightwave transceiver (9823-type or 300A) 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 from the lightwave transceiver to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
   - At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave-interface unit provided.
   - Delicately 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 the same kind of lightwave transceiver (either 9823-A, 9823-B, or 300A) on the connector at slot 2A01.
   - Connect the fiber-optic cable to the lightwave transceiver at slot 2A01.
   - Route the fiber-optic cable from the lightwave transceiver down the outside of the rear covers and through the cable manager to the PDS cross-connect facility.
   - At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave-interface unit provided.
   - Delicately attach the fiber-optic cable (with cable ties) to the rear covers of the EPN stack.
   - Coil up the surplus length of fiber-optic cable, and place the coil in the cable manager.

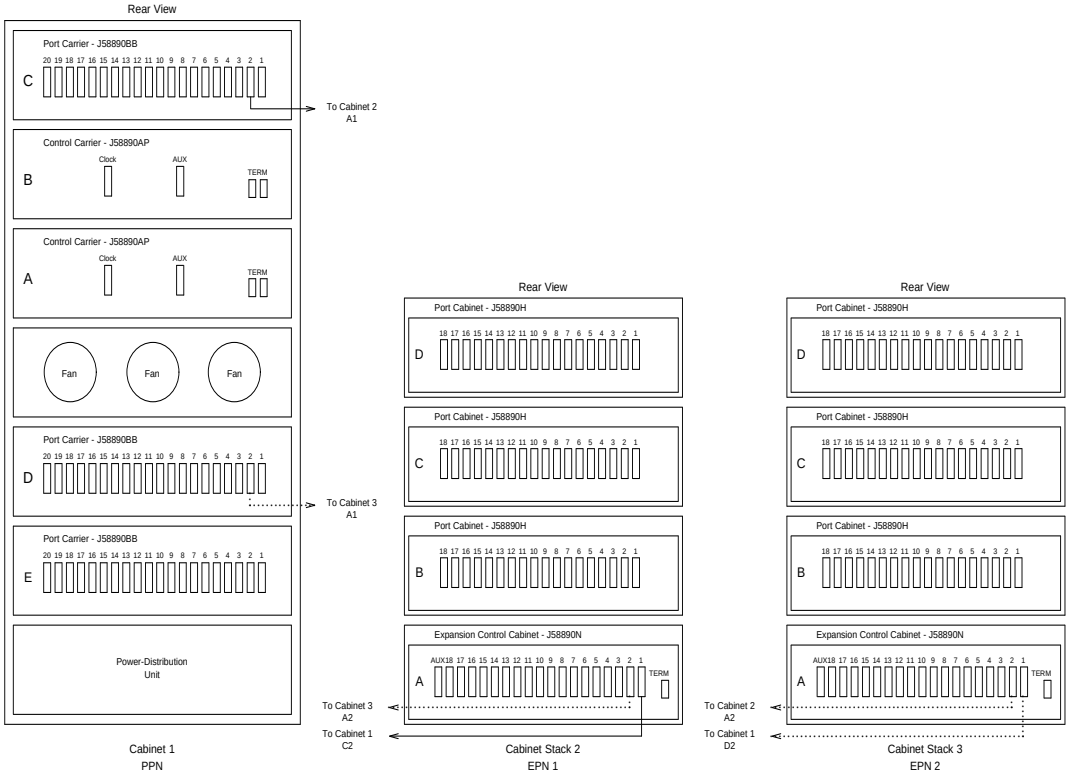


Figure 3-23. High-Reliability DEFINITY ECS R5r with Two or Three Port Networks

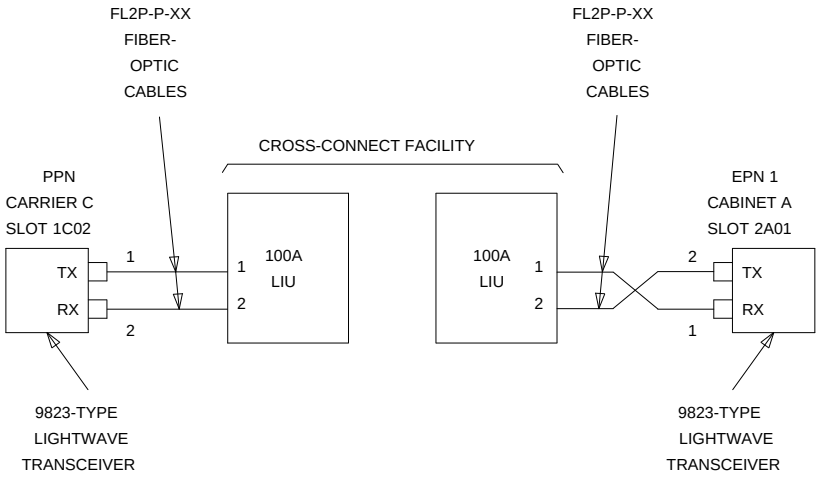


Figure 3-24. Fiber-Optic Connections PPN to EPN1

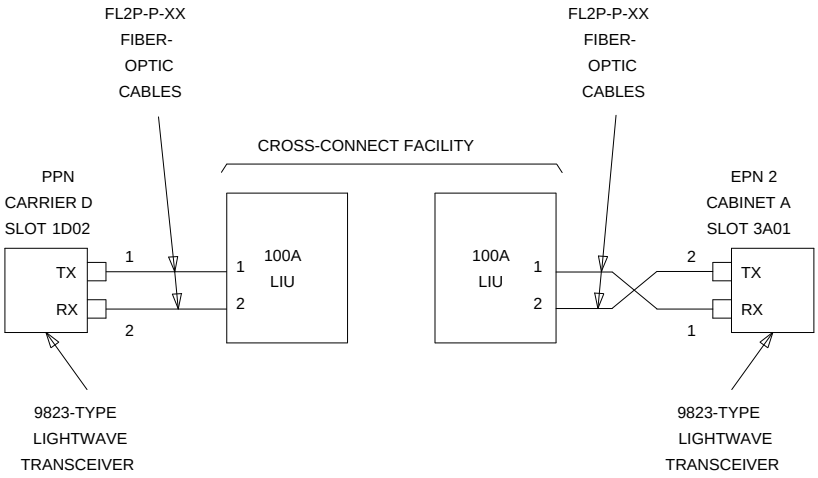


Figure 3-25. Fiber-Optic Connections PPN to EPN2

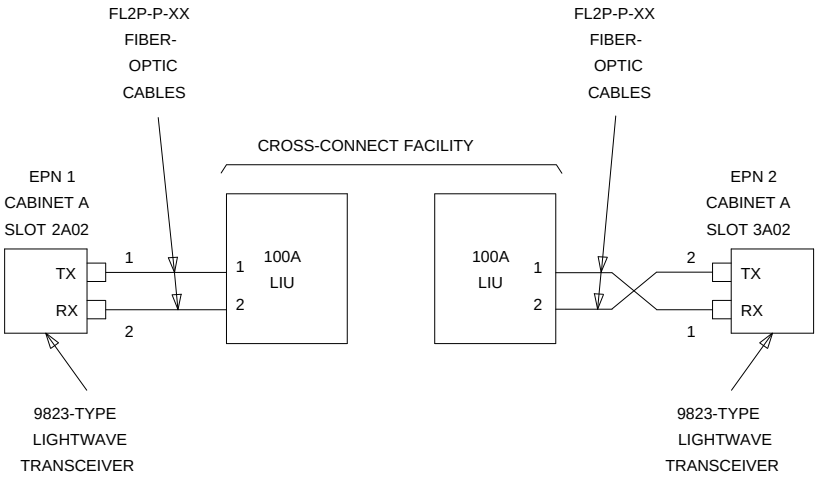


Figure 3-26. Fiber-Optic Connections EPN1 to EPN2

Interconnect Port Networks with Fiber Cabling — Critical-Reliability DEFINITY ECS R5r System

See NOTES. Fiber-optic cabling terminated to the various lightwave transceivers can interconnect port networks (PNs) to various maximum distances:

- 9823A transceivers can support multi-mode fiber connections up to 4,900 ft. (about 1 mile)
- 9823B transceivers can support multi-mode fiber connections up to 25,000 ft (about 5 miles)
- 300A transceivers can support single-mode fiber connections up to 115,000 feet (about 22 miles)

When available and whenever the desired distance between the port networks is less than 25,000 feet, fiber is the preferred medium for interconnecting port networks, providing significantly higher-bandwidth connectivity than DS1C remoting.

NOTE:
As always, 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. For details, refer to the section, *Labels for Fiber-Optic Cables*, in Appendix E of the installation manual.

NOTE:
Throughout these procedures, remember to keep track of which fiber is attached 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 (that is, "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 3-28.

NOTE:
For implementation details, refer to the "Fiber Link Administration'' sections of *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Collocated Port Networks

For a critical-reliability system with one collocated expansion port network, two fiber-optic cables (FL2P-P-XX or 86290-YYYY) and four lightwave transceivers (9823-type or 300A) are required to directly connect the networks.

For a critical-reliability system with two collocated expansion port networks, six fiber-optic cables (FL2P-P-XX or 86290-YYYY) and twelve lightwave transceivers (9823-type or 300A) are required to directly connect the networks.

NOTE:
For the FL2P-P-XX (multi-mode) fiber-optic cable, the -XX suffix represents the length of the cable in feet.

For the 86290-YYYY (single-mode) fiber-optic cable, the -YYYY suffix represents which cable is used. The YYYY number is different, depending upon the length of the cable, which can vary from 20 feet to 150 feet.

Based on floor-plan considerations, the length of these cables may vary. However, 20-foot cables are normally adequate for a DEFINITY ECS R5r with two port networks.

See NOTE. 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'' multicarrier 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.

Fiber-Remoted Port Networks

For a critical-reliability system with one fiber-remoted expansion port network, four fiber-optic cables (FL2P-P-XX or 86290-YYYY), four lightwave transceivers (9823-type or 300A), 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 (FL2P-P-XX or 86290-YYYY), twelve lightwave transceivers (9823-type or 300A), and twelve lightwave-interface units (provided by the PSC) are required.

DS1 CONV-Remoted Port Networks

For a critical-reliability system with one DS1 CONV-remoted expansion port network, 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 expansion port networks, 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 channel service units (CSUs)
- 6, 12, 18, or 24 pairs of wall-field cables (provided with the CSUs)

For One or Two Collocated Expansion Port Networks

1. Behind port carrier C of the multicarrier PPN (see Figure 3-27, Figure 3-28, Figure 3-29, and Figure 3-30):
   - Install a lightwave transceiver (9823-type or 300A) on the connector at slot 1C02.
   - Connect one end of the appropriate fiber-optic cable to the lightwave transceiver at slot 1C02.
   - Route the fiber-optic cable from the lightwave transceiver to the cabinet's cable tray and downward out of the cabinet to the EPN stack.
   - Delicately 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 the same kind of lightwave transceiver (either 9823-A, 9823-B, or 300A) on the connector at slot 2B02.
   - Connect the other end of the fiber-optic cable coming from the PPN to the lightwave transceiver at slot 2B02.
   - Delicately attach the fiber-optic cable (with cable ties) to the rear covers of the EPN stack.
   - 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.
3. Behind port carrier D of the multicarrier PPN:
   - Install a lightwave transceiver (9823-type or 300A) 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 from the lightwave transceiver to the cabinet's cable tray and downward out of the cabinet to the EPN stack.
   - Delicately 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 the same kind of lightwave transceiver (either 9823-A, 9823-B, or 300A) on the connector at slot 2A01.
   - Connect the other end of the fiber-optic cable coming from the PPN to the lightwave transceiver at slot 2A01.

- Delicately attach the fiber-optic cable (with cable ties) to the rear covers of the EPN stack.
- 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.

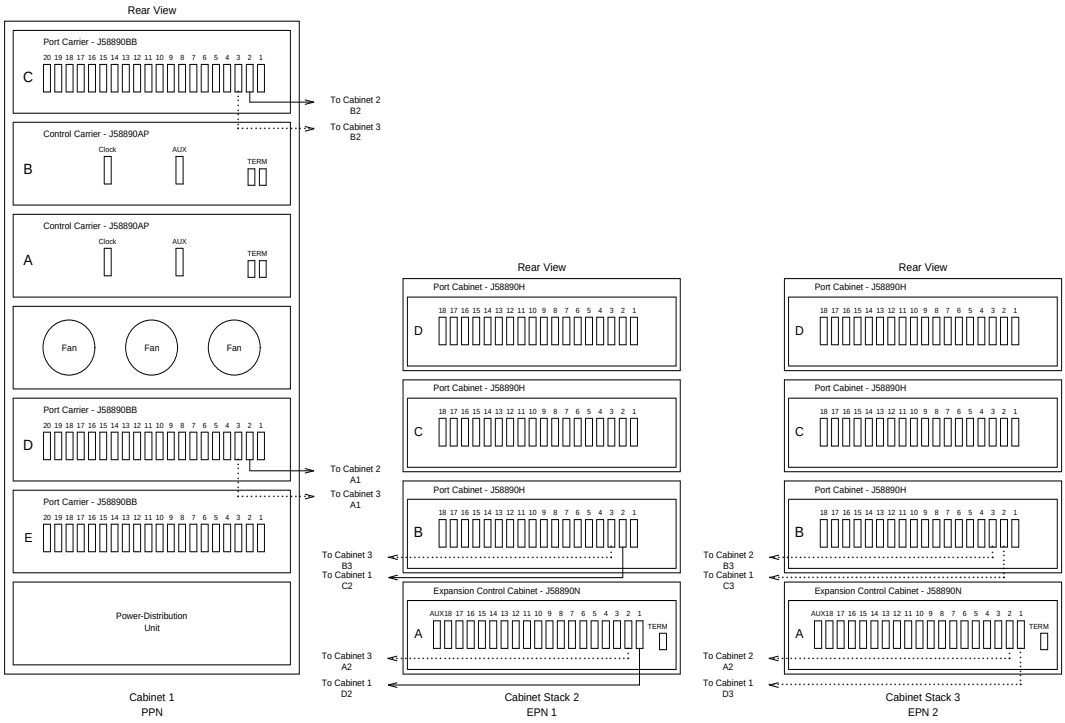


Figure 3-27. Critical-Reliability DEFINITY ECS R5r with Two or Three Port Networks

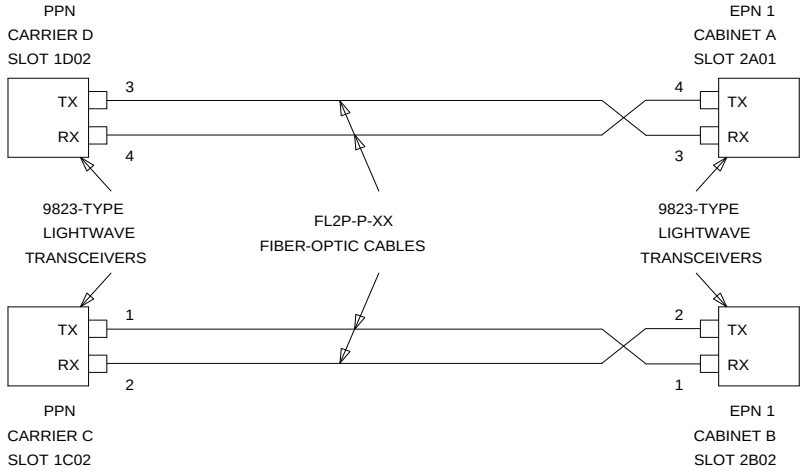


Figure 3-28. Fiber-Optic Connections PPN to EPN1

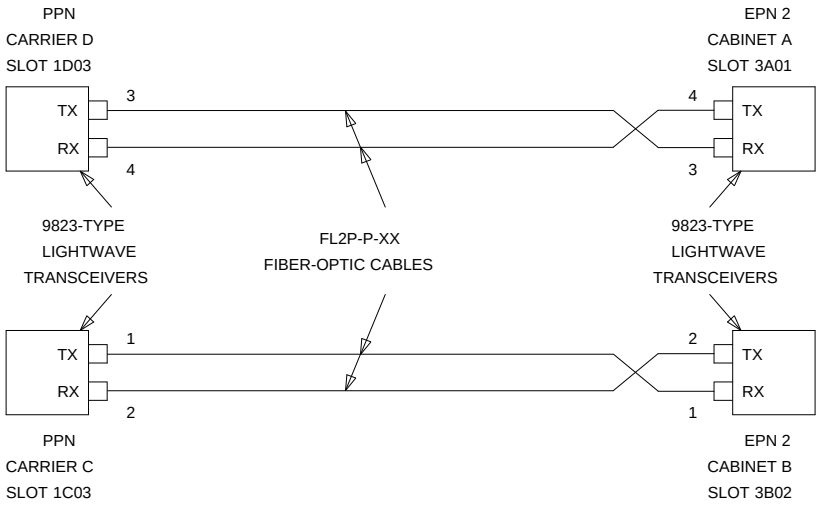


Figure 3-29. Fiber-Optic Connections PPN to EPN2

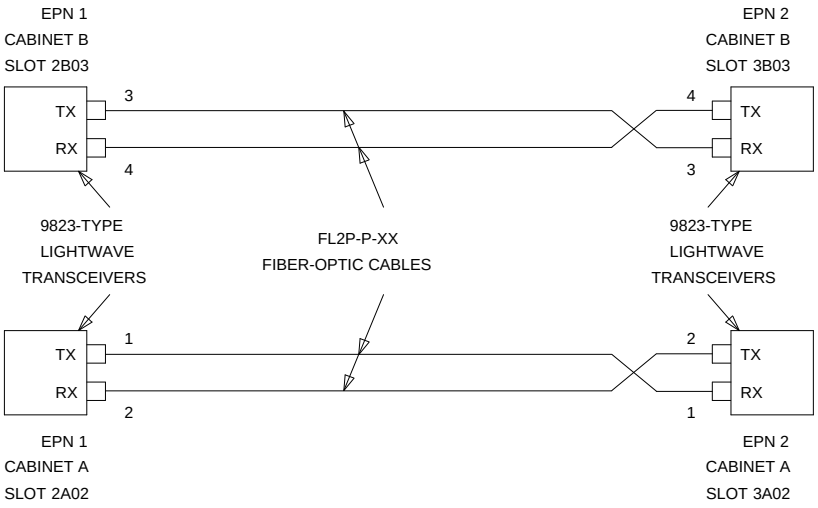


Figure 3-30. Fiber-Optic Connections EPN1 to EPN2

Switch-Connected Port Networks

For One to Fifteen Standard-Reliability EPNs.

1. Behind the PPN cabinet (see Figure 3-31):
   - Install a lightwave transceiver (9823-type or 300A) on cable connector at slot 1E02.
   - Install a lightwave transceiver (9823-type or 300A) on cable connector at slot 1B02.
   - Connect one end of the metallic intercarrier cable to the lightwave transceiver at slot 1E02.
   - Route the intercarrier cable from the lightwave transceiver to the cabinet's cable tray and upward to carrier ''B.''
   - Connect the other end of the intercarrier cable to the lightwave transceiver at slot 1B02.
   - 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 3-31):
   - For each EPN, install one lightwave transceiver (9823-type or 300A) on a cable connector with the following order of slots: 1E20, 1E03, 1E19, 1E04, 1E18, 1E05, etc.
   - Connect one end of each fiber-optic cable to each lightwave transceiver, just installed.
   - Delicately 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:
   - Install the same kind of lightwave transceiver (either 9823-A, 9823-B, or 300A) on cable connector at slot A01.
   - Connect the other end of the fiber-optic cable to the lightwave transceiver, just installed, at slot A01.
   - Delicately attach the fiber-optic cable (with cable ties) to the rear covers of the EPN stack.
   - 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.

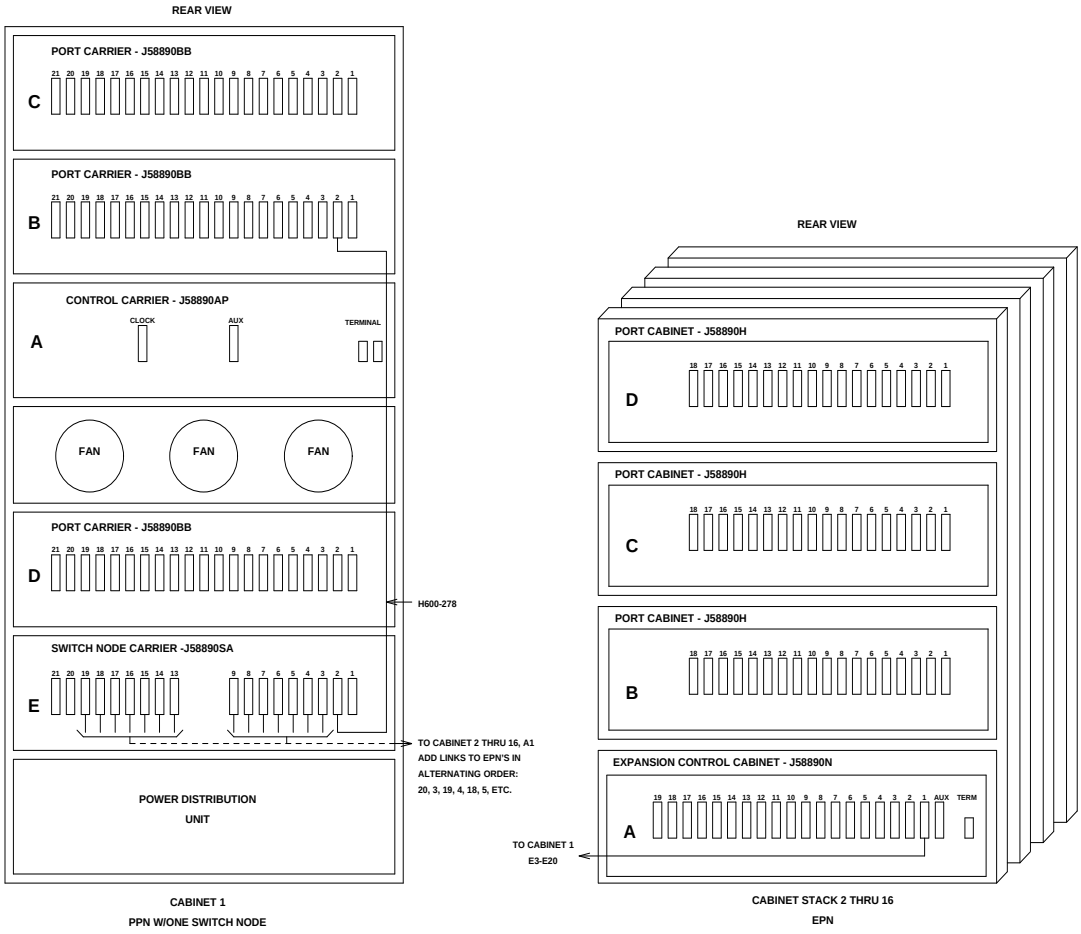


Figure 3-31. Fiber-Optic Connections through Center Stage Switch

For One to Fifteen High-Reliability EPNs.

1. Behind the PPN cabinet (see Figure 3-32):
   - Install a lightwave transceiver (9823-A, 9823-B, or 300A) on cable connector at slot 1E02.
   - Install a lightwave transceiver (9823-A, 9823-B, or 300A) on cable connector at slot 1C02.
   - Connect one end of the metallic intercarrier cable to the lightwave transceiver at slot 1E02.
   - Route the intercarrier cable from the lightwave transceiver to the cabinet's cable tray and upward to carrier ''C.''
   - Connect the other end of the intercarrier cable to the lightwave transceiver at slot 1C02.
   - Install a lightwave transceiver (9823-A, 9823-B, or 300A) on cable connector at slot 1E20.
   - Install a lightwave transceiver (9823-A, 9823-B, or 300A) on cable connector at slot 1D02.
   - Connect one end of the metallic intercarrier cable to the lightwave transceiver at slot 1E20.
   - Route the intercarrier cable from the lightwave transceiver to the cabinet's cable tray and upward to carrier ''D.''
   - Connect the other end of the intercarrier cable to the lightwave transceiver at slot 1D02.
   - 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 3-32):
   - For each EPN, install one lightwave transceiver (9823-A, 9823-B, or 300A) on a cable connector with the following order of slots: 1E03, 1E19, 1E04, 1E18, 1E05, 1E17, etc.
   - Connect one end of each fiber-optic cable to each lightwave transceiver, just installed.
   - Delicately 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:
   - Install the same kind of lightwave transceiver (9823-A, 9823-B, or 300A) on cable connector at slot A01.
   - Connect the other end of the fiber-optic cable to the lightwave transceiver, just installed, at slot A01.

- Delicately attach the fiber-optic cable (with cable ties) to the rear covers of the EPN stack.
- 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.

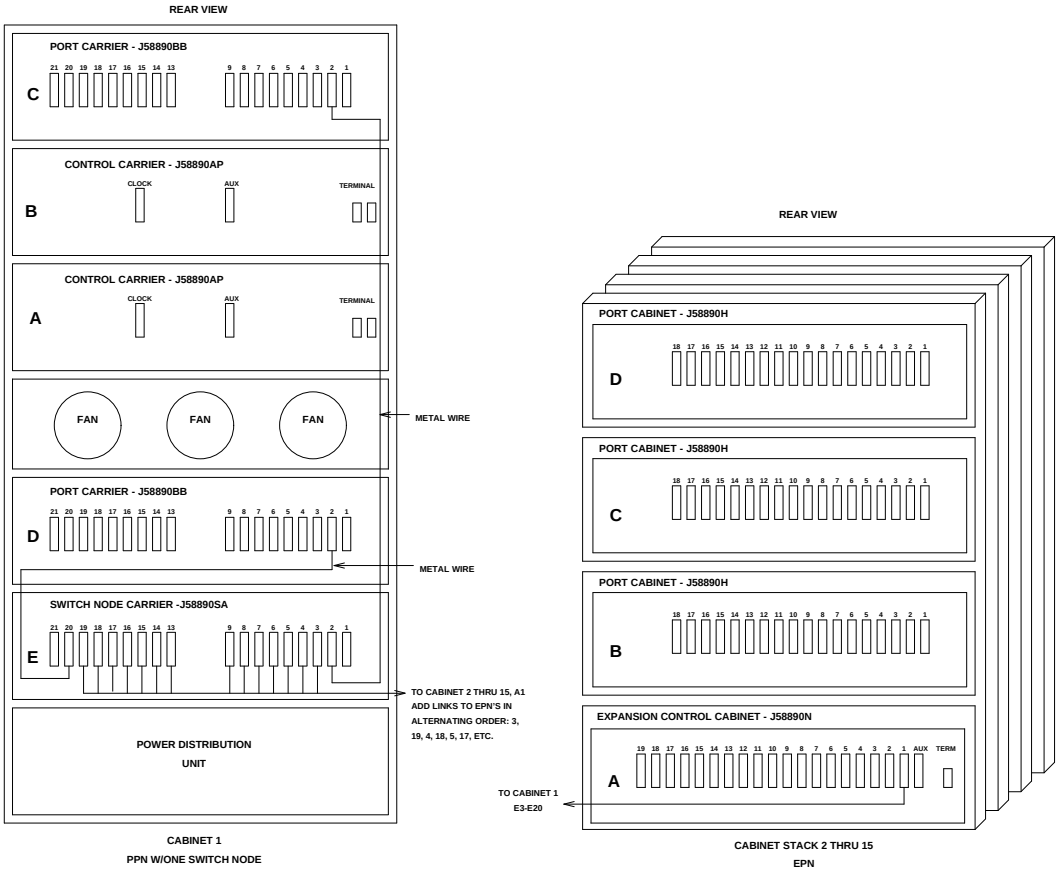


Figure 3-32. Fiber-Optic Connections through Center Stage Switch

For One to Fifteen Critical-Reliability EPNs.

1. Behind the PPN cabinet (see Figure 3-33):
   - Install a lightwave transceiver (9823-A, 9823-B, or 300A) on cable connector at slot 1E01.
   - Install a lightwave transceiver (9823-A, 9823-B, or 300A) on cable connector at slot 1E02.
   - Connect the metallic intracarrier cable to the lightwave transceivers at slots 1E01 and 1E02.
   - Install a lightwave transceiver (9823-A, 9823-B, or 300A) on cable connector at slot 1D01.
   - Install a lightwave transceiver (9823-A, 9823-B, or 300A) on cable connector at slot 1D02.
   - Connect the metallic intracarrier cable to the lightwave transceivers at slots 1D01 and 1D02.
2. Behind switch node carrier E of PPN cabinet 1 (see Figure 3-33):
   - For each EPN, install one lightwave transceiver (9823-A, 9823-B, or 300A) on a cable connector with the following order of slots: 1E20, 1E03, 1E19, 1E04, 1E18, 1E05, etc.
   - Connect one end of each fiber-optic cable to each lightwave transceiver, just installed.
   - Delicately 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:
   - Install the same kind of lightwave transceiver (either 9823-A, 9823-B, or 300A) on cable connector at slot A01.
   - Connect the other end of the fiber-optic cable to the lightwave transceiver, just installed, at slot A01.
   - Delicately attach the fiber-optic cable (with cable ties) to the rear covers of the EPN stack.
   - 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.
4. Behind switch node carrier D of PPN cabinet 1 (see Figure 3-33):
   - For each EPN, install one lightwave transceiver on a cable connector with the following order of slots: 1E20, 1E03, 1E19, 1E04, 1E18, 1E05, etc.
   - Connect one end of each fiber-optic cable to each lightwave transceiver, just installed.
   - Delicately 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:
   - Install the same kind of lightwave transceiver (either 9823-A, 9823-B, or 300A) on cable connector at slot B02.
   - Connect the other end of the fiber-optic cable to the lightwave transceiver, just installed, at slot B02.
   - Delicately attach the fiber-optic cable (with cable ties) to the rear covers of the EPN stack.
   - 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.

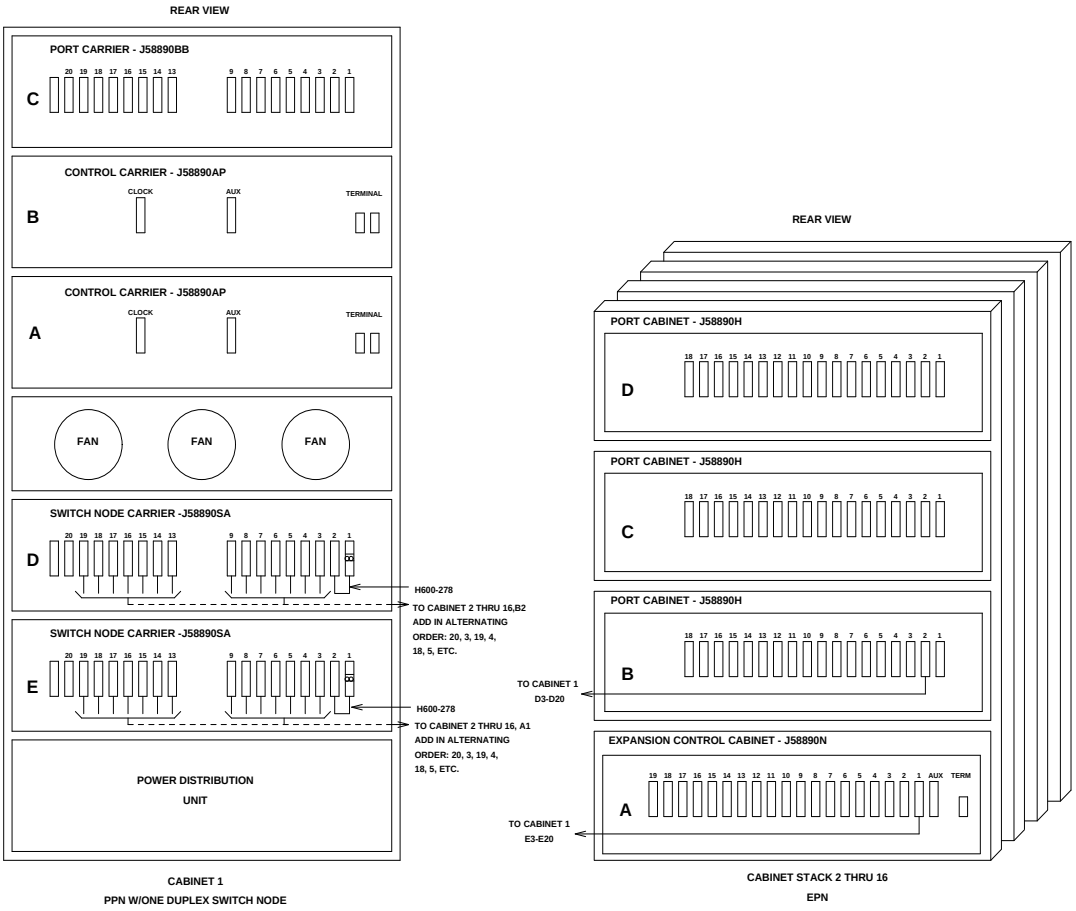


Figure 3-33. Fiber-Optic Connections through Center Stage Switch

DS1 CONV-Remoted Cabinets

See NOTES. Digital Services 1 (DS1) facilities and associated equipment-room hardware and cabling can interconnect two port networks (PNs) located up to 100 miles apart. Although DS1 remoting always serves as a lower-bandwidth alternative to fiber remoting, DS1 remoting is especially attractive when:

- Fiber-optic cabling is unavailable to the remote site
- The desired distance between the port networks exceeds the practical fiber limit of 25,000 feet (about 5 miles), or the single-mode limit of 22 miles
- Digital Services facilities, with enough bandwidth for interconnection, already exist between the two port networks

NOTE:
As always, these distance limitations are approximate measurements of the *actual* fiber or copper right-of-way (not of the shortest linear distance) between the two endpoints.

NOTE:
The 100-mile limit for DS1 remoting is the maximum distance between *any* two port networks in a DEFINITY ECS R5r system with either direct or switched port-network connections.

For example, in a *directly connected* system, a single EPN can be remoted up to 100 miles. This is because the length of the *direct* fiber connection from any port network in the local equipment room to the remote EPN is 100 miles.

However, if more than one EPN is remoted in a directly connected system, the 100-mile limit applies to any two port networks. Assuming straight cable runs, suppose that a customer wants to remote one EPN 80 miles due east and another EPN due north of the local PPN. This arrangement can only be accommodated if the second EPN resides no more than 60 miles north of the PPN. This is because the direct fiber distance between the two EPNs is also limited to 100 miles.

As another example, in *switch-connected* system with numerous port networks, one EPN might be remoted 75 miles from the switch node. If this were the case, then the maximum distance that any other EPN could be remoted would be 25 miles.

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 (DS1C) 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. See NOTE. Use the running list that accompanies the upgrade equipment to determine which cable should be connected where. The following paragraphs only provide conceptual information about wiring a DS1C interface either to an expansion interface or to a switch-node interface, not step-by-step procedures for wiring a specific DEFINITY ECS R5r system.

NOTE:
It is important to label every cable that you install. For details, refer to the section, *Labels for Fiber-Optic Cables*, in Appendix E of the installation manual.

See NOTE. As shown in Figure 3-34, 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 TN573 SN Interface (for a switched connection to another port network).

NOTE:
For the purposes of a DEFINITY G3si to DEFINITY ECS R5r upgrade, these cables will usually connect to TN570 expansion interfaces (already installed) for direct connections between the new PPN and either one or two EPNs.

On the DS1C side, a 4C retainer binds this shielded cable to the DS1C port connector. On the EI/SNI side, a 4B retainer binds the cable to the EI/SNI port connector. The DS1C-to-EI/SNI cable also provides a piggy-back connector

enabling subsequent access to the public network. Table 3-7 lists the cable numbers and lengths for the possible connections.

Table 3-7. 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 Cabling to the Public Network. See NOTE. Use the running list that accompanies the upgrade equipment to determine which cable should be connected where. The following paragraphs only provide conceptual information about wiring a DS1C interface to a wall-field block, not step-by-step procedures for wiring a specific DEFINITY ECS R5r system.

NOTE:
It is important to label every cable that you install. For details, refer to the section, *Labels for Fiber-Optic Cables*, in Appendix E of the installation manual.

Figure 3-34 also shows the cabling between various port networks and the cross-connect field where the public network is accessed. If already connected to either an expansion or switch-node interface, a DS1C circuit pack already resides either in an EPN expansion control carrier or in a PPN port carrier or switch-node carrier (as already mentioned and shown in Figure 3-34).

Depending on the traffic requirements between the two port networks, a 25-foot H600-348 cable extends from the piggy-back connector (on each DS1C-to-EI/SNI cable) to from one to four channel service units (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 CSU(s) are connected to the wall-field block (corresponding to the equipment location of the DS1C) 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 spans (1.544 Mbps each). Between each port network’s wall field, the port networks communicate across leased lines in the public network.

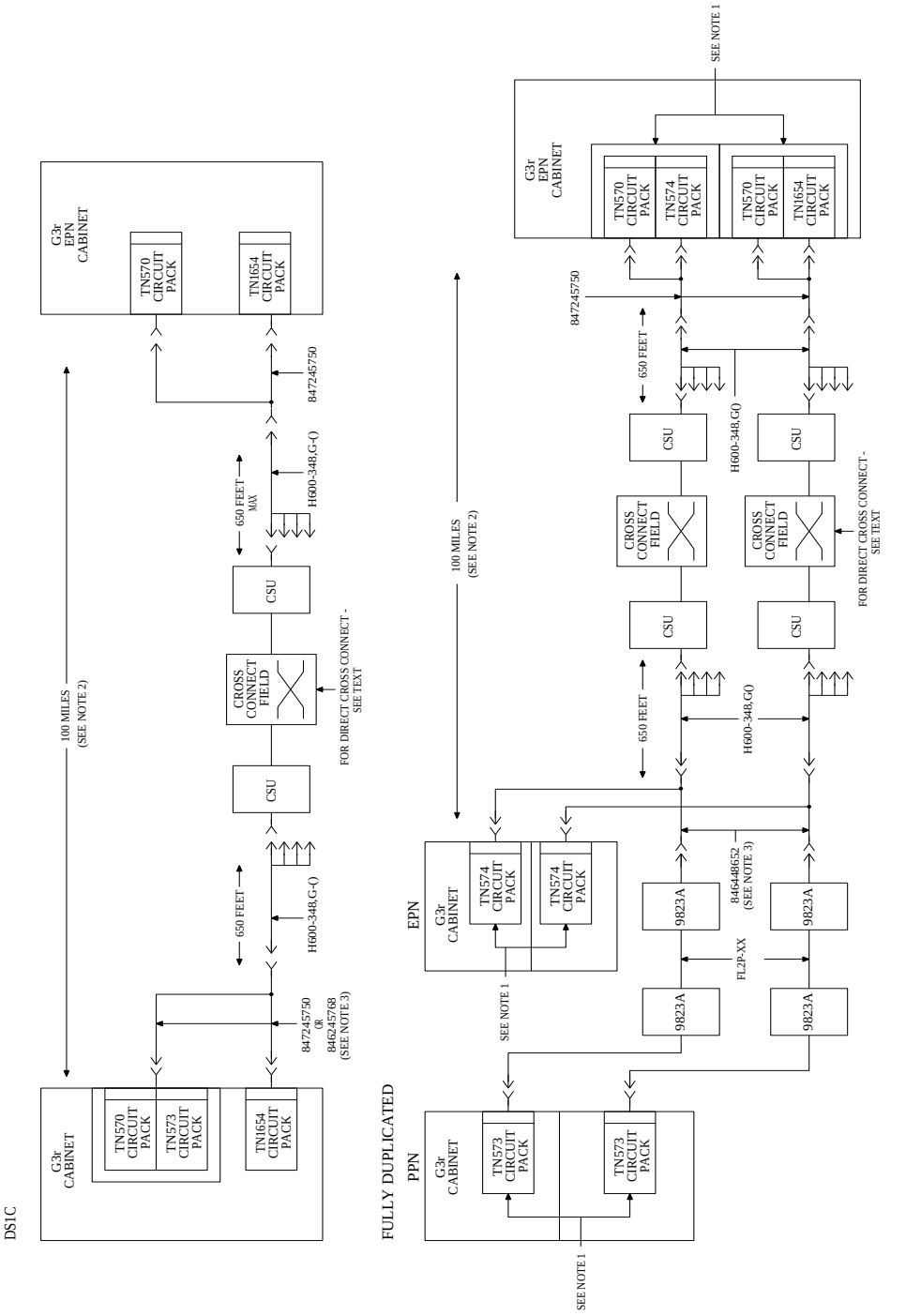


Figure 3-34. DS1 Connectivity betweem Remote PNs

Install Ground Plate(s)

NOTE:
If the system being upgraded is mounted with earthquake protection, do not install the ground plates at this time.

A ground plate is required between each cabinet (see Figure 3-35). The ground plate not only provides the ground connection between cabinets, it also stabilizes the cabinets.

1. See NOTE. Behind the cabinets, replace the upper and lower covers (leave the screws loose).

   NOTE:
   The rear covers for DEFINITY ECS R5r control carriers may need two detents (one for the TDM/LAN cable and another for the ICC cables). Therefore, if the DEFINITY G3si being upgraded to a critical-reliability DEFINITY ECS R5r's EPN was originally an R1V3, 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.

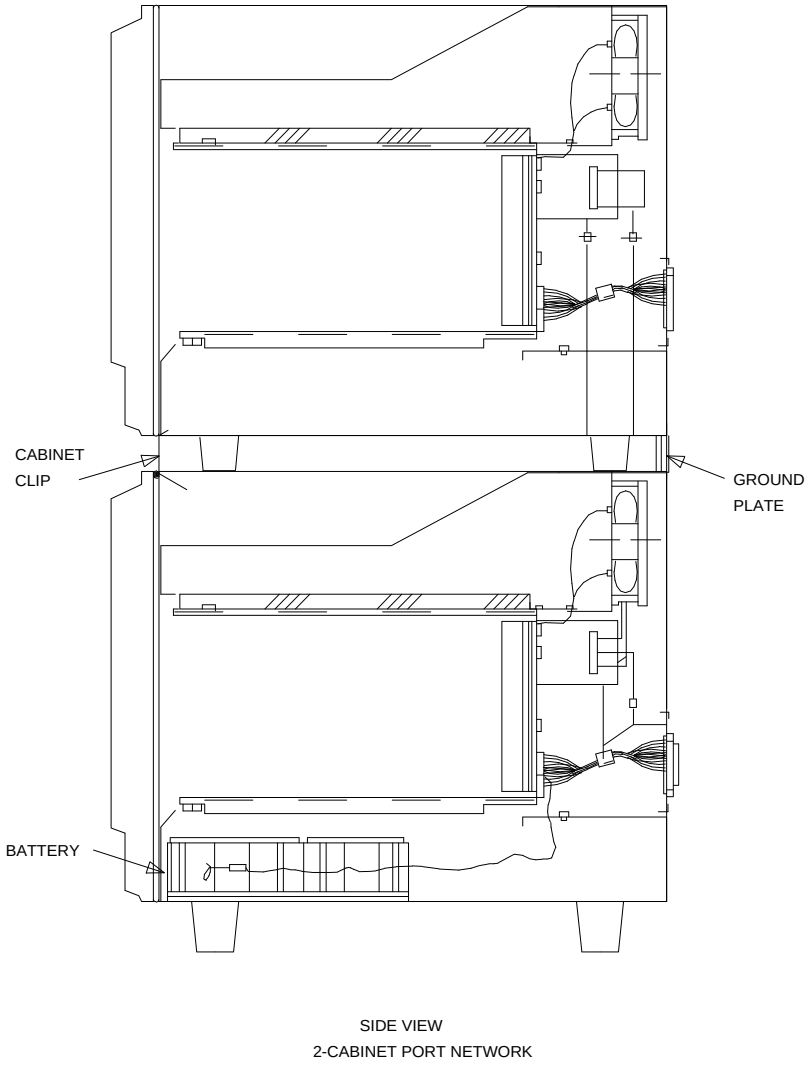


Figure 3-35. Locations of Ground Plate, Cabinet Clip, and Battery

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 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 3-35).

Connect Power and Grounding

1. Reconnect the 6-AWG cabinet ground wire from the ground bar in the cabinet.

   NOTE:
   A screwdriver is required to loosen and tighten the bolts that secure the ground wire to the ground bar.

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 DEFINITY G3si circuit pack reused in the upgrade conforms to the usable vintage requirements for a DEFINITY ECS R5r 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 DEFINITY ECS R5r system, install the 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:

- DEFINITY Communications System Generic 3 Management Applications (G3-MA)
- Remote DEFINITY Communications System 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

The following figures show this loop-around configuration and how the B25A cables are cross-connected.

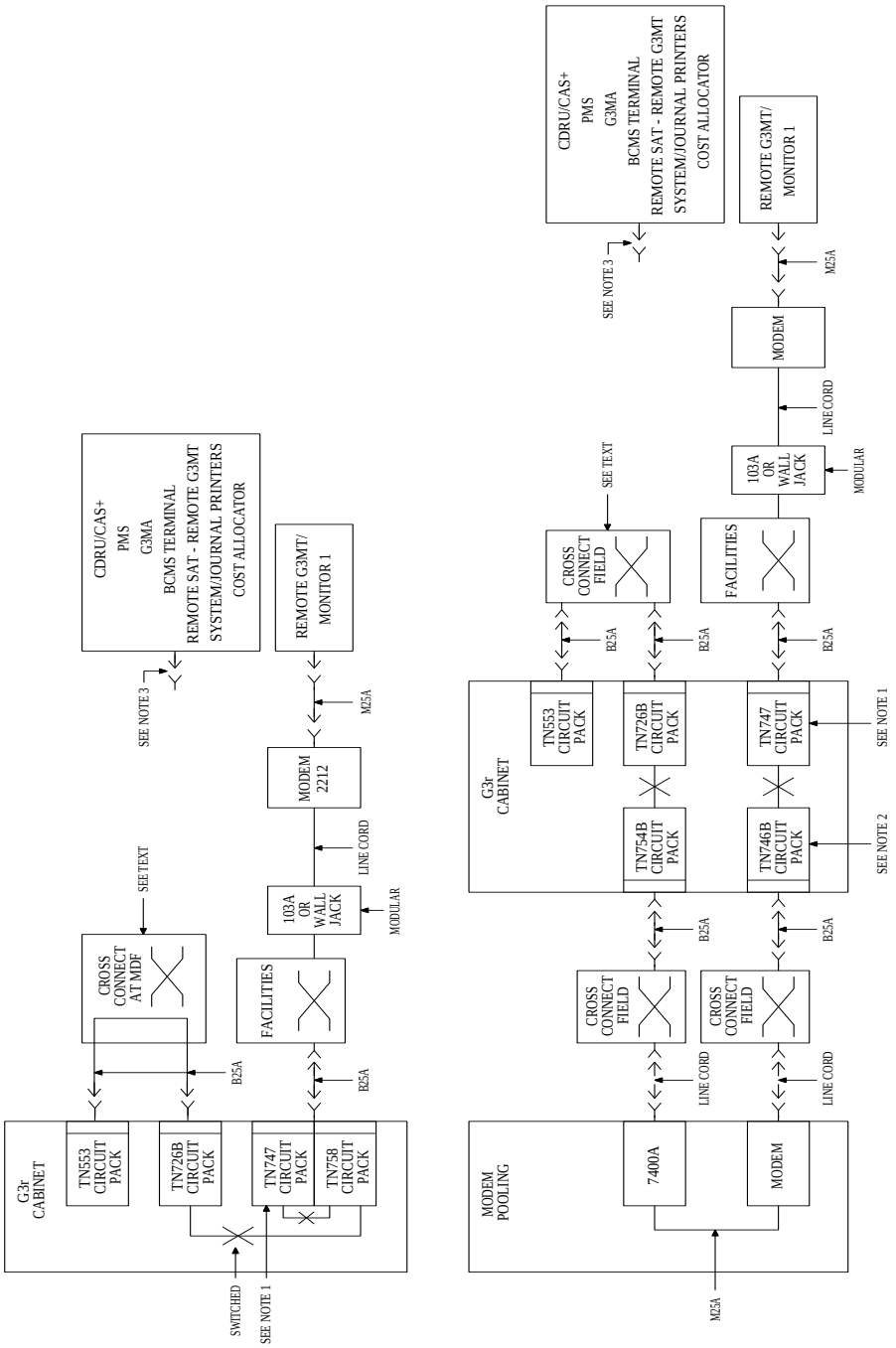


Figure 3-36. Connections: CDRU/CAS+, PMS, BCMS, Printers, G3-MA/MT

Pinouts for the TN553 and TN726B circuit packs shown cross-connected in Figure 3-36 are given in Table 3-8.

Table 3-8. Pinouts -TN553, TN726B

Pinouts					
TN553 (12 Ports)			**TN726B (8 Ports)**		
1	26		1	26	Blank
2	27	1	2	27	
3	28		3	28	1
4	29	2	4	29	Blank
5	30		5	30	
6	31	3	6	31	2
7	32		7	32	Blank
8	33	4	8	33	
9	34		9	34	3
10	35	5	10	35	Blank
11	36		11	36	
12	37	6	12	37	4
13	38		13	38	Blank
14	39	7	14	39	
15	40		15	40	5
16	41	8	16	41	Blank
17	42		17	42	
18	43	9	18	43	6
19	44		19	44	Blank
20	45	10	20	45	
21	46		21	46	7
22	47	11	22	47	Blank
23	48		23	48	
24	49	12	24	49	8
25	50	G	25	50	Blank

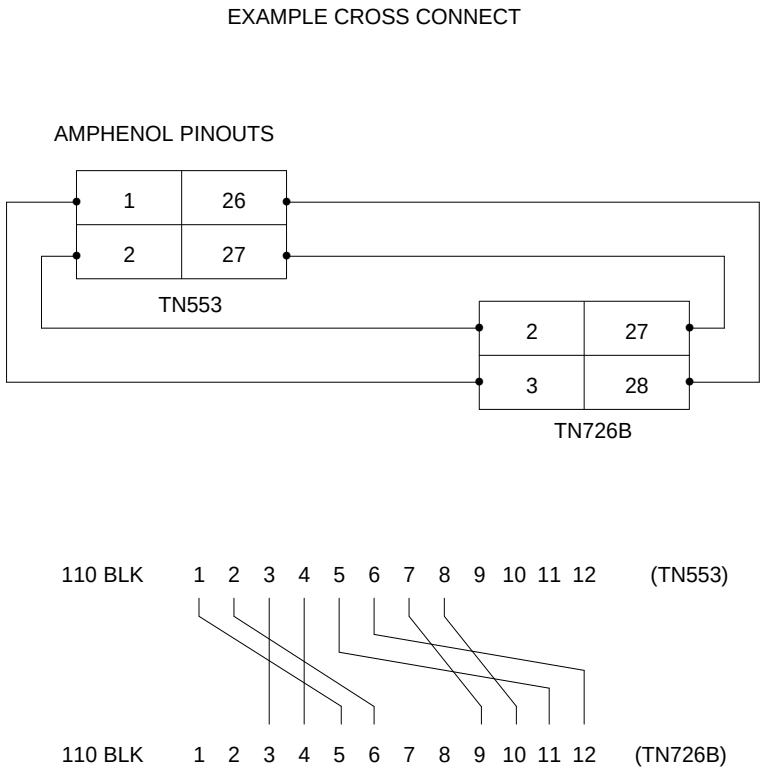


Figure 3-37. Example Cross Connect betweem TN553 and TN726B

Reseat DEFINITY LAN Gateway System

1. See WARNING. Reseat the LAN Gateway assembly into its backplane connectors in the carrier.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Reseat DEFINITY AUDIX System

See WARNING. If a DEFINITY AUDIX System resides in the system, reseat the AUDIX assembly to its backplane connectors.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Remove Power-Failure Ground Strap

Remove the previously installed ground strap from the power-failure transfer unit.

Reboot the System

1. Connect the G3-MT to the connector labeled "TERMINAL" 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. Verify the new DEFINITY ECS R5r system tape is inserted in the PPN cabinet.
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 goes through the reset level 4 rebooting process, loading blank translations from the *disk* (not the new tape). Rebooting requires 5 to 11 minutes.
6. Enter **`reset system 4 tape`**. Press RETURN. This command instructs the system to go through the reset level 4 rebooting process, loading the upgraded STS translations from the new *tape*. Rebooting requires 5 to 11 minutes.

   Refer to "Initialization and Recovery" and "LED Interpretation" chapters in *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*, for circuit-pack LED indications and screen displays.
7. Log in at the `login:` prompt on the G3-MT or G3-MA, and set the time to ensure that the system is booted properly.
8. If the system is high- or critical-reliability, enter **`status spe`** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.
9. Enter **`restore disk`** [**`spe-a`** or **`both`**] **`full`**. Press RETURN. This command instructs the system to write the upgraded STS translation information from memory to the disk(s).
10. Enter **`reset system 4`**. Press RETURN. This command instructs the system to go through the 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 DEFINITY ECS R5r. Upgraded DEFINITY G3si translations may appear on a different form, fields may have shifted within a form, and/or the names assigned to particular fields may have changed. Refer to Table 3-2 and Table 3-3, *DEFINITY Communications System Generic 3r Transition Reference*, and *DEFINITY Enterprise Communications Server Release 5 Implementation*, and make the necessary changes.

Restart DEFINITY LAN Gateway System

1. Log onto the DEFINITY LAN Gateway if you have not previously logged on. *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 in.
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 Wall Field

If not done during the installation of new PPN, relabel the wall field with the new port-network number of the upgraded DEFINITY ECS R5r EPN. (The STS software upgrade assigned the next port-network number, after the highest-numbered port network in the DEFINITY G3si system, to the upgraded EPN.)

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 DEFINITY ECS R5r control carriers may need two detents (one for the TDM/LAN cable and another for the ICC cables). Therefore, if the DEFINITY G3si being upgraded to a critical-reliability DEFINITY ECS R5r's EPN was originally an R1V3, 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 four 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, line up the earthquake front plate with the holes at the top and bottom of the cabinet (see Figure 3-38). Install the eight screws, but do not tighten.
7. Tighten all screws.
8. Repeat Steps 3 through 7 for the remaining cabinets.
9. Install the front door on each cabinet.

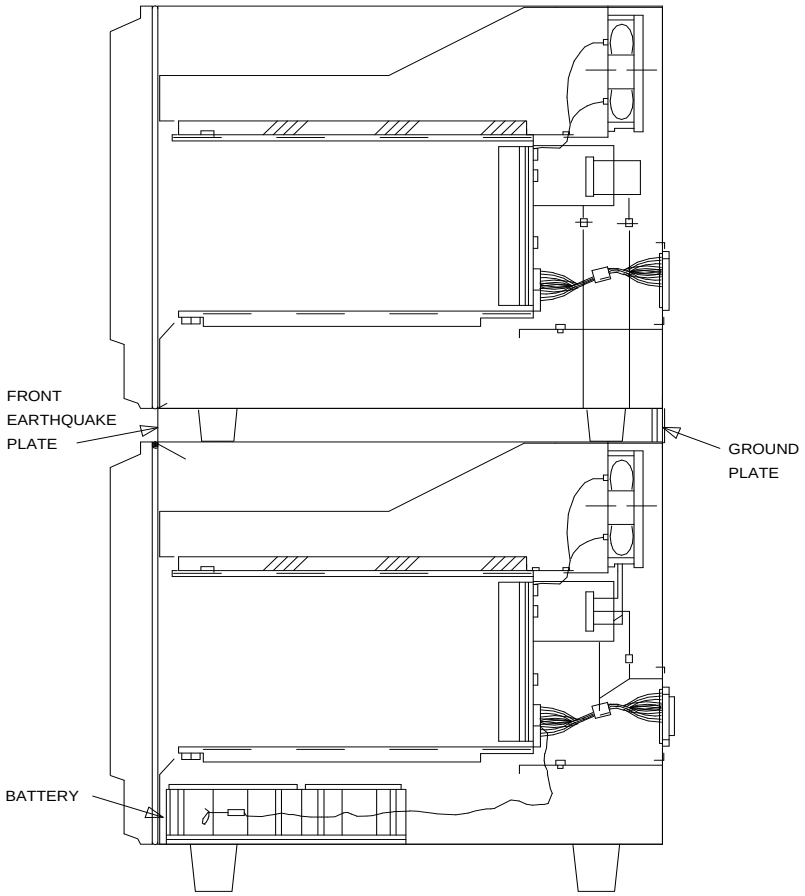


Figure 3-38. Locations of Ground Plate, Earthquake Front Plate, and Battery

Install Cable Clamps

Behind the cabinets, using screws provided, install two cable clamps on each ground plate (see Figure 3-39). These clamps are used to hold the port cables.

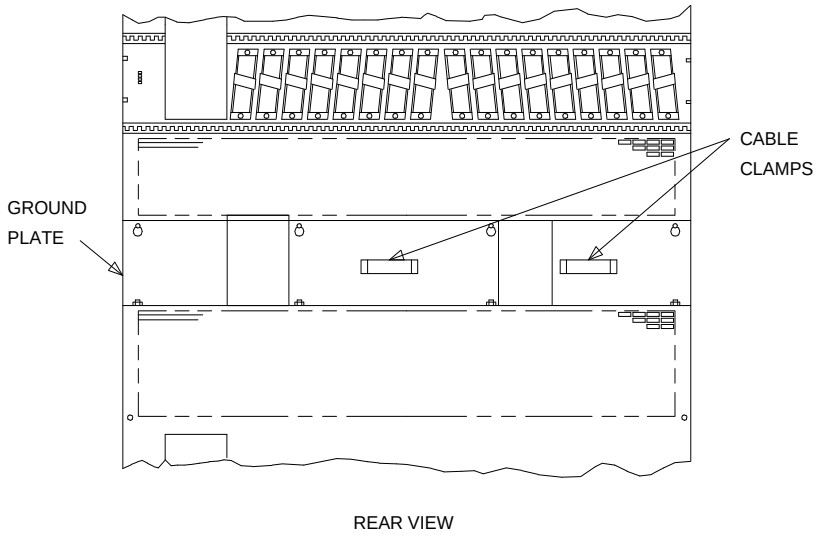


Figure 3-39. Locations of Ground Plate and Cable Clamps on Single-Carrier Cabinet

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 DEFINITY G3si 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''
- Put a TN570 Expansion Interface in port slot ''2'' (for a second EPN)
- Put a TN755B power supply in port slots ''16'' and ''17''

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 Implementation*, for instructions on performing the retranslations.

Rerecord Announcements

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

Run Acceptance Tests

Refer to Chapter 11 of *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets,* and perform the appropriate tests.

Resolve Alarms

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

Register System as DEFINITY ECS R5r

Get the serial number of the new DEFINITY ECS R5r PPN, and call the INADS Database Administrator at the Technical Service Center (1-800-248-1111), or the number provided by your local sales representative to register the upgraded system as a DEFINITY ECS R5r.

Return Replaced DEFINITY G3si Equipment

The DEFINITY G3si equipment replaced, during the upgrade to DEFINITY ECS R5r, should be returned to Lucent Technologies according to the requirements outlined in:

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

The replaced DEFINITY G3si equipment includes:

- DEFINITY G3si control cabinet, control circuit packs, and 982LS CURL
- If DEFINITY G3si system was duplicated, DEFINITY G3si duplicated control cabinet (J58890M) and control circuit packs
- DEFINITY G3si ICC cables (H600-182 G1)
- DEFINITY G3si tape cartridges
- If DEFINITY G3si contained an EPN, TN776 expansion interfaces
- Lower rear cover for expansion control cabinet
- 4-series lightwave transceivers

DEFINITY ECS Release 5 Additions

4

This chapter describes the procedures required to install additional features or equipment to an existing DEFINITY ECS Release 5 system.

All testing and trouble clearing must be done as specified in *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*.

The commands and procedures required to administer the system are provided in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

1. Add Multicarrier Cabinet EPN

Refer to “Install Multicarrier Cabinet Expansion Port Network” *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, for instructions on installing the EPN.

2. Split MCC EPN into Two EPNs

Service Interruption

Since splitting an EPN requires a service interruption, notify the customer in advance as to when the addition will be carried out.

The software requires that this be done off-site to change the cabinet into two port networks. All port assignments are removed before the cabinet can be changed, then the ports are re-assigned.

Verify System Status

Before proceeding, the system should be examined for alarms, and every problem should be corrected. The system must be alarm-free.

Disable Alarm Origination

1. See WARNING. Enter **`change system-parameters maintenance`** and press RETURN.
2. Make a note of the *Alarm Origination Activated* field administration. If the feature is enabled, enter **n** in this field and press RETURN to disable Alarm Origination.

   You will enable this feature again in one of the final processes. See NOTE.

WARNING:
If you do not disable Alarm Origination before making changes to the switch, the switch may generate alarms, resulting in unnecessary trouble tickets. Reducing redundant and unnecessary trouble tickets is critical for measuring the quality of Lucent services and products.

NOTE:
For earlier releases of the system software, you may also need to disable *Cleared Alarm Notification* and *Restart Notification* before you can submit the form successfully.

Save Translations

1. Log in at the G3-MT terminal.
2. If the system is high- or critical-reliability, enter **`status spe`** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.
3. Enter **`save translation`** [**`spe-a`** or **`both`**] **`disk`** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk(s).
4. If the MCC EPN contains a TN750/B Announcement circuit pack, enter **`display announcements`** and press RETURN.

   If administered recorded announcements are listed, enter **`list configuration software-version`**, press RETURN. Check Page 2 of this form to find out when the announcements were last saved, and ask the customer whether any announcements have changed since then.

   If so, the current announcements can be saved using the save announcements command. Enter **`save announcements disk`** and press RETURN.

5. Enter **backup disk** [**spe-a** or **both**] and press RETURN. This command instructs the system to backup the current information on disk to the system tape(s).
6. Update backup tape(s), if required.

Shut Down DEFINITY LAN Gateway System

If a DEFINITY LAN Gateway system resides in the PPN to be upgraded, prepare to shut down the DEFINITY LAN Gateway assembly and allow the disk to completely spin down. See Caution. See WARNING.

CAUTION:
Before using this procedure to shut down the DEFINITY LAN Gateway, make sure that you save the system parameters if you plan to reuse the current system.

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

1. Log onto the DEFINITY LAN Gateway if you have not previously logged on. *See the DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, for the procedure to log in.
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. See WARNING. To avoid an unexpected LAN Gateway reboot after an unplanned switch reboot, unseat the LAN Gateway assembly from its backplane connectors in the carrier.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Shut Down DEFINITY AUDIX System

1. See WARNING. If a DEFINITY AUDIX System resides in the MCC EPN 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. See WARNING. To avoid an unexpected AUDIX reboot after an unplanned switch reboot, unseat the AUDIX assembly from its backplane connectors.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Power Down Multicarrier EPN

At the MCC EPN's power-distribution unit, set the main circuit breaker to OFF.

Remove TDM/LAN Cable and Install Terminators

1. See CAUTION and NOTE. Remove the TDM/LAN cable (WP-91716 L7) from between the "A" and "D" carriers (See Figure 4-1, Figure 4-2, or Figure 4-3).

   CAUTION:
   When removing the TDM/LAN cables from an upgraded R1V3 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.

   NOTE:
   Note the position of each connector before disconnecting the TDM/LAN cable.

2. Install the two new ZAHF4 TDM/LAN bus terminators at the pin-field blocks where the ends of the TDM/LAN cable were connected (See Figure 4-1, Figure 4-2, or Figure 4-3).

Reseat DEFINITY LAN Gateway System

1. See WARNING. Reseat the LAN Gateway assembly into its backplane connectors in the carrier.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Reseat DEFINITY AUDIX System

See WARNING. If a DEFINITY AUDIX System resides in the MCC EPN, reseat the AUDIX assembly to its backplane connectors.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Power Up Multicarrier EPN

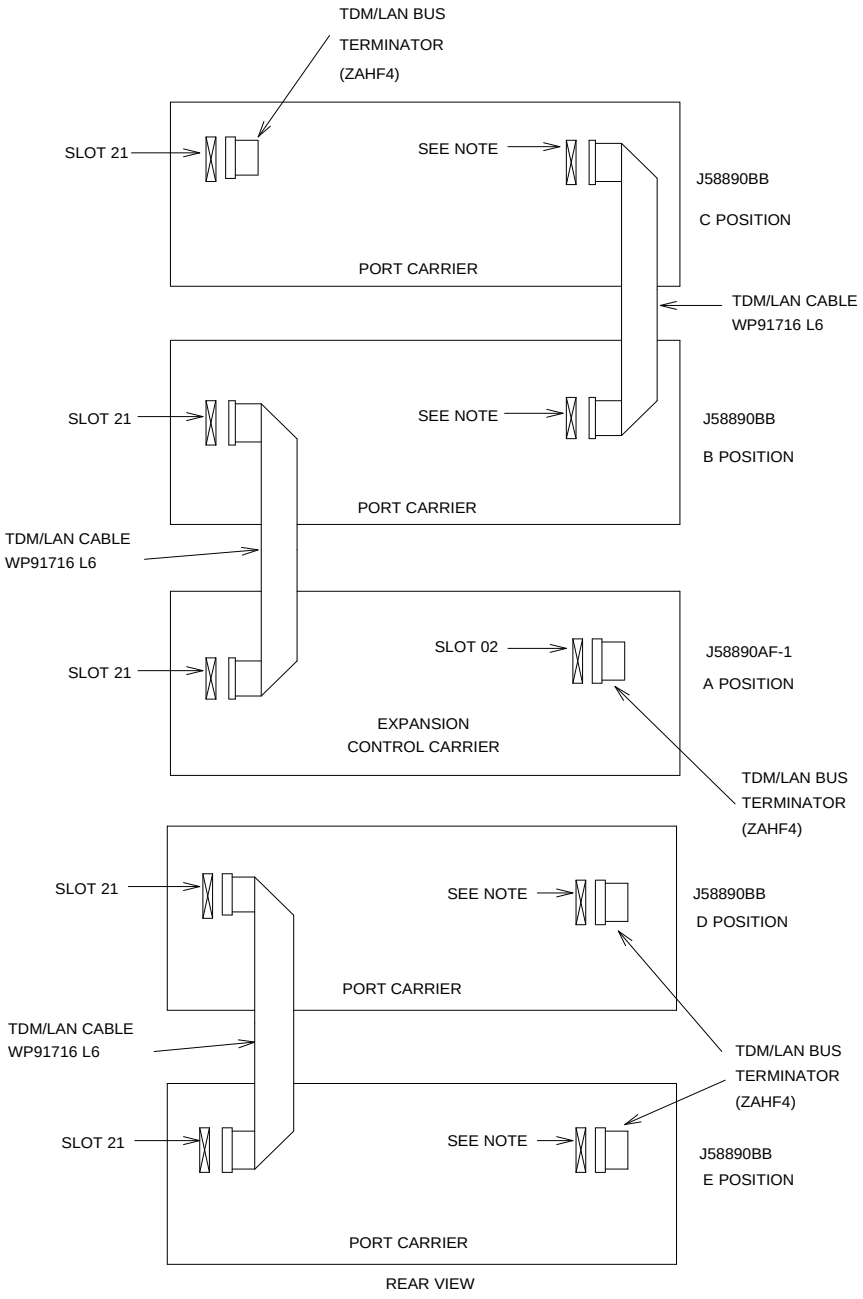
At the MCC EPN's power-distribution unit, set the main circuit breaker to ON.

Restart DEFINITY LAN Gateway System

1. Log onto the DEFINITY LAN Gateway if you have not previously logged on. *See the DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, for the procedure to log in.
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.

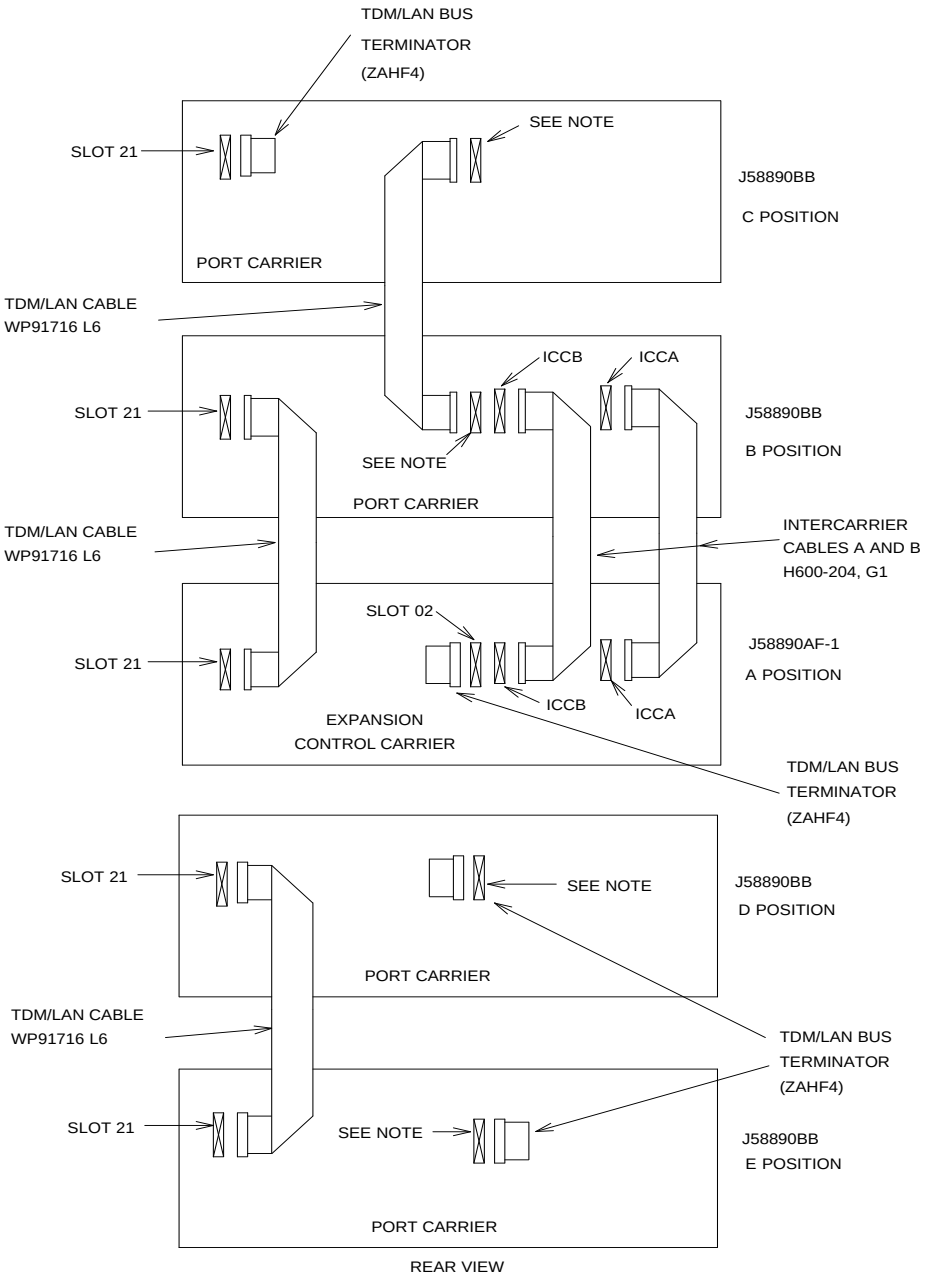
Install Expansion Interface Circuit Packs

1. Install one or two TN570B Expansion Interface circuit packs in the new EPN (See Figure 4-4, Figure 4-6, or Figure 4-8).
2. Interconnect the new EPN to the system (See Figure 4-4 to Figure 4-9).



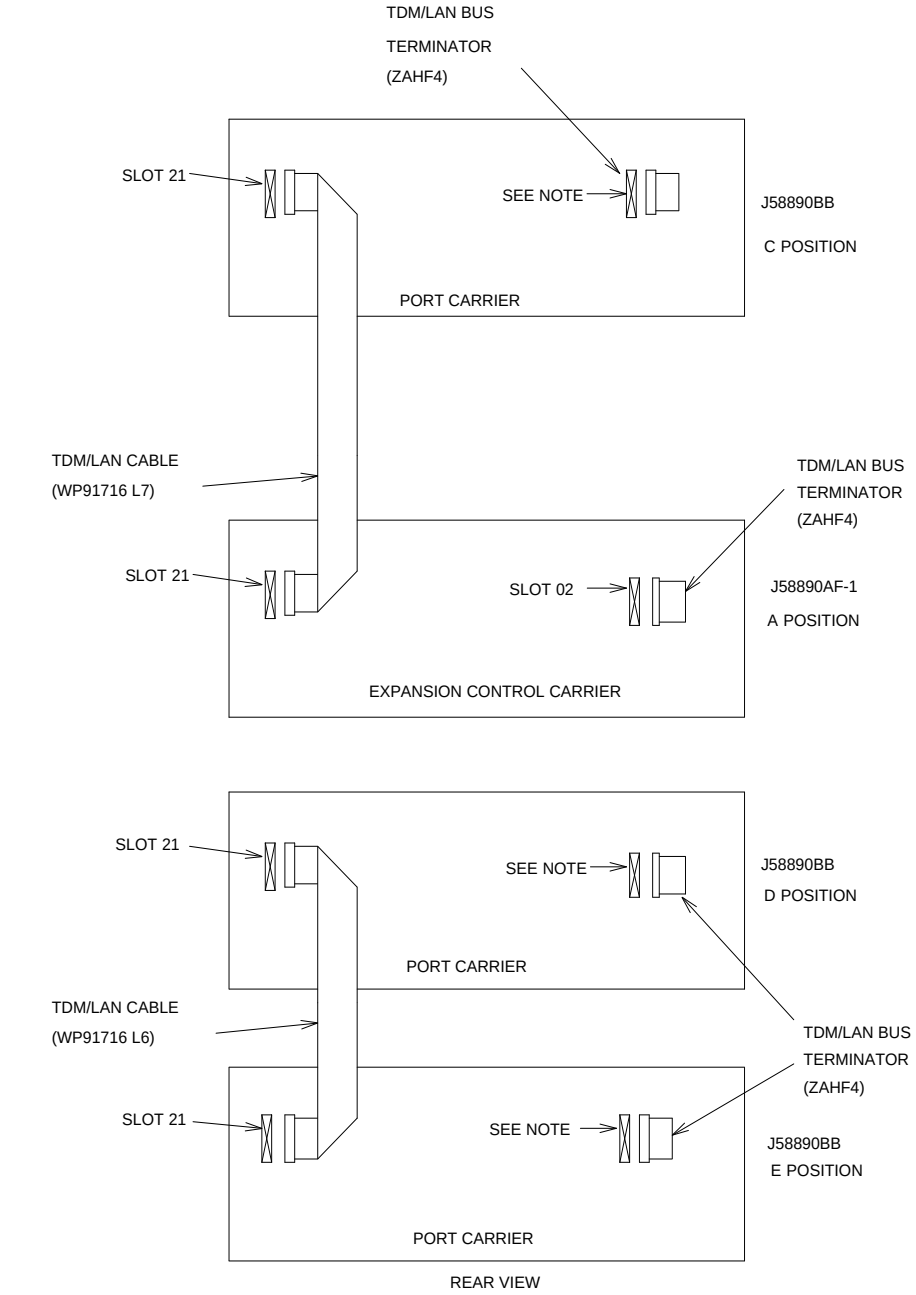
NOTE:
ON PORT CARRIER J58890BB-1, CONNECT THE TDM/LAN CABLE OR TDM/LAN BUS TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND -3, CONNECT THE TDM/LAN CABLE TO SLOT 01.

Figure 4-1. TDM/LAN Connections for Typical Multicarrier EPN



NOTE:
ON PORT CARRIER J58890BB-1, CONNECT THE TDM/LAN CABLE OR TDM/LAN BUS TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND -3, CONNECT THE TDM/LAN CABLE OR TDM/LAN BUS TERMINATOR TO SLOT 01.

Figure 4-2. Critical-Reliability TDM/LAN Connections for Typical Multicarrier EPN



NOTE:

ON PORT CARRIER J58890BB-1, CONNECT THE TDM/LAN CABLE OR TDM/LAN TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND -3, CONNECT THE TDM/LAN CABLES TO SLOT 01.

Figure 4-3. TDM/LAN Connections for Typical Upgraded G2 Universal Module

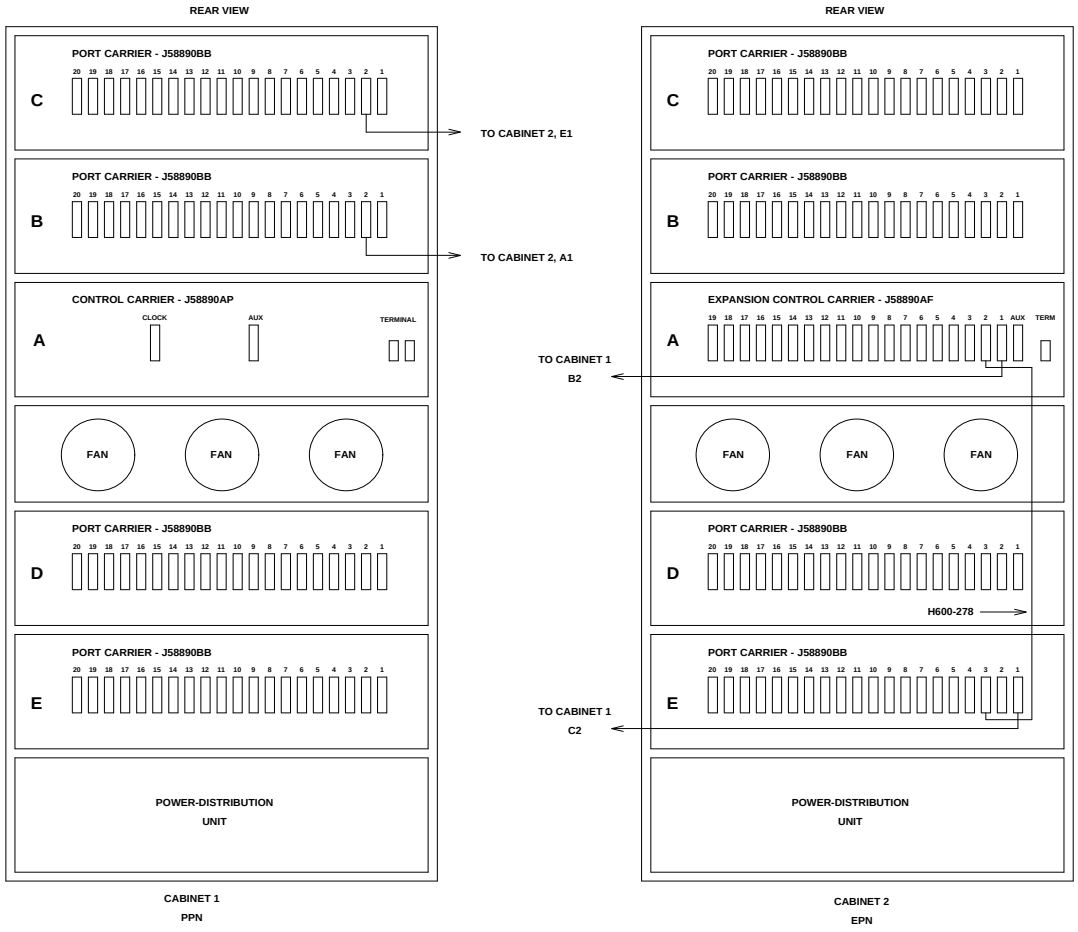


Figure 4-4. Standard-Reliability DEFINITY ECS R5r with Three Port Networks

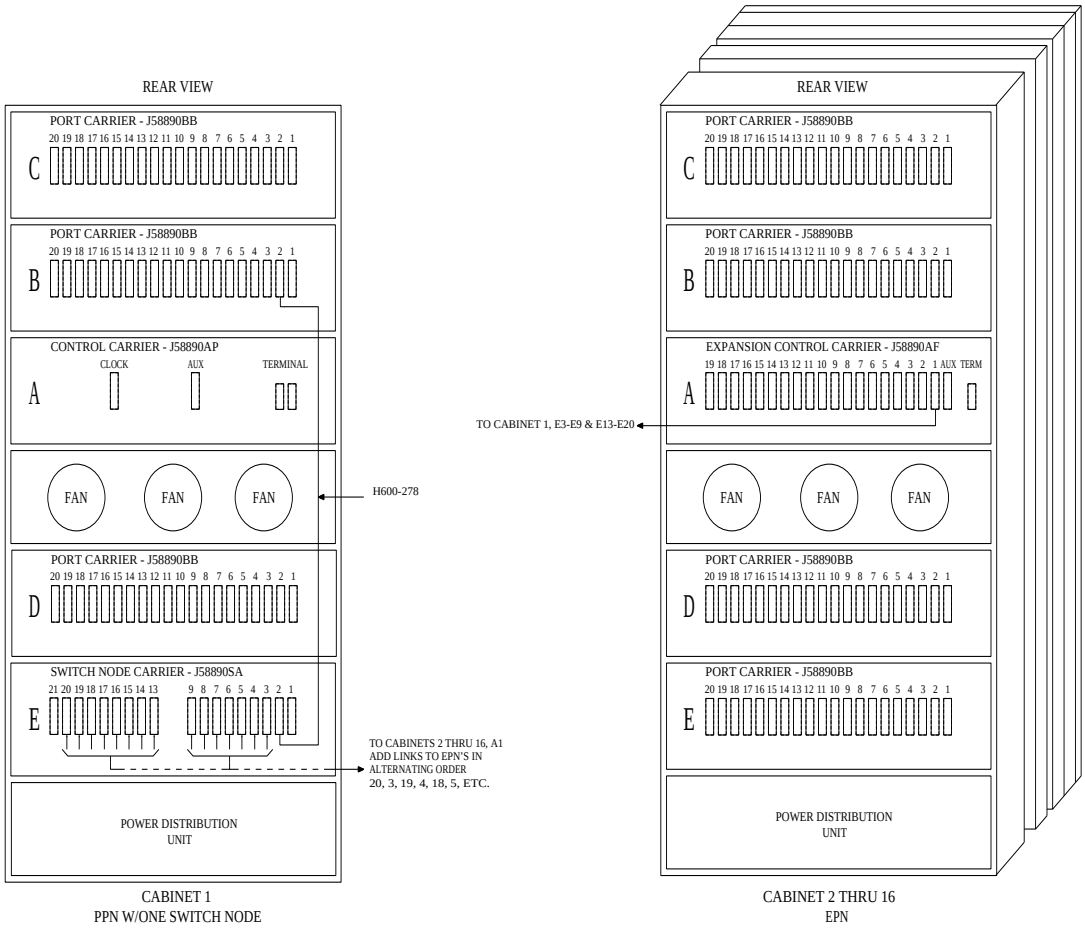


Figure 4-5. Standard-Reliability Fiber-Optic Connections through Center Stage Switch

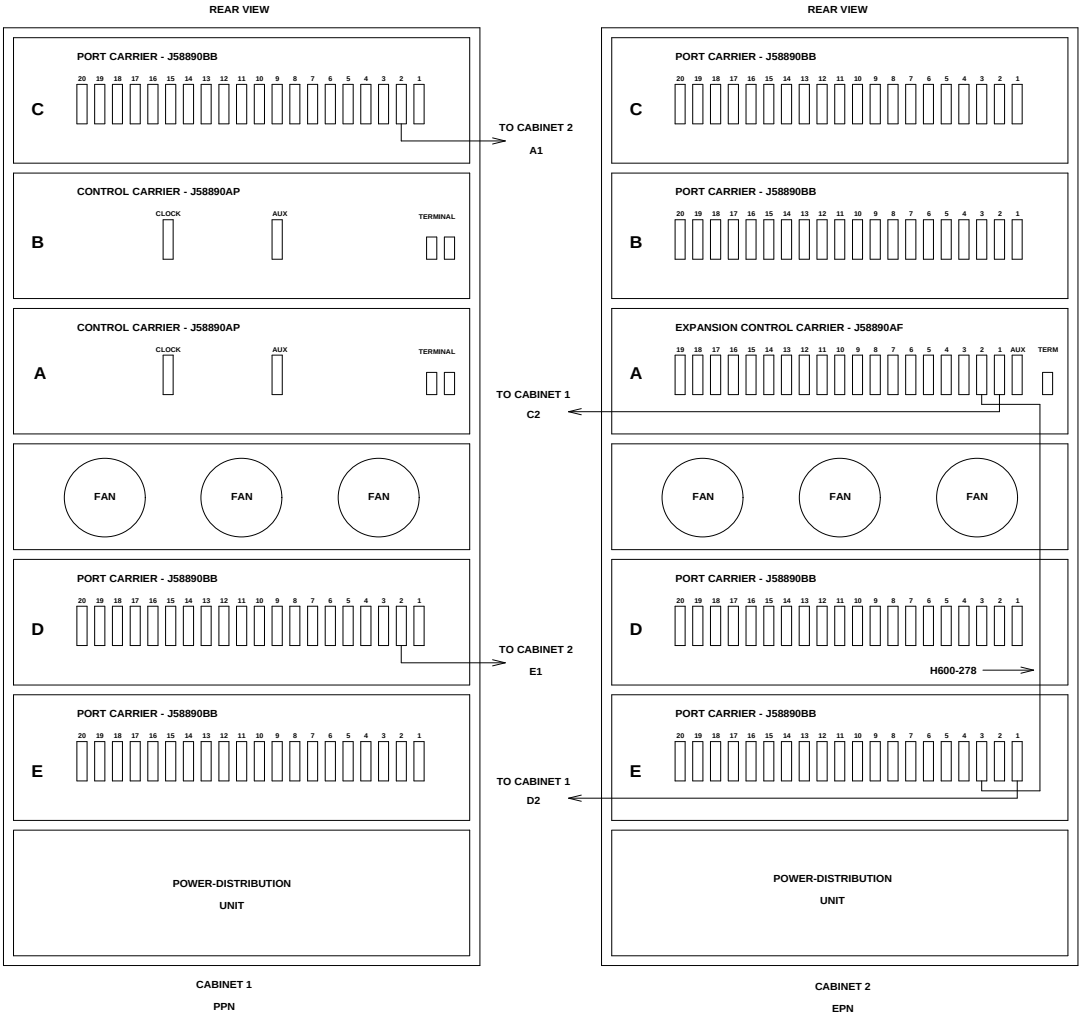


Figure 4-6. High-Reliability DEFINITY ECS R5r with Three Port Networks

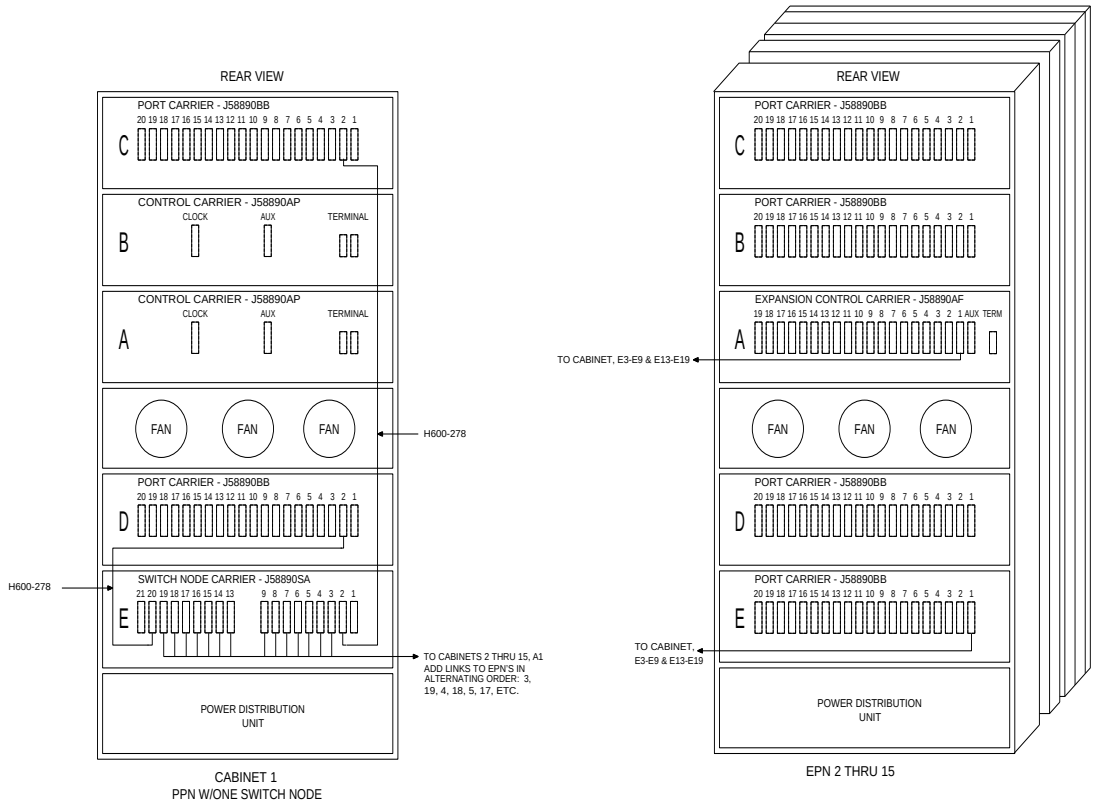


Figure 4-7. High-Reliability Fiber-Optic Connections through Center Stage Switch

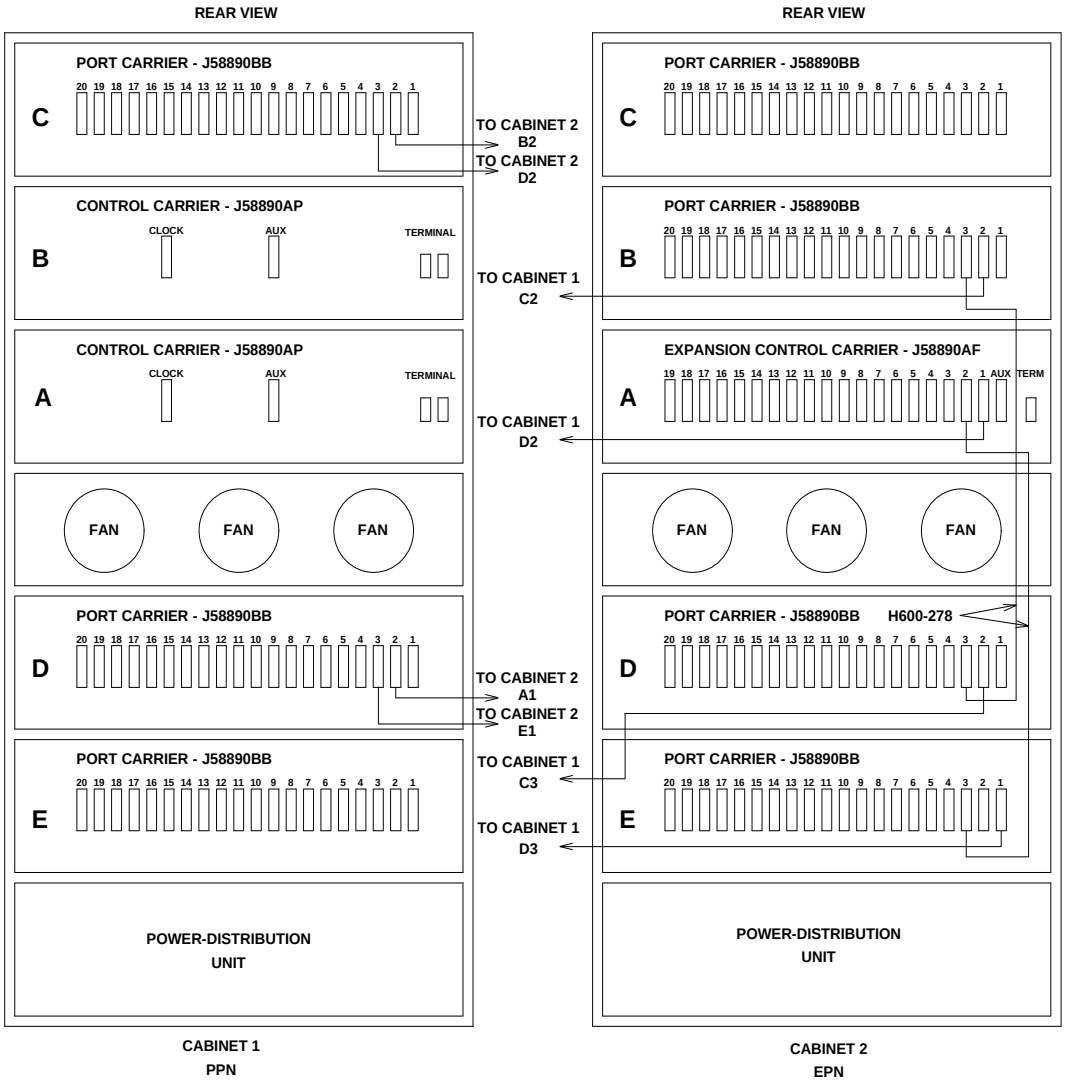


Figure 4-8. Critical-Reliability DEFINITY ECS R5r with Three Port Networks

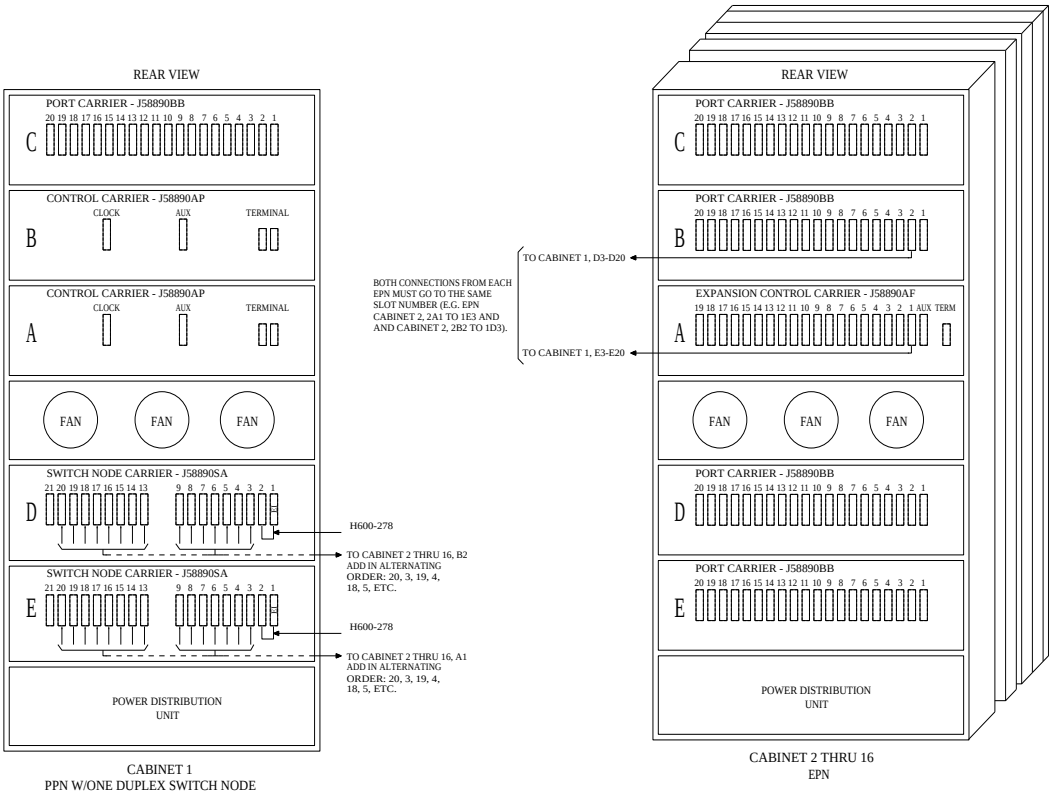


Figure 4-9. Critical-Reliability Fiber-Optic Connections through Center Stage Switch

Run Acceptance Tests

Refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, Issue 5, and perform the appropriate tests.

Resolve Alarms and Enable Alarm Origination

1. Examine the alarm log. Resolve any alarms that may exist by using the *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r* manual.
2. See NOTE. See WARNING. If the *Alarm Origination Activated* field administration that you previously noted is already set to *y*, be sure to enable Alarm Origination. Otherwise you do not need to enable Alarm Origination (proceed to the next section directly).

3. Enter **`change system-parameters maintenance`** and press RETURN.

   The *Alarm Origination Activated* field has been changed to *Alarm Origination to OSS Numbers* to support more than one OSS (INADS, etc.).

   Enter **`first-only`** in this field to enable Alarm Origination (to the first OSS, which should be INADS).

   Be sure to enter *y* in both *Cleared Alarm Notification* and *Restart Notification* fields if they are not enabled already. Press RETURN.

4. Enter **`save translation [ spe-a | both ] disk`** and press RETURN.

NOTE:
If you have lost the previous administration of the *Alarm Origination* field, you may register the system again with the INADS Database Administrator at the TSC. The INADS Database Administrator will enable Alarm Origination as part of the registration process.

WARNING:
If you do not enable Alarm Origination when the customer has purchased a services contract, the switch will not report any alarm to the TSC automatically, causing the TSC to be unable to fulfill the services contract.

3. Add Auxiliary Cabinet

Refer to “Install Auxiliary Cabinet” in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, for instructions on installing the auxiliary cabinet.

4. Add Control Carrier

To upgrade a standard-reliability system to a high- or critical-reliability DEFINITY ECS Release 5 system, a second control carrier is added to carrier position “B” of the existing multicarrier cabinet PPN.

Service Interruption

Since the addition of the second control carrier requires a service interruption, notify the customer in advance as to when the addition will be carried out.

Verify System Status

Before proceeding, the system should be examined for alarms, and every problem should be corrected. The system must be alarm-free.

Disable Alarm Origination

1. See WARNING. Enter **`change system-parameters maintenance`** and press RETURN.
2. Make a note of the *Alarm Origination Activated* field administration. If the feature is enabled, enter **n** in this field and press RETURN to disable Alarm Origination.

   You will enable this feature again in one of the final processes. See NOTE.

WARNING:
If you do not disable Alarm Origination before making changes to the switch, the switch may generate alarms, resulting in unnecessary trouble tickets. Reducing redundant and unnecessary trouble tickets is critical for measuring the quality of Lucent services and products.

NOTE:
For earlier releases of the system software, you may also need to disable *Cleared Alarm Notification* and *Restart Notification* before you can submit the form successfully.

Save Translations

1. Log in at the G3-MT terminal.
2. Enter **save translation [spe-a] disk** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk.
3. If the PPN or an EPN (where PPN Port Carrier B will be relocated) contains a TN750 Announcement circuit pack, enter **display announcements** and press RETURN.

   If administered recorded announcements are listed, enter **list configuration software-version**, press RETURN. Check Page 2 of this form to find out when the announcements were last saved, and ask the customer whether any announcements have changed since then.

   If so, the current announcements can be saved using the save announcements command. Enter **save announcements disk** and press RETURN.
4. Enter **backup disk [spe-a]** and press RETURN. This command instructs the system to backup the current information on disk to the system tape.
5. Update backup tape, if required.

Label Cables

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

Shut Down DEFINITY LAN Gateway System

If a DEFINITY LAN Gateway system resides in the control cabinet to be upgraded, prepare to shut down the DEFINITY LAN Gateway assembly and allow the disk to completely spin down. See Caution. See WARNING.

CAUTION:
Before using this procedure to shut down the DEFINITY LAN Gateway, make sure that you save the system parameters if you plan to reuse the current system.

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

1. See WARNING. To avoid an unexpected LAN Gateway reboot after an unplanned switch reboot, unseat the LAN Gateway assembly from its backplane connectors in the carrier.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

2. Log onto the DEFINITY LAN Gateway if you have not previously logged on. *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 in.
3. When the main menu appears, select *Maintenance*.
4. Select *Reset System* from the *Maintenance* menu.
5. Select *Shutdown* from the *Reset System* menu.

Shut Down DEFINITY AUDIX System

1. See WARNING. If a DEFINITY AUDIX System resides in the PPN or an EPN (where PPN Port Carrier B will be relocated), 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. See WARNING. To avoid an unexpected AUDIX reboot after an unplanned switch reboot, unseat the AUDIX assembly from its backplane connectors.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Power Down Port Networks

1. At the PPN, on the power-distribution unit, set the main circuit breaker to OFF.
2. At an EPN (where PPN port carrier B will be relocated), on the power-distribution unit, set the main circuit breaker to OFF.

Remove Doors and Panels and Disconnect Cables

1. Remove the front door from the PPN cabinet (if desired).
2. 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 wide blade (1/4-inch recommended) into the slot, and twist the screwdriver. The retainer will snap open easily so that the cable can be removed.
3. At the cabinet, disconnect previously labeled cables associated with the carrier to be removed.
4. Remove the back doors from the cabinet.

Remove Circuit Packs from Port Carrier B

1. To ensure that circuit packs and power units in the "B" carrier are properly replaced, label each component with its slot number.
2. Disconnect the power cords from the power units in the "B" carrier.
3. See WARNING. Remove all circuit packs and power units from carrier "B." Store the circuit packs in the static-proof packaging.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

4. Remove the circuit-pack blanks from slots that do not contain circuit packs.
5. Remove the front trim plate from the "B" carrier by pulling straight off.

Remove Port Carrier B

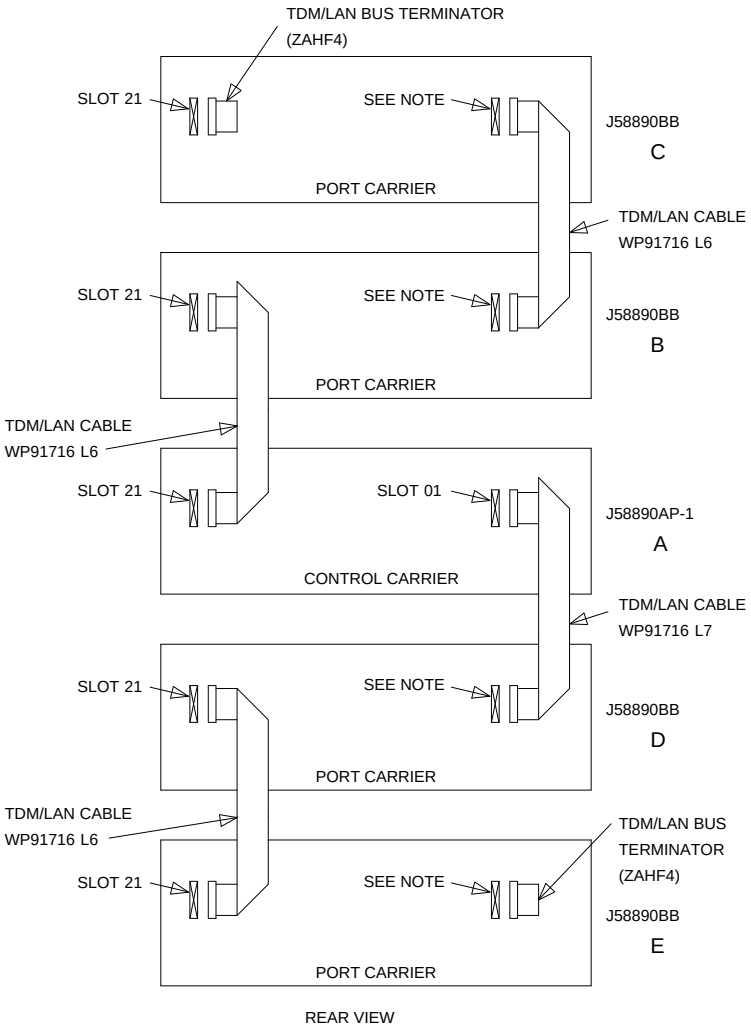
1. Behind the PPN, disconnect and remove the ICCB cable from between carrier "B" and carrier "A." It will not be reused.
2. See NOTE. Disconnect one end of the TDM/LAN cable (between the "B" and "C" carriers) from the "B" carrier (See Figure 4-10).
3. See NOTE. Disconnect one end of the TDM/LAN cable (between the "B" and "A" carriers) from the "B" carrier (See Figure 4-10).

   NOTE:
   Note the position of the cable before disconnecting the TDM/LAN cables.

4. Disconnect one end of the eight ground straps (between the “B” and “C” carriers) from the “B” carrier (See Figure 4-11). These straps will be reconnected to the new “B” carrier.
5. Disconnect one end of the eight ground straps (between the “B” and “A” carriers) from the “B” carrier (See Figure 4-11). These straps will be reconnected to the new “B” carrier.
6. Disconnect the “P1” (small 9-pin) connector from the “B” carrier (See Figure 4-12). Move the cable into a position where it will not interfere with removing the carrier.
7. Behind the “B” carrier, remove the two screws holding the “B” carrier’s rear connector panel to the cabinet frame. These are frame ground screws.
8. In front of “B” 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.
9. See CAUTION. 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.

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



NOTE:
ON PORT CARRIER J58890BB-1, CONNECT THE TDM/LAN CABLE OR TDM/LAN TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND -3, CONNECT THE TDM/LAN CABLES TO SLOT 01.

Figure 4-10. TDM/LAN Connections for Standard-Reliability R5r PPN

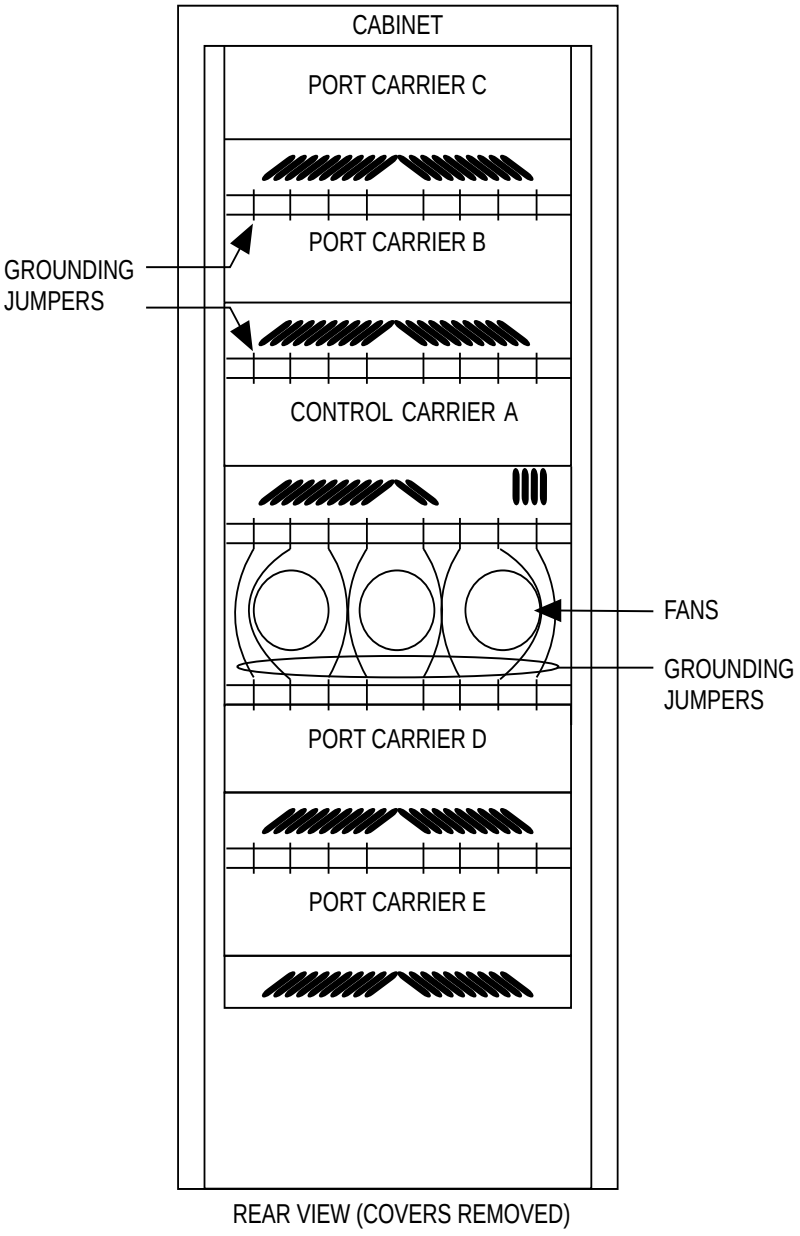


Figure 4-11. Locations of Grounding Jumpers

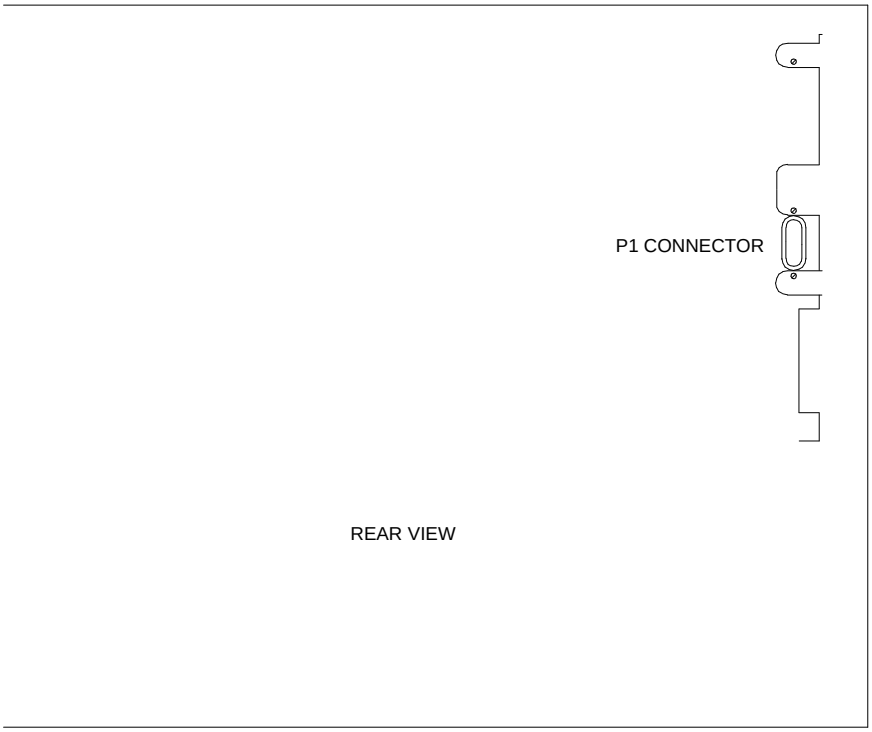


Figure 4-12. Location of P1 Connector

Prepare New Control Carrier B

1. Visually inspect the new carrier for any damage. Verify that the backplane pins are not bent.
2. Place the control carrier on the floor so that the rear of the carrier faces up.
3. Verify that the two AHF111 processor-bus (PX) terminators are installed on the "B" carrier to the pin-field blocks marked "PX" (top portion of slots "4" and "10"). The PX terminators are attached with the components on the left side as viewed from the rear.

Install New Control Carrier B

1. Install the J58890AP control 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 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. See CAUTION. Fasten the carrier into position with four self-tapping screws saved from the removal of the old carrier.

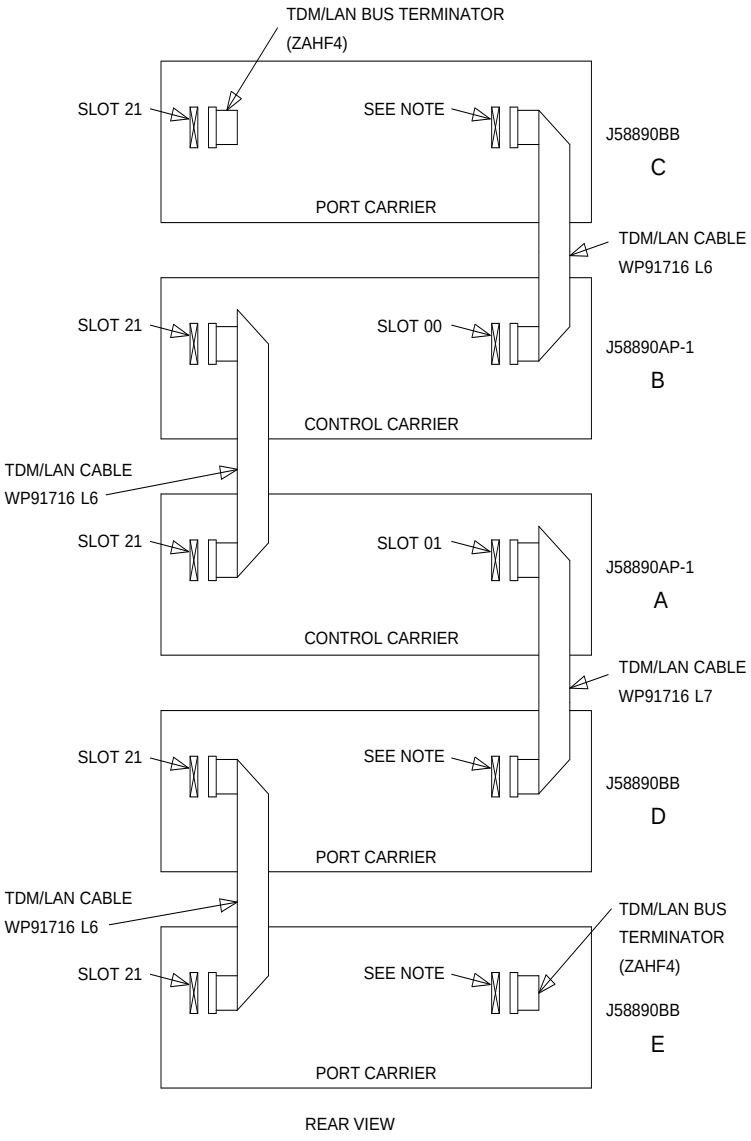
   CAUTION:
   Carefully realign the threads on the self-tapping screws by turning them clockwise a turn or two before tightening them to avoid stripping the threads out of the framework.

3. Behind the carrier, replace the two screws saved from the removal of the old carrier. These are frame ground screws.
4. Connect the "P1" (small) connector to the "B" carrier (See Figure 4-12). If necessary, to get enough slack in the cables, cut the tie wrap holding the intercabinet cable from the upright in the area being installed. Snap the connector lock into place to ensure the connection is properly made.
5. Connect the eight ground straps from the "C" carrier to the new "B" carrier (See Figure 4-11). These straps were left connected to the "C" carrier when the old "B" carrier was removed.
6. Connect the eight ground straps from the "A" carrier to the new "B" carrier (See Figure 4-11). These straps were left connected to the "A" carrier when the old "B" carrier was removed.

7. See NOTE. For an AC-powered control carrier, install the two new carrier-ground straps. One strap connects ground point “1” to the B-carrier frame (on the right side), and the other connects ground point “8” to the B-carrier frame (on the left side).

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

8. Connect the loose end of the TDM/LAN cable (between the “C” and “B” carriers) to the pin-field block marked “TDM/LAN” on the right side of the “B” carrier (See Figure 4-13 and Table 4-1). The other end remained connected to the “C” carrier when the old carrier was removed.
9. Connect the loose end of the TDM/LAN cable (between the “A” and “B” carriers) to the pin-field block marked “TDM/LAN” on the left side of the “B” carrier (See Figure 4-13 and Table 4-1). The other end remained connected to the “A” carrier when the old carrier was removed.



NOTE:

ON PORT CARRIER J58890BB-1, CONNECT THE TDM/LAN CABLE OR TDM/LAN TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND -3, CONNECT THE TDM/LAN CABLES TO SLOT 01.

Figure 4-13. TDM/LAN Connections for High-Reliability R5r PPN

Table 4-1. TDM/LAN Connections

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890B-1	Port	21	02
J58890B-2	Port	21	01
J58890B-3	Port	21	01
J58890AP	Control	21	02

10. See CAUTION and NOTE. Install the alarm duplication cable (H600-198 G1) between carriers "B" and "A." Connect the cable to the "ICCA" pin-field block (to the right of the pin-field block for slot "00") of both carriers (See Figure 4-14). Connect the "UAK" (upper) connector to carrier "B," and connect the "LAK" (lower) connector to carrier "A."

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.

NOTE:
With a connector in each hand, flex the wires within the cable's sheath to form a usable C-shaped cable.

11. See previous CAUTION. Install the ICCC cable (H600-182 G1) between carriers "B" and "A." Connect the cable to the "ICCC" pin-field block (behind slot "01") of both carriers (See Figure 4-14).
12. See previous CAUTION and following NOTE. Install the duplication cable (WP91954 L1) between carriers "B" and "A." Connect the cable to the "ICCD" pin-field block (behind slot "02") of both carriers (See Figure 4-14).

NOTE:
The duplication cable's connectors are keyed to ensure proper positioning on the pin-field block.

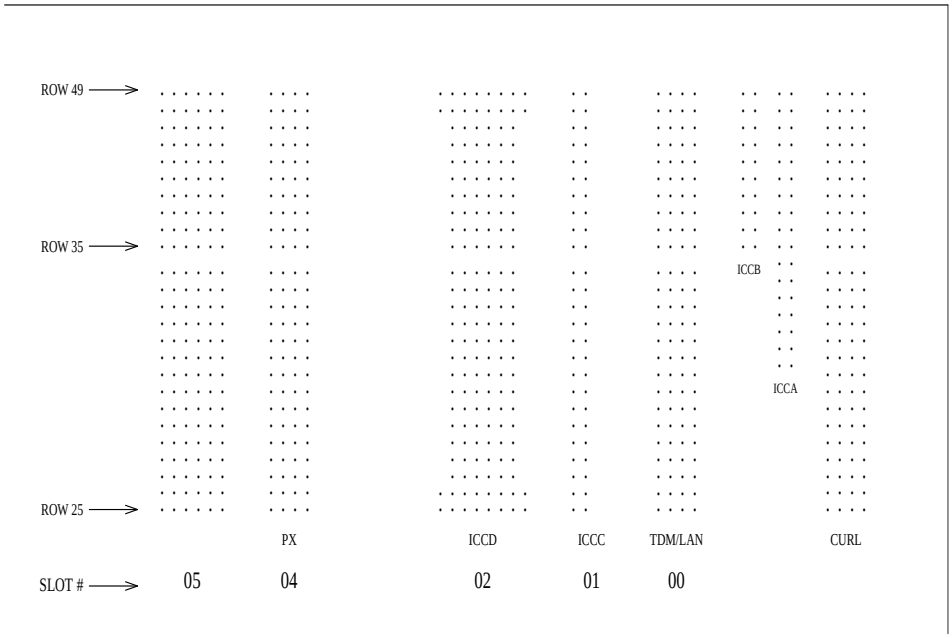


Figure 4-14. ICC Connections for R5r Control Carrier

13. Install the front trim plate on the “B” carrier.
14. Install the new power units into the “B” carrier. There are different types of power units available. They are the 631DA1 and 631DB1 (for AC power), the 644A and 645B (for DC power), and the 649A (for DC power). Do not interchange the units. The 631DA1 or 644A is installed on the left side, while the 631DB1 or 645B and the 649A are installed on the right side (See Figure 4-15).
15. 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 (See Figure 4-16).

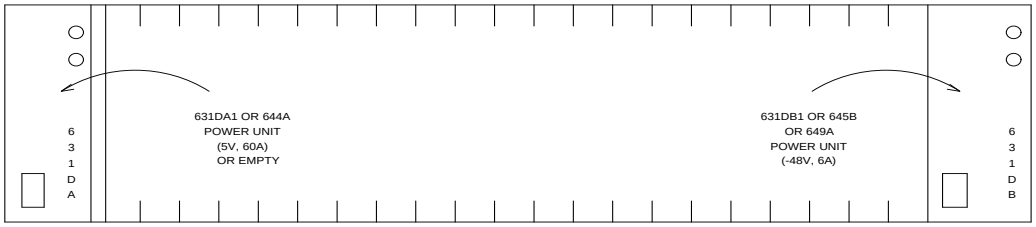


Figure 4-15. Locations of Power Units

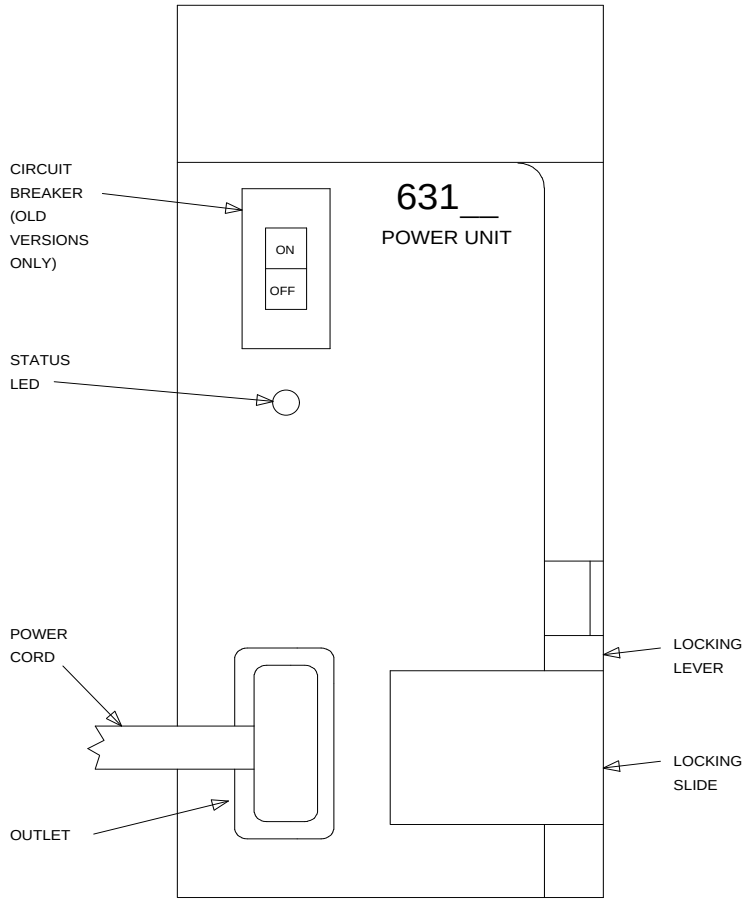


Figure 4-16. 631-Type Power Unit

Install Circuit Packs

1. Install a new UN330B Duplication Interface circuit pack into carrier “A.” Use Figure 4-17 and the decal as a guide.

   CAUTION:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet’s frame.

2. Install the new R5r control circuit packs into carrier “B.” Use Figure 4-17 and the new decal (provided with the equipment) as a guide.
3. As necessary, install the new TN570B Expansion Interface circuit packs into each port network, and (if not also duplicating a switch node carrier) interconnect the port networks with the fiber-optic cables.
4. For a critical-reliability R5r system, install a new TN771C Maintenance/Test circuit pack into an available port slot of each EPN (if not already present).
5. Install circuit-pack blanks in slots not equipped with circuit packs.

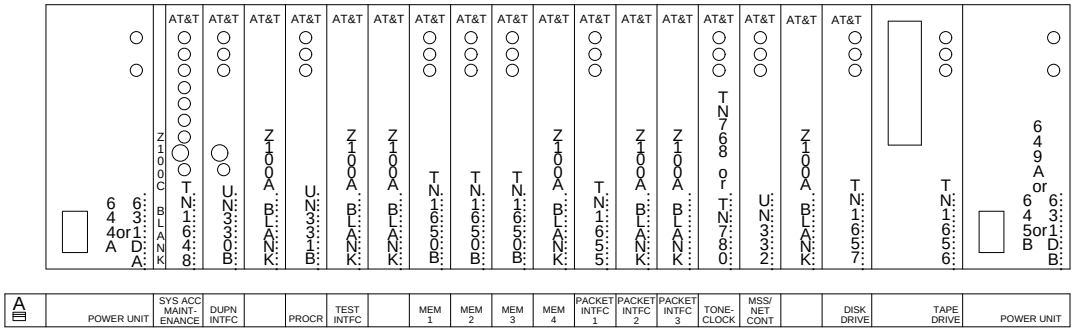


Figure 4-17. Circuit-Pack Locations in R5r Control Carrier

Relocate Port Carrier B

Refer to Section 8, "Add MCC Port Carriers," for instructions to relocate the removed port carrier.

Connect G3-MT to DOT Connector

Behind control carrier "A," disconnect the G3-MT cable from the "TERM" connector, and reconnect the cable to the "DOT" (duplication-option terminal) connector.

Reseat DEFINITY LAN Gateway System

1. See WARNING. Reseat the LAN Gateway assembly into its backplane connectors in the carrier.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Reseat DEFINITY AUDIX System

See WARNING. If a DEFINITY AUDIX System resides in the PPN or an EPN (where PPN port carrier "B" was relocated), reseat the AUDIX assembly to its backplane connectors.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Power Up System

1. At an EPN (where PPN port carrier "B" was relocated), on the power-distribution unit, set the main circuit breaker to ON.
2. At the PPN, on the power-distribution unit, set the main circuit breaker to ON.
3. The system now goes through the level 4 rebooting process, loading the system program and default or current translations from the disk. Rebooting takes 5 to 11 minutes.

NOTE:
Ignore alarms for now.

Refer to “Initialization and Recovery” and “LED Interpretation” chapters in *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*, for circuit-pack LED indications and G3-MT terminal displays that occur during system reboot.

4. If new tapes were made off-site at the FSAC or STS, insert them in the tape drives. Otherwise, make software modifications and then go to step 8.
5. Enter the reset system 4 tape command to copy the translations from tape to memory.
6. Remove the translated tapes and move the black write-protect slide to record.
7. Re-insert the write-enabled tapes into the drives.
8. Clear any alarms.
9. Enter the save translation [both] tape command if translation changes were made in step 8 above.
10. Enter the restore disk [both] full command to copy the translations from tape to disk.
11. After the system reboot is finished and all trouble cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal operating mode.

Restart DEFINITY LAN Gateway System

1. Log onto the DEFINITY LAN Gateway if you have not previously logged on. *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 in.
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.

NOTE:
To ensure that the upgrade completes successfully, perform all steps in the order provided.

Enable SPE Duplication

If not also duplicating switch node carriers, refer to Duplication-Related System Parameters in *DEFINITY Enterprise Communications Server Release 5 Implementation*, to enable Switch Processing Element (SPE) duplication.

Enable PNC Duplication

For a critical-reliability R5r system, enter **`change system-parameters customer-options`**. Press RETURN. Use this form to enable the port-network control (PNC) duplication option. See *DEFINITY Enterprise Communications Server Release 5 Implementation*, for details on enabling this option.

Resolve Alarms and Enable Alarm Origination

1. Examine the alarm log. Resolve any alarms that may exist by using the *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r* manual.
2. See NOTE. See WARNING. If the *Alarm Origination Activated* field administration that you previously noted is already set to *y*, be sure to enable Alarm Origination. Otherwise you do not need to enable Alarm Origination (proceed to the next section directly).
3. Enter **`change system-parameters maintenance`** and press RETURN.

   The *Alarm Origination Activated* field has been changed to *Alarm Origination to OSS Numbers* to support more than one OSS (INADS, etc.).

   Enter **`first-only`** in this field to enable Alarm Origination (to the first OSS, which should be INADS).

   Be sure to enter *y* in both *Cleared Alarm Notification* and *Restart Notification* fields if they are not enabled already. Press RETURN.
4. Enter **`save translation spe-a disk`** and press RETURN.

NOTE:
If you have lost the previous administration of the *Alarm Origination* field, you may register the system again with the INADS Database Administrator at the TSC. The INADS Database Administrator will enable Alarm Origination as part of the registration process.

WARNING:
If you do not enable Alarm Origination when the customer has purchased a services contract, the switch will not report any alarm to the TSC automatically, causing the TSC to be unable to fulfill the services contract.

5. Add Switch Node Carrier

See NOTE. To upgrade a standard- or high-reliability system to a critical-reliability R5r system, a second switch node carrier is added either to the empty "E" carrier position of an existing multicarrier port network or to the "D" carrier position (as the duplicate switch node carrier) of an existing multicarrier cabinet.

NOTE:
To avoid moving a port carrier, the preferred practice is to place the new switch node carrier in an empty carrier position.

Service Interruption

Since the addition of the second switch node carrier requires a service interruption, notify the customer in advance as to when the addition will be carried out.

Verify System Status

Before proceeding, the system should be examined for alarms, and every problem should be corrected. The system must be alarm-free.

Disable Alarm Origination

1. See WARNING. Enter **`change system-parameters maintenance`** and press RETURN.
2. Make a note of the *Alarm Origination Activated* field administration. If the feature is enabled, enter **n** in this field and press RETURN to disable Alarm Origination.

   You will enable this feature again in one of the final processes. See NOTE.

WARNING:
If you do not disable Alarm Origination before making changes to the switch, the switch may generate alarms, resulting in unnecessary trouble tickets. Reducing redundant and unnecessary trouble tickets is critical for measuring the quality of Lucent services and products.

NOTE:
For earlier releases of the system software, you may also need to disable *Cleared Alarm Notification* and *Restart Notification* before you can submit the form successfully.

Save Translations

1. Log in at the G3-MT terminal.
2. If the system is high- or critical-reliability, enter **status spe** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.
3. Enter **save translation** [**spe-a** or **both**] **disk** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk(s).
4. If the system contains a TN750 Announcement circuit pack, enter **display announcements** and press RETURN.

   If administered recorded announcements are listed, enter **list configuration software-version**, press RETURN. Check Page 2 of this form to find out when the announcements were last saved, and ask the customer whether any announcements have changed since then.

   If so, the current announcements can be saved using the save announcements command. Enter **save announcements disk** and press RETURN.
5. Enter **backup disk** [**spe-a** or **both**] and press RETURN. This command instructs the system to backup the current information on disk to the system tape(s).
6. Update backup tape(s), if required.

Shut Down DEFINITY LAN Gateway System

If a DEFINITY LAN Gateway system resides in the control cabinet to be upgraded, prepare to shut down the DEFINITY LAN Gateway assembly and allow the disk to completely spin down. See Caution. See WARNING.

CAUTION:
Before using this procedure to shut down the DEFINITY LAN Gateway, make sure that you save the system parameters if you plan to reuse the current system.

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

1. See WARNING. To avoid an unexpected LAN Gateway reboot after an unplanned switch reboot, unseat the LAN Gateway assembly from its backplane connectors in the carrier.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

2. Log onto the DEFINITY LAN Gateway if you have not previously logged on. *See the DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, for the procedure to log in.
3. When the main menu appears, select *Maintenance*.
4. Select *Reset System* from the *Maintenance* menu.
5. Select *Shutdown* from the *Reset System* menu.

Shut Down DEFINITY AUDIX System

1. See WARNING. If a DEFINITY AUDIX System resides in the system, 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. See WARNING. To avoid an unexpected AUDIX reboot after an unplanned switch reboot, unseat the AUDIX assembly from its backplane connectors.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Power Down System

1. At the PPN, on the power-distribution unit, set the main circuit breaker to OFF.
2. At the PPN, on the power-distribution unit, set the main circuit breaker to OFF.

Remove Doors and Panels and Disconnect Cables

1. Remove the front door from the multicarrier cabinet where the switch node carrier will be installed (if desired).

2. 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 wide blade (1/4-inch recommended) into the slot, and twist the screwdriver. The retainer will snap open easily so that the cable can be removed.
3. At the cabinet, disconnect previously labeled cables associated with the carrier to be removed.
4. Remove the back doors from the cabinet.

Remove Circuit Packs from Port Carrier D

NOTE:
Skip these steps if a switch node carrier is being added to an empty carrier position.

1. To ensure that circuit packs and power units in the "D" carrier are properly replaced, label each component with its slot number.
2. Disconnect the power cords from the power units in the "D" carrier.
3. See WARNING. Remove all circuit packs and power units from carrier "D." Store the circuit packs in the static-proof packaging.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

4. Remove the circuit-pack blanks from slots that do not contain circuit packs.
5. Remove the front trim plate from the "D" carrier by pulling straight off.

Remove Port Carrier D

1. If a switch node carrier is being installed in the "D" position of an EPN, remove the TDM/LAN cable from between the "D" and "A" carriers.

   See NOTE. For other EPNs or the PPN, disconnect one end of the TDM/LAN cable (between the "D" and "A" carriers) from the "D" carrier.

   NOTE:
   Note the position of the cable before disconnecting the TDM/LAN cables.

2. Remove the ZAHF4 TDM/LAN bus terminator from slot "21" of the "D" carrier.

3. Disconnect one end of the eight ground straps (between the “D” and “E” carriers) from the “D” carrier (See Figure 4-18). These straps will be reconnected to the new “D” carrier.
4. Disconnect one end of the eight ground straps (between the “D” and “A” carriers) from the “D” carrier (See Figure 4-18). These straps will be reconnected to the new “D” carrier.
5. Disconnect the “P1” (small 9-pin) connector from the “D” carrier (See Figure 4-19). Move the cable into a position where it will not interfere with removing the carrier.
6. Remove the four screws (top two first) holding the “D” carrier to the cabinet frame. Use a long-handle screwdriver or 5/16-inch socket with a 10-inch extension.
7. Behind the “D” carrier in a “DEFINITY style” cabinet, remove the two screws holding the “D” carrier to the cabinet frame.
8. See CAUTION. 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.

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

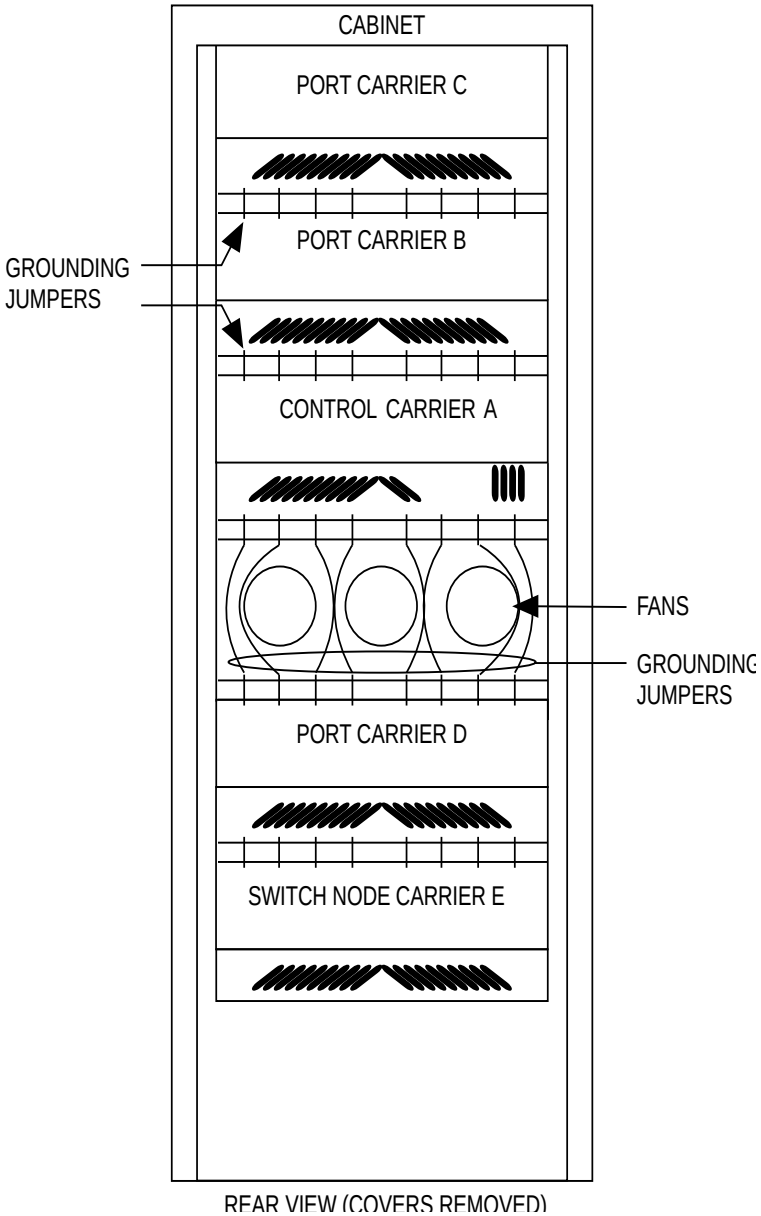


Figure 4-18. Locations of Grounding Jumpers

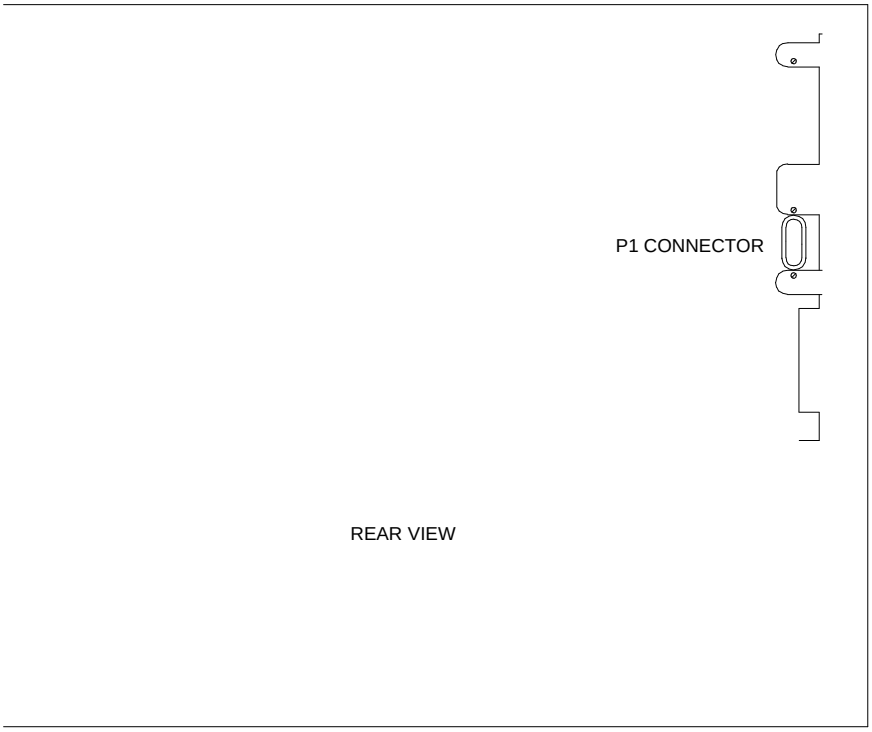


Figure 4-19. Location of P1 Connector

Prepare New Switch Node Carrier D

1. Visually inspect the new carrier for any damage. Verify that the backplane pins are not bent.
2. Place the switch node carrier on the floor so that the rear of the carrier faces up.
3. Verify that the four AHF105 switch node (SN) bus terminators are installed on the "D" carrier to the pin-field blocks marked "SNTRM" (top and bottom portions of slots "02" and "20"). The SN bus terminators are attached 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 4C cable retainer on each of these connectors.

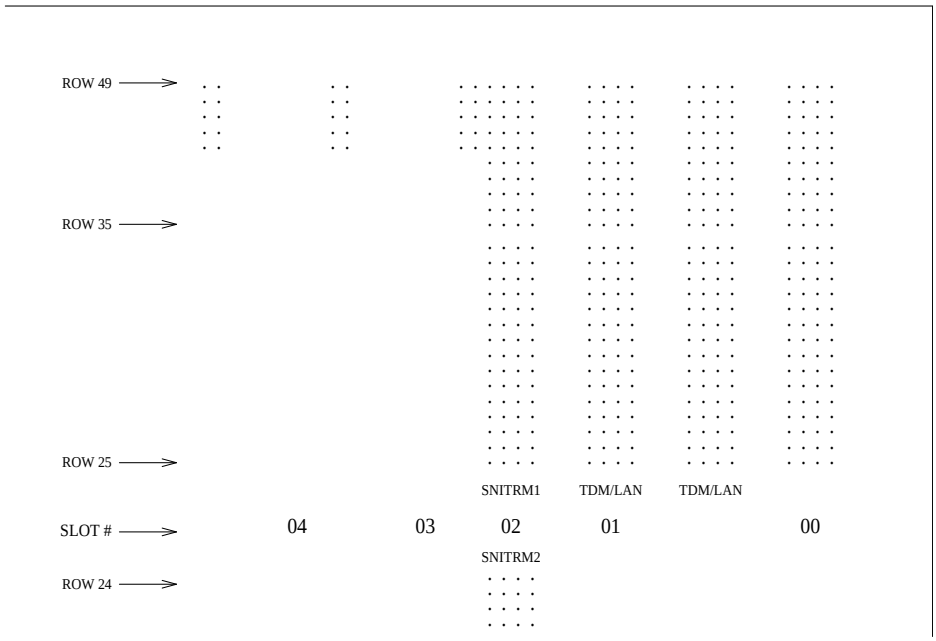


Figure 4-20. ICC Connections for Switch Node Carrier

Install New Switch Node Carrier D

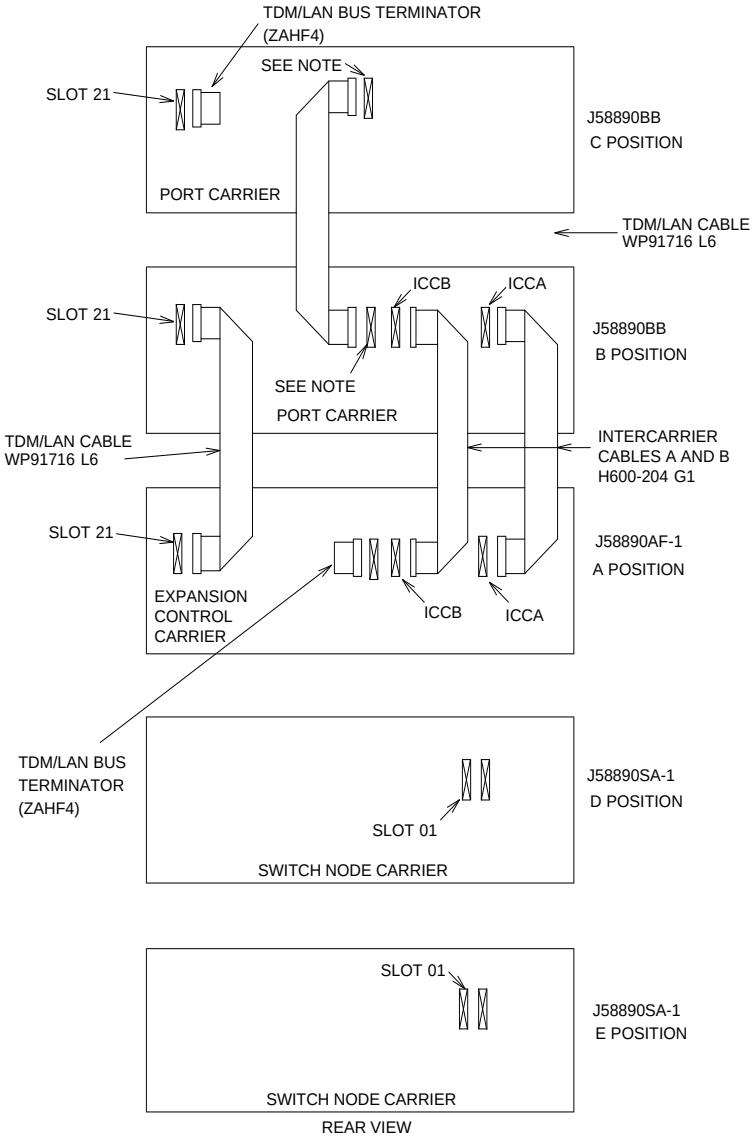
1. Install the J58890SA switch node carrier in position “D” by lining up the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips will support the carrier while the screws are being replaced. Ensure that the power cords are properly placed in the slots at the sides of the carrier.
2. See CAUTION. 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 clockwise a turn or two 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. Connect the “P1” (small) connector to the “D” carrier (See Figure 4-19). If necessary, to get enough slack in the cables, cut the tie wrap holding the intercabinet cable from the upright in the area being installed. Snap the connector lock into place to ensure the connection is properly made.
5. Connect the eight ground straps from the “E” carrier to the new “D” carrier (See Figure 4-18). These straps were left connected to the “E” carrier when the old “D” carrier was removed.
6. Connect the eight ground straps from the “A” carrier to the new “D” carrier (See Figure 4-18). These straps were left connected to the “A” carrier when the old “D” carrier was removed.
7. See NOTE. For an AC-powered switch node carrier, install the two new carrier-ground straps. One strap connects ground point “1” to the D-carrier frame (on the right side), and the other connects ground point “8” to the D-carrier frame (on the left side).

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

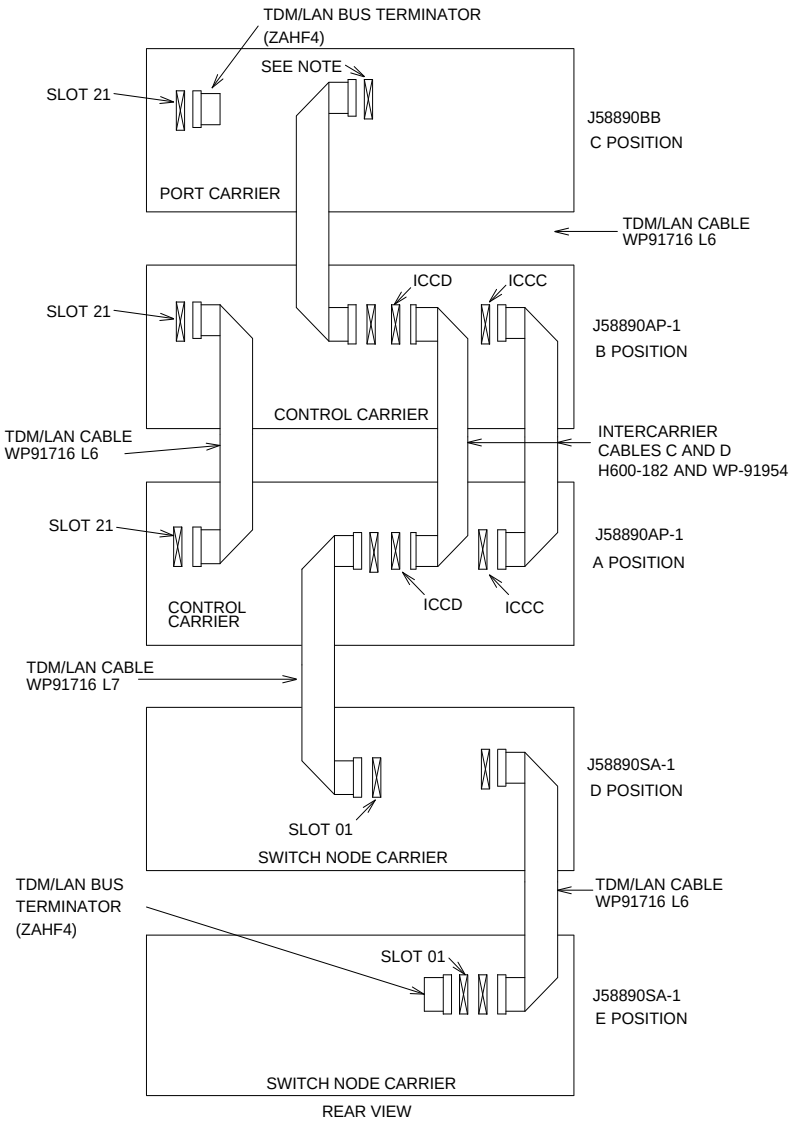
8. If a switch node carrier is being installed in the “D” position of the PPN, install the TDM/LAN cable (between the “E” and “D” carriers) to the pin-field block marked “TDM/LAN” on the right side of the both carriers (See Figure 4-22 and Table 4-2).
9. Also, for the PPN, connect the loose end of the TDM/LAN cable (between the “A” and “D” carriers) to the other pin-field block marked “TDM/LAN” on the right side of the “D” carrier (See Figure 4-22 and Table 4-2). The other end remained connected to the “A” carrier when the old carrier was removed.



NOTE:

ON PORT CARRIER J68890BB-1, CONNECT TDM/LAN CABLE OR TDM/LAN TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND -3, CONNECT THE TDM/LAN CABLE OR TDM/LAN TERMINATOR TO SLOT 1.

Figure 4-21. TDM/LAN Connections for Critical-Reliability R5r EPN



NOTE:

ON PORT CARRIER J68890BB-1, CONNECT TDM/LAN CABLE OR TDM/LAN TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND -3, CONNECT THE TDM/LAN CABLE OR TDM/LAN TERMINATOR TO SLOT 1.

Figure 4-22. TDM/LAN Connections for Critical-Reliability R5r PPN

Table 4-2. TDM/LAN Connections

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890B-1	Port	21	02
J58890B-2	Port	21	01
J58890B-3	Port	21	01
J58890AP	Control	21	02

10. If a switch node carrier is being installed in the "D" position of an EPN, verify that the ZAHF4 TDM/LAN bus terminator is installed at slot "02" of expansion control carrier "A" (See Figure 4-21).

    If a switch node carrier is being installed in the "E" position of an EPN, verify that the ZAHF4 TDM/LAN bus terminator is installed at slot "21" of port carrier "D."

    For a PPN, install the ZAHF4 TDM/LAN bus terminator at slot "01" of switch node carrier "E" (See Figure 4-22).

11. Install the front trim plates on the "D" carrier.

12. Install the new power units into the "D" carrier. There are two different power units available. Two 631DA1s supply AC power, or two 644As supply DC power. One 631DA1, 644A is installed on the left side, and the other 631DA1 or 644A is installed on the right side. One 649A is installed on the left side (See Figure 4-22). One 649A is installed on the right, with a blank on the left side.

13. 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 (See Figure 4-23).

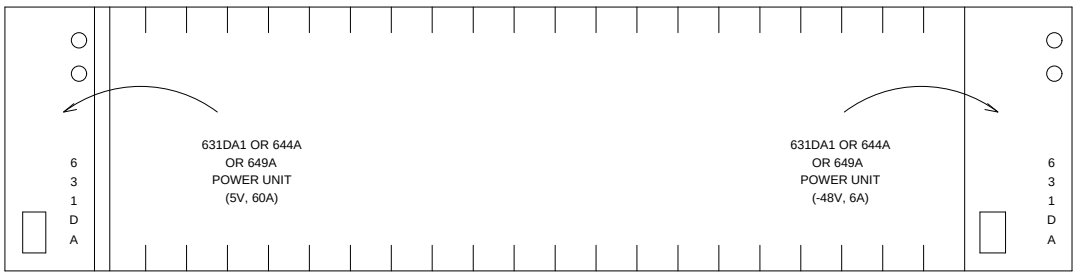


Figure 4-23. Locations of Power Units

Install Circuit Packs

See WARNING. Install the new R5r circuit packs into carrier "D." Use Figure 4-24, the decal, and the upgrade configuration document (provided with the equipment) as a guide.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Install circuit-pack blanks in slots not equipped with circuit packs.

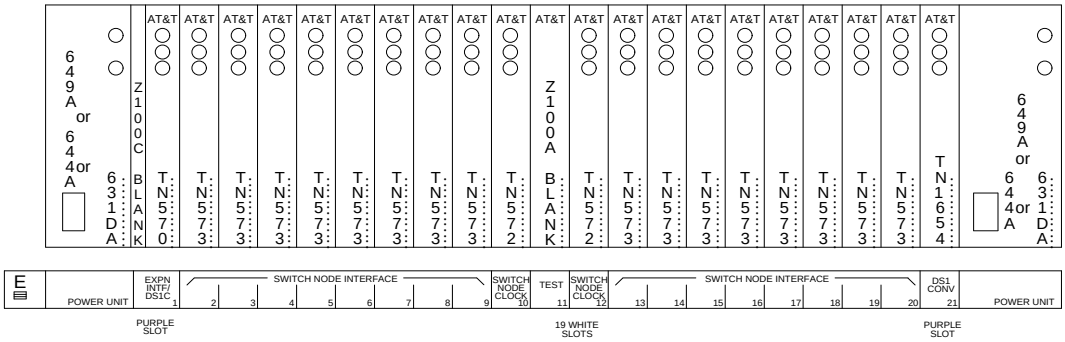


Figure 4-24. Circuit-Pack Locations in R5r Switch Node Carrier

Relocate Port Carrier D

Refer to the following section, "Add MCC Port Carriers," for instructions to relocate the removed port carrier.

Interconnect Port Networks

1. Behind the PPN cabinet (See Figure 4-25):
   - Install a 9823-type lightwave transceiver on cable connector at slot 1E01.
   - Install a 9823-type lightwave transceiver on cable connector at slot 1E02.
   - Connect the metallic intracarrier cable to the lightwave transceivers at slots 1E01 and 1E02.

- Install a 9823-type lightwave transceiver on cable connector at slot 1D01.
- Install a 9823-type lightwave transceiver on cable connector at slot 1D02.
- Connect the metallic intracarrier cable to the lightwave transceivers at slots 1D01 and 1D02.

2. Behind switch node carrier E of PPN cabinet 1 (See Figure 4-25):
   - For each EPN, install one 9823-type lightwave transceiver on a cable connector with the following order of slots: 1E20, 1E03, 1E19, 1E04, 1E18, 1E05, etc.
   - Connect one end of each fiber-optic cable to each lightwave transceiver, just installed.
   - Delicately 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 carrier A of each EPN cabinet:
   - Install the same kind (either 9823-A or 9823-B) of lightwave transceiver on cable connector at slot A01.
   - Connect the other end of the fiber-optic cable to the lightwave transceiver, just installed, at slot A01.
   - Delicately 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 delicately attach the coil to the wall of the cable tray.
4. Behind switch node carrier D of PPN cabinet 1 (See Figure 4-25):
   - For each EPN, install one 9823-type lightwave transceiver on a cable connector with the following order of slots: 1E20, 1E03, 1E19, 1E04, 1E18, 1E05, etc.
   - Connect one end of each fiber-optic cable to each lightwave transceiver, just installed.
   - Delicately 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 carrier B of each EPN cabinet:
   - Install the same kind (either 9823-A or 9823-B) of lightwave transceiver on cable connector at slot B02.
   - Connect the other end of the fiber-optic cable to the lightwave transceiver, just installed, at slot B02.
   - Delicately 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 delicately attach the coil to the wall of the cable tray.

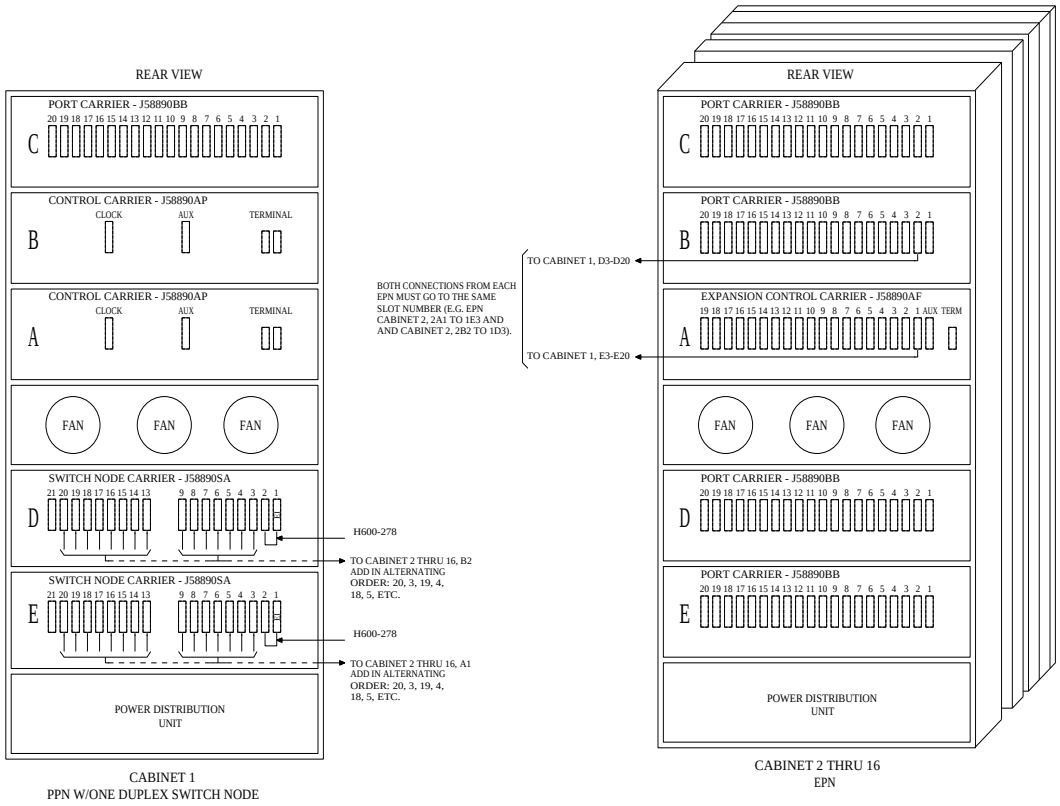


Figure 4-25. Critical-Reliability Fiber-Optic Connections through Center Stage Switch

Reseat DEFINITY LAN Gateway System

1. See WARNING. Reseat the LAN Gateway assembly into its backplane connectors in the carrier.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Reseat DEFINITY AUDIX System

See WARNING. If a DEFINITY AUDIX System resides in the system, reseat the AUDIX assembly to its backplane connectors.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Power Up System

1. At each EPN, if present, on the power-distribution unit, set the main circuit breaker to ON.
2. At the PPN, on the power-distribution unit, set the main circuit breaker to ON.
3. The system now goes through the level 4 rebooting process, loading the system program and default or current translations from the disk. Rebooting takes 5 to 11 minutes.

   NOTE:
   Ignore alarms for now.

   Refer to "Initialization and Recovery" and "LED Interpretation" chapters in *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*, for circuit-pack LED indications and G3-MT terminal displays that occur during system reboot.
4. If new tapes were made off-site at the FSAC or STS, insert them in the tape drives. Otherwise, make software modifications and then go to step 8.
5. Enter the reset system 4 tape command to copy the translations from tape to memory.
6. Remove the translated tapes and move the black write-protect slide to record.
7. Re-insert the write-enabled tapes into the drives.
8. Clear any alarms.
9. Enter the save translation [both] tape command if translation changes were made in step 8 above.
10. Enter the restore disk [both] full command to copy the translations from tape to disk.
11. After the system reboot is finished and all trouble cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal operating mode.

Restart DEFINITY LAN Gateway System

1. Log onto the DEFINITY LAN Gateway if you have not previously logged on. *See the DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, for the procedure to log in.
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.

NOTE:
To ensure that the upgrade completes successfully, perform all steps in the order provided.

Enable PNC Duplication

Refer to Duplication-Related System Parameters in *DEFINITY Enterprise Communications Server Release 5 Implementation*, to enable Port-Network Connectivity (PNC) duplication.

Resolve Alarms and Enable Alarm Origination

1. Examine the alarm log. Resolve any alarms that may exist by using the *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r* manual.
2. See NOTE. See WARNING. If the *Alarm Origination Activated* field administration that you previously noted is already set to *y*, be sure to enable Alarm Origination. Otherwise you do not need to enable Alarm Origination (proceed to the next section directly).
3. Enter **`change system-parameters maintenance`** and press RETURN.

   The *Alarm Origination Activated* field has been changed to *Alarm Origination to OSS Numbers* to support more than one OSS (INADS, etc.).

   Enter **`first-only`** in this field to enable Alarm Origination (to the first OSS, which should be INADS).

   Be sure to enter *y* in both *Cleared Alarm Notification* and *Restart Notification* fields if they are not enabled already. Press RETURN.
4. Enter **`save translation [spe-a|both] disk`** and press RETURN.

NOTE:
If you have lost the previous administration of the *Alarm Origination* field, you may register the system again with the INADS Database Administrator at the TSC. The INADS Database Administrator will enable Alarm Origination as part of the registration process.

WARNING:
If you do not enable Alarm Origination when the customer has purchased a services contract, the switch will not report any alarm to the TSC automatically, causing the TSC to be unable to fulfill the services contract.

6. Add MCC Port Carriers

See NOTES. A new port carrier can be installed when additional features or equipment exceed the capacity of the present system. Port carriers are identified as B, C, D, and E except for a PPN cabinet with the duplication option. The “B” carrier is the second control carrier. PEC 63155 provides the necessary equipment for adding the carrier.

NOTE:
Add each new port carrier to a port network in the “B,” “C,” “D,” “E” order of carrier positions.

NOTE:
Before proceeding with the addition of a port carrier, ensure that three TN1650B Memory Circuit Packs exist in the system. Refer to the section entitled "Install Memory Circuit Pack" on page 1-11 for installation instructions.

NOTE:
Before proceeding with the addition of a port carrier, ensure that the TN1657 Disk Drive is of Vintage 4 (or higher). Refer to Chapter 1, "G3r V2, V3, or V4 to DEFINITY ECS Release 5r with Memory Addition" for installation instructions.

Service Interruption

Since the addition of port carriers requires a service interruption, notify the customer in advance as to when the addition will be carried out.

Verify System Status

Before proceeding, the system should be examined for alarms, and every problem should be corrected. The system must be alarm-free.

Disable Alarm Origination

1. See WARNING. Enter **`change system-parameters maintenance`** and press RETURN.

2. Make a note of the *Alarm Origination Activated* field administration. If the feature is enabled, enter **n** in this field and press RETURN to disable Alarm Origination.

   You will enable this feature again in one of the final processes. See NOTE.

WARNING:
If you do not disable Alarm Origination before making changes to the switch, the switch may generate alarms, resulting in unnecessary trouble tickets. Reducing redundant and unnecessary trouble tickets is critical for measuring the quality of Lucent services and products.

NOTE:
For earlier releases of the system software, you may also need to disable *Cleared Alarm Notification* and *Restart Notification* before you can submit the form successfully.

Save Translations

1. Log in at the G3-MT terminal.
2. If the system is high- or critical-reliability, enter **`status spe`** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.
3. Enter **`save translation`** [**`spe-a`** or **`both`**] **`disk`** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk(s).
4. If the MCC port network contains a TN750 Announcement circuit pack, enter **`display announcements`** and press RETURN.

   If administered recorded announcements are listed, enter **`list configuration software-version`**, press RETURN. Check Page 2 of this form to find out when the announcements were last saved, and ask the customer whether any announcements have changed since then.

   If so, the current announcements can be saved using the save announcements command. Enter **`save announcements disk`** and press RETURN.
5. Enter **`backup disk`** [**`spe-a`** or **`both`**] and press RETURN. This command instructs the system to backup the current information on disk to the system tape(s).
6. Update backup tape(s), if required.

Shut Down DEFINITY LAN Gateway System

If a DEFINITY LAN Gateway system resides in the control cabinet to be upgraded, prepare to shut down the DEFINITY LAN Gateway assembly and allow the disk to completely spin down. See Caution. See WARNING.

CAUTION:
Before using this procedure to shut down the DEFINITY LAN Gateway, make sure that you save the system parameters if you plan to reuse the current system.

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

1. See WARNING. To avoid an unexpected LAN Gateway reboot after an unplanned switch reboot, unseat the LAN Gateway assembly from its backplane connectors in the carrier.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

2. Log onto the DEFINITY LAN Gateway if you have not previously logged on. *See the DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, for the procedure to log in.
3. When the main menu appears, select *Maintenance*.
4. Select *Reset System* from the *Maintenance* menu.
5. Select *Shutdown* from the *Reset System* menu.

Shut Down DEFINITY AUDIX System

1. See WARNING. If a DEFINITY AUDIX System resides in the MCC port network 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. See WARNING. To avoid an unexpected AUDIX reboot after an unplanned switch reboot, unseat the AUDIX assembly from its backplane connectors.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Power Down MCC Port Network

At the MCC port network, on the power-distribution unit, set the main circuit breaker to OFF.

Install Port Carrier

Behind the cabinet:

1. Open the rear doors.

At front of cabinet:

2. Remove the blank port-carrier panel by pushing outward on panel from the rear of the cabinet until the panel clears the four retaining pins on the cabinet frame (See Figure 4-26).
3. Use a screwdriver to loosen and remove the four retaining pins from the cabinet frame.
4. Align the carrier through the front of the system cabinet with four pilot holes on cabinet frame.

NOTE:
Support the carrier by the molded-in support pins above the top mounting holes.

5. Insert self-tapping screws in pilot holes and tighten.
6. Attach magnetically-held nomenclature panel to front of carrier.

Behind the cabinet:

7. Install eight grounding jumpers from the adjacent backplane to the new carrier backplane wiring (Figure 4-27 and Figure 4-28).
8. Connect a 9-pin D subminiature plug on right side of cabinet to P1 connector on carrier. If necessary, to get enough slack in the cable, cut the tie wrap holding the intercabinet cable to the upright in the area of the carrier being installed.
9. Connect the TDM/LAN cable to the newly installed port carrier (Figure 4-29, Figure 4-30, Figure 4-31, or Figure 4-32 and Table 4-3).

At front of cabinet:

10. Install a 631AR, 631WA1, 631DA1, or 644A power unit in the leftmost slot and a 631BR, 631WB1, 631DB1, 645B, or 649A power unit in the right-most slot of installed port carrier as follows:
    a. Operate circuit breaker on power unit (if available) to be added to OFF position. (See Figure 4-16.)
    b. Move locking slide on power unit to its leftmost position (See Figure 4-16) and open lever.
    c. Align and slide power unit into slot in carrier until some resistance is felt.
    d. Lift locking lever upward until it latches.
    e. Move locking slide on power unit to its rightmost position (See Figure 4-16).
    f. Connect a power cord inside the cabinet to outlet on power unit.
    g. Operate circuit breaker on power unit to ON position.
11. Install a TN736 power converter in slot next to the 631AR power converter or a TN752 power converter in slot next to the 631WA1 power converter on left side of carrier.

    NOTE:
    The TN736 is not required when the 631DB1 power unit is used in the J58890B-2 or J58890B-3 port carriers. It is required in the J58890B-1 port carrier regardless of which 631 power unit is provided. Use the TN752 or TN755B if the system is equipped with neon message waiting.

12. Install port packs in carrier.
13. Connect AC/DC power cords located inside cabinet to the power units.

Behind the cabinet:

14. Install rear panels around port carrier.
15. Install cables from port carrier to cross-connect field and cable access panel, as required.

Reseat DEFINITY LAN Gateway System

1. See WARNING. Reseat the LAN Gateway assembly into its backplane connectors in the carrier.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Reseat DEFINITY AUDIX System

See WARNING. If a DEFINITY AUDIX System resides in the MCC port network, reseat the AUDIX assembly to its backplane connectors.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Power Up MCC Port Network

1. At the MCC port network, on the power-distribution unit, set the main circuit breaker to ON.
2. The system now goes through the level 4 rebooting process, loading the system program and default translations from the disk. Rebooting takes 5 to 11 minutes.

   Refer to "Initialization and Recovery" and "LED Interpretation" chapters in *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*, for circuit-pack LED indications and G3-MT terminal displays that occur during system reboot.
3. After the system reboot is finished and all trouble cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal operating mode.

Restart DEFINITY LAN Gateway System

1. Log onto the DEFINITY LAN Gateway if you have not previously logged on. *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 in.
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.

NOTE:
To ensure that the upgrade completes successfully, perform all steps in the order provided.

Enter Added Translations

Enter added translation data as applicable using *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Resolve Alarms and Enable Alarm Origination

1. Examine the alarm log. Resolve any alarms that may exist by using the *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r* manual.
2. If the *Alarm Origination Activated* field administration that you previously noted is already set to *y*, be sure to enable Alarm Origination. Otherwise you do not need to enable Alarm Origination (proceed to the next section directly).
3. Enter **`change system-parameters maintenance`** and press RETURN.

   The *Alarm Origination Activated* field has been changed to *Alarm Origination to OSS Numbers* to support more than one OSS (INADS, etc.).

   Enter **`first-only`** in this field to enable Alarm Origination (to the first OSS, which should be INADS).

   Be sure to enter *y* in both *Cleared Alarm Notification* and *Restart Notification* fields if they are not enabled already. Press RETURN.

NOTE:
If you have lost the previous administration of the *Alarm Origination* field, you may register the system again with the INADS Database Administrator at the TSC. The INADS Database Administrator will enable Alarm Origination as part of the registration process.

CAUTION:
If you do not enable Alarm Origination when the customer has purchased a services contract, the switch will not report any alarm to the TSC automatically, causing the TSC to be unable to fulfill the services contract.

Save Translations

1. If the system is high- or critical-reliability, enter **`status spe`** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.
2. Enter **`save translation`** [**`spe-a`** or **`both`**] **`disk`** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk(s).
3. If the MCC port network contains a TN750 Announcement circuit pack, enter **`list configuration software-version`** and press RETURN.

   If Page 2 of this form shows that recorded announcements were saved, these announcements can be restored using the restore announcements command. Enter **`restore announcements`** [**`disk`** | **`tape`**] and press RETURN.

4. Enter **backup disk** [**spe-a** or **both**] and press RETURN. This command instructs the system to backup the current information on disk to the system tape(s).
5. Update backup tape(s), if required.

Update Port-Assignment Records

Update the customer's port-assignment records.

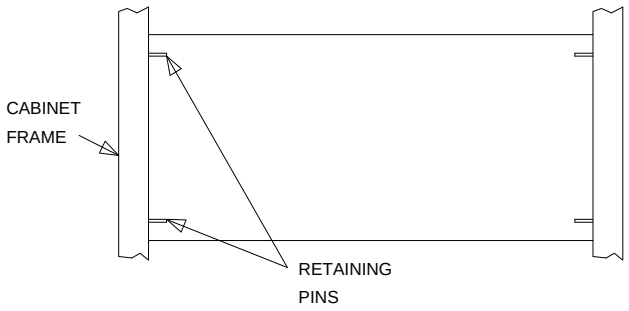


Figure 4-26. Blank Carrier Panel (Rear View)

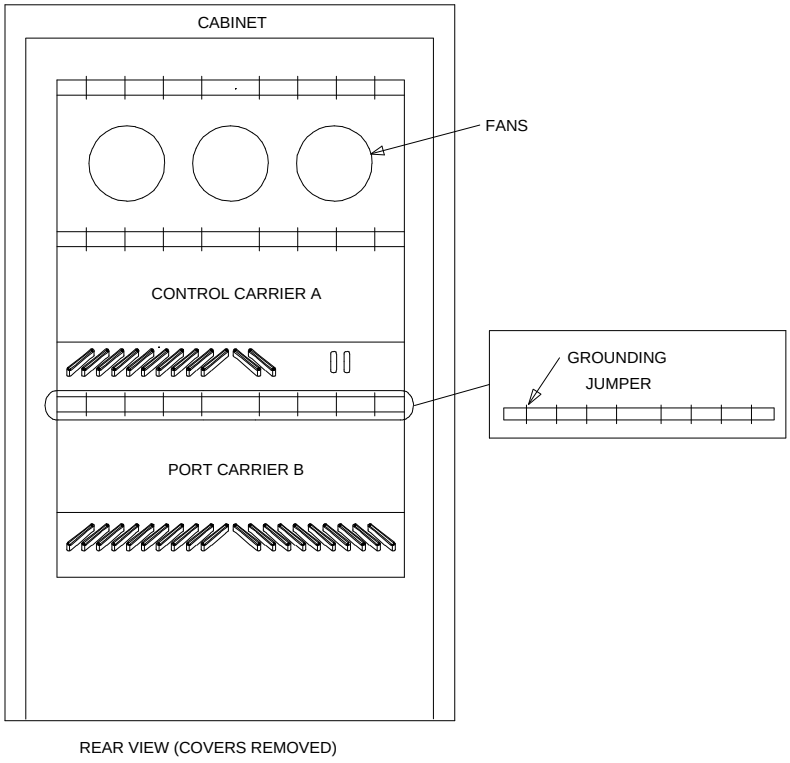


Figure 4-27. Locations of Grounding Jumpers (Small Cabinet)

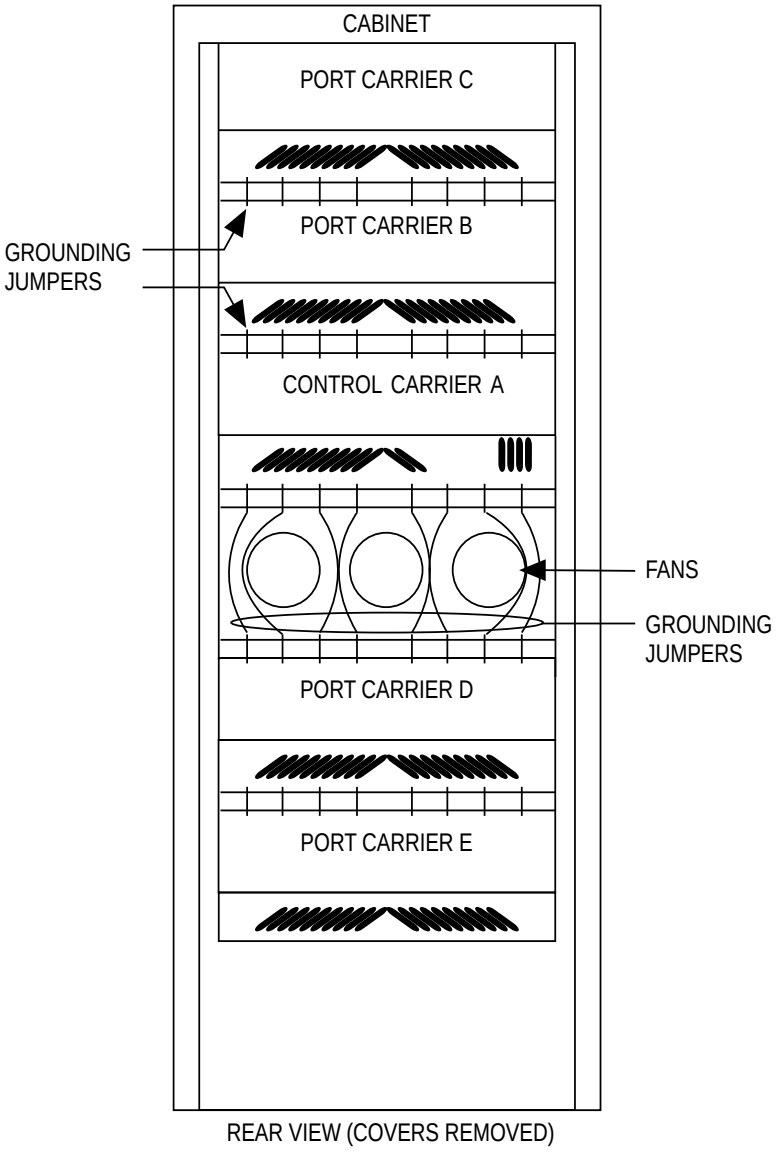
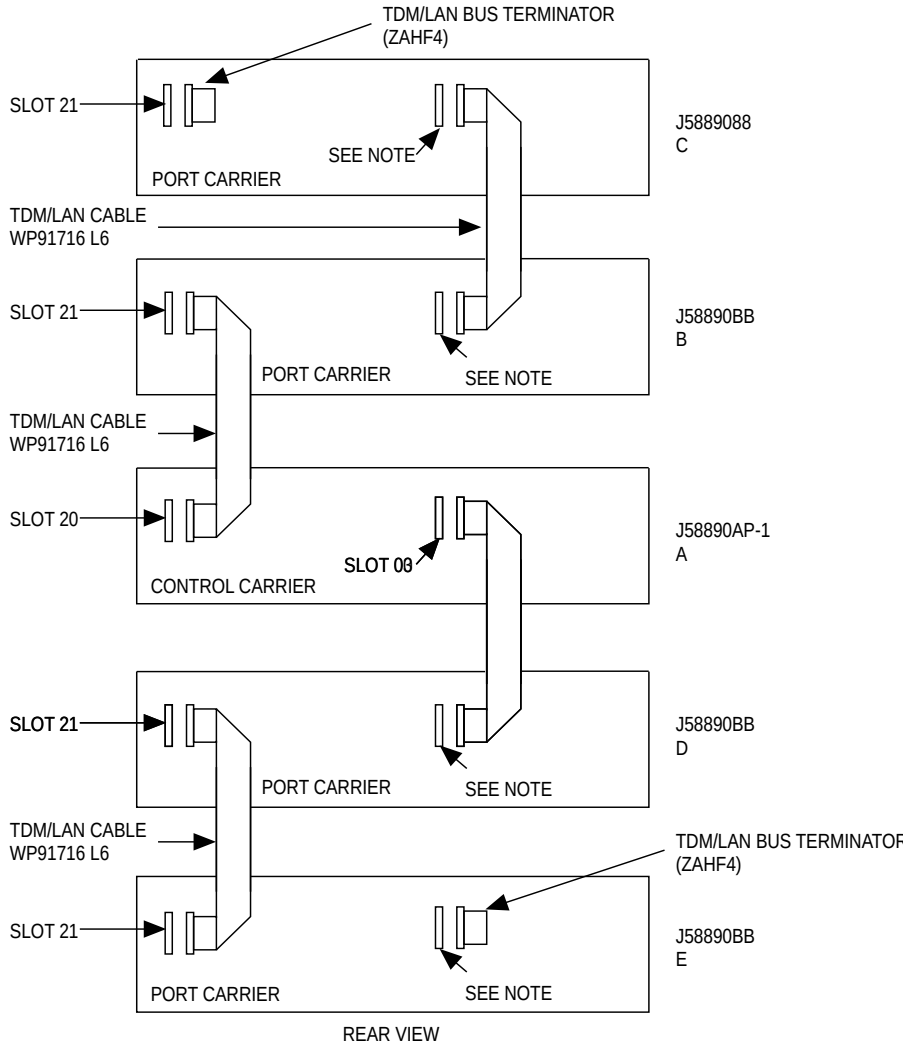


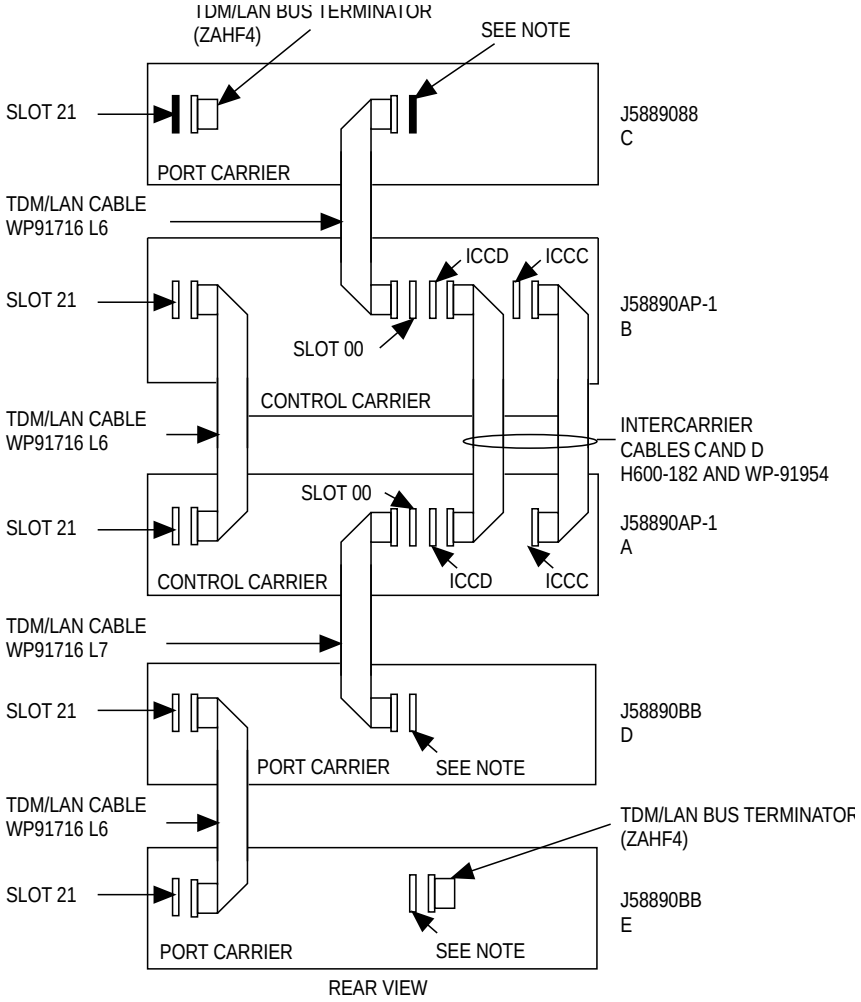
Figure 4-28. Locations of Grounding Jumpers



NOTE:

ON PORT CARRIER J58890BB-1, CONNECT THE TDM CABLE OR TDM TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 OR J58890BB-3, CONNECT THE TDM CABLES OR TDM TERMINATOR TO SLOT 01. IF THE PORT CARRIER HAS J58890BB-1 AND J58890BB-2 STENCILLED ON IT, TREAT IT AS A J58890BB-1

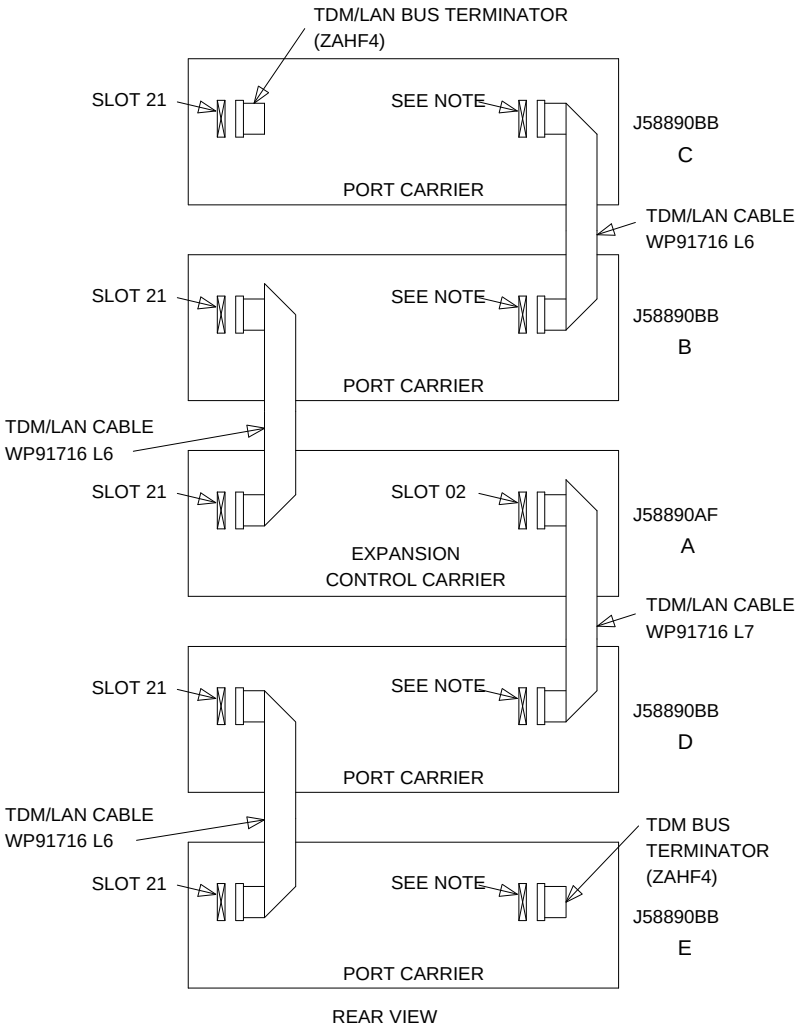
Figure 4-29. TDM/LAN Bus Connections for Standard-Reliability R5r PPN



NOTE:

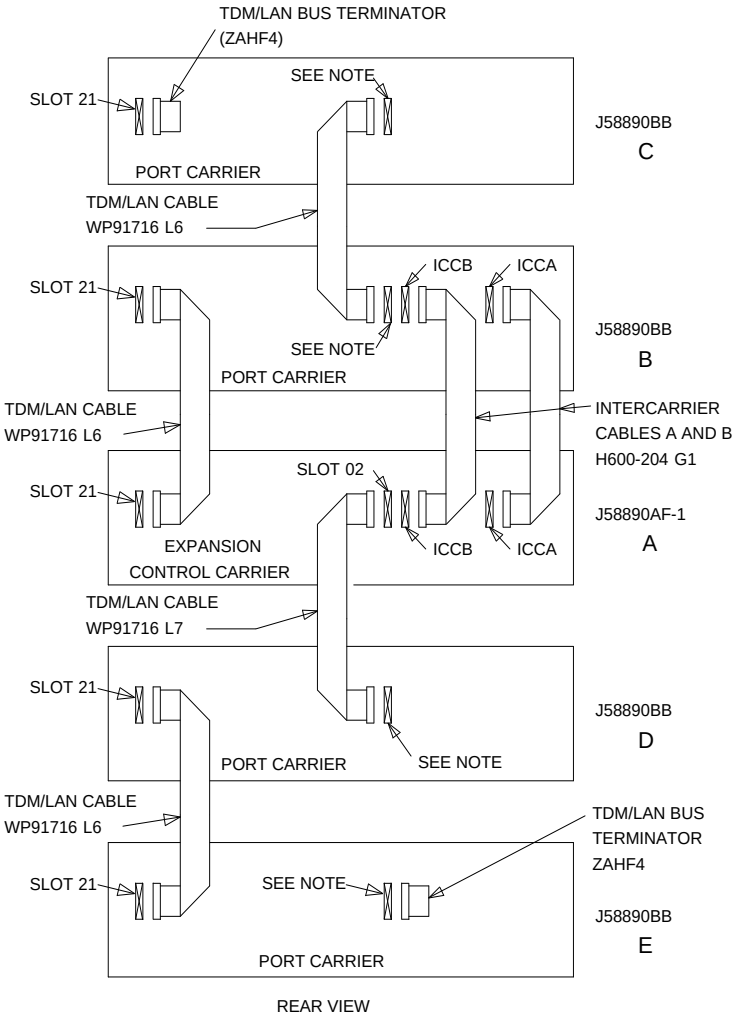
ON PORT CARRIER J58890BB-1, CONNECT THE TDM CABLE OR TDM TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND J58890BB-3, CONNECT THE TDM CABLES OR TDM TERMINATOR TO SLOT 01. IF THE PORT CARRIER HAS J58890BB-1 AND J58890BB-2 STENCILLED ON IT, TREAT IT AS A J58890BB-1.

Figure 4-30. TDM/LAN Bus Connections for Critical-Reliability R5r PPN



NOTE:
ON PORT CARRIER J58890BB-1, CONNECT THE TDM CABLE OR TDM TERMINATOR TO SLOT 02.
ON PORT CARRIERS J58890BB-2 AND -3, CONNECT THE TDM CABLES TO SLOT 01.

Figure 4-31. TDM/LAN Bus Connections for Standard- or High-Reliability EPN



NOTE:
ON PORT CARRIER J58890BB-1, CONNECT TDM/LAN CABLE OR TDM/LAN TERMINATOR TO SLOT 02.
ON PORT CARRIERS J58890BB-2 AND -3, CONNECT THE TDM/LAN CABLE OR TDM/LAN TERMINATOR TO SLOT 01.

Figure 4-32. TDM/LAN Bus Connections for Critical-Reliability EPN

Table 4-3. TDM/LAN Cable Connections

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890B-1	Port	21	02
J58890B-2	Port	21	01
J58890B-3	Port	21	01
J58890AP	PPN Control "A" or "B"	20	03
J58890AF	AC EPN Control "A"	21	02
J58890AF	DC EPN Control "A"	21	02

7. Add Circuit Packs

When installing additional features or equipment, it may be necessary to install additional port circuit packs. This is a general procedure that must be used when adding features or equipment that requires adding circuit packs.

1. Log onto the system, and be sure to answer **y** to the *Suppress Alarm Origination* question during login.
2. See WARNING. Lift up on bottom of circuit-pack blank and pull forward.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

3. Align and slide circuit pack with latch lever opened into slot in carrier until some resistance is felt.
4. Lift locking lever upward until latch pin engages.
5. Be sure to log off the system after the addition (and any required administration) is complete.

   Before logging off, be sure to resolve any alarms that may exist in the alarm log using the *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r* manual.

See NOTES. To find specific circuit-pack locations in the various carriers refer to:

- Figure 4-33 through Figure 4-36 and Table 4-4 through Table 4-7 for DEFINITY ECS R5 MCC carriers
- Figure 4-37 through Figure 4-38 and Table 4-8 through Table 4-9 for DEFINITY ECS R5 single-carrier cabinets

NOTE:
Only port circuit packs with clear North American applications are included in these tables. For information about international port circuit packs, refer to *DEFINITY Enterprise Communications System Release 5 System Description and Specifications*. For information about connecting and administering international circuit packs, refer to the Application Notes (Appendix B) in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

NOTE:
Throughout these figures and tables, the circuit-pack codes (for example, TN1657 or TN1650B) are shown with the *minimum acceptable* alphabetic suffix (like the “B” in the code “TN1650B”).

Generally (if not always), 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. Refer to *Technical Quarterly, 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 DEFINITY ECS R5r system.

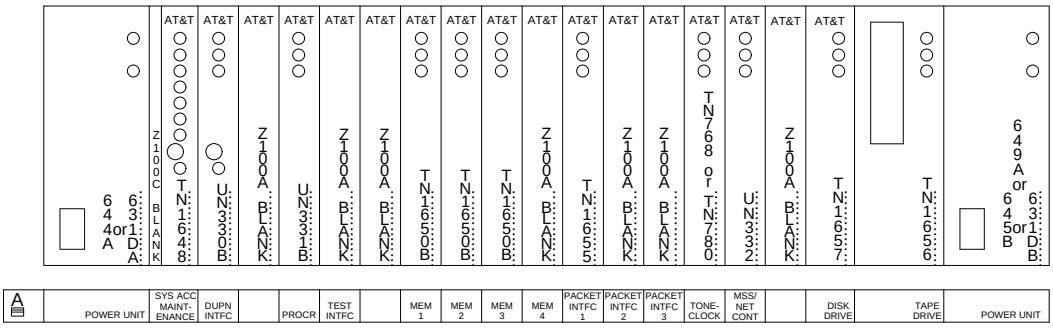


Figure 4-33. Circuit-Pack Locations in Duplicated DEFINITY ECS R5r Control Carrier

Table 4-4. Circuit Packs in DEFINITY ECS R5r Control Carrier (J58890AP)

	Code	Slot Location	Notes
Power Unit (AC, +5V)	631DA1	POWER UNIT (left side)	Required for AC
Power Unit (AC, -48V/-5V)	631DB1	POWER UNIT (right side)	Required for AC
Power Unit (DC, +5V)	644A1	POWER UNIT (left side)	Required for DC
Power Unit (DC, -48V/-5V)	645B1	POWER UNIT (right side)	Required for DC
Power Unit (DC, -48V/-5V)	649A	POWER UNIT (right side with blanks on left)	Required for DC
Disk Drive	TN1657	DISK DRIVE	Required
Duplication Interface	UN330B	DUPN INTFC	Optional [1]
Memory (32 Mbytes)	TN1650B	MEMORY, 1 to 4	Three required
Mass Storage System	UN332	MSS/NET CONT	Required
Network Control Packet Interface	TN1655	PACKET INTFC, 1 to 3	One required
Processor (RISC)	UN331B		Required
System Access and Maintenance	TN1648	SYS ACCESS-MAINTENANCE	Required
Tape Drive	TN1656	TAPE DRIVE	Required
Tone-Clock	TN768 or TN780	TONE-CLOCK	Required[2]
or			
Tone-Clock	TN2182	TONE-CLOCK	[3+4]

1. Required for a high- or critical-reliability system.
2. TN780 required for a Stratum 3 clock. Special connections are required; See "41. Add Stratum 3 Clock"later in this chapter
3. Also required to provide international tones for DEFINITY ECS R5r system.
4. The TN2182 Tone-Clock provides tone detection, tone generation, and tone-clock in one circuit pack, and it replaces the TN756, TN768, and TN780 circuit packs, while providing the same functionality as the TN748 and TN420 circuit packs.

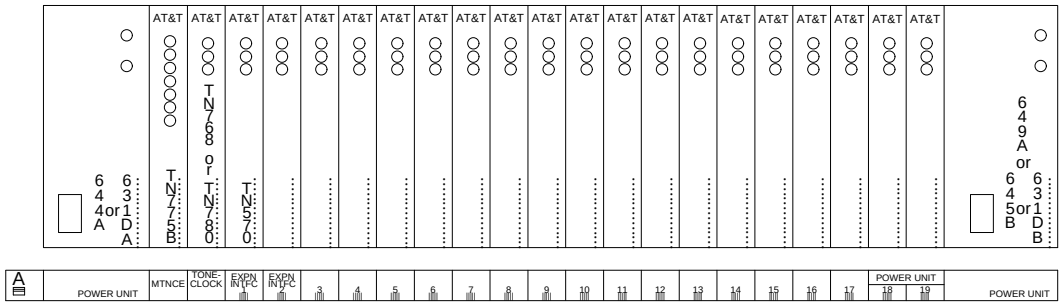


Figure 4-34. Circuit-Pack Locations in DEFINITY ECS R5r Expansion Control Carrier

Table 4-5. Circuit Packs in Expansion Control Carrier (J58890AF)

Name	Code	Slot Location	Notes
Power Unit (AC, +5V)	631DA1, 631WA1, or 631AR1	POWER UNIT (left side)	Required for AC
Power Unit (AC) (-48V/-5V)	631DB1, 631WB1, or 631BR1	POWER UNIT (right side	Required for AC
Power Unit	TN736	18 and 19	Required with 631BR1 or 631WB1
Neon Power Unit	TN752 or TN755B	18 and 19	Optional
Power Unit (DC, +5V)	644A1	POWER UNIT (left side)	Required for DC
Power Unit (DC) (-48V/-5V)	645B1	POWER UNIT (right side)	Required for DC
Power Unit (DC, -48V/-5V)	649A	POWER UNIT (right side)	Required for DC
Expansion Interface	TN570B	EXPN INTFC/1	Required
Expansion Interface	TN570B	EXPN INTFC/2	Optional
Call Classifier-Detector	TN744C	2 to 19	
Call Classifier	TN744	POWER UNIT 18 and 19	Optional [1]
Announcement	TN750C	2 to 19	Note[2]
Announcement	TN750	POWER UNIT 18 to 19	Optional

Continued on next page

Table 4-5. Circuit Packs in Expansion Control Carrier (J58890AF) — *Continued*

Name	Code	Slot Location	Notes
Tone Detector	TN748B	POWER UNIT 18 to 19	Optional[3]
Maintenance	TN775B	MAINTENANCE	Required
Tone-Clock or Tone-Clock or Tone-Clock	TN768 TN780 TN2182	TONE-CLOCK TONE-CLOCK TONE-CLOCK	Required[4+5]) Note[6] Note[7]
DCP Interface (2-Wire, 16 Port)	TN2181	2 to 19	
Data Line	TN726B	2 to 19	Optional[8]
ISDN-BRI Line (2-Wire)	TN2198	2 to 19	
ISDN BRI Line	TN556B	2 to 19	Optional
Packet Data Line	TN553	2 to 19	Optional
Packet Gateway	TN577	2 to 19	Optional
Pooled Modem	TN758	2 to 19	Optional
Analog Line (16-Port)	TN2183	2 to 19	
Analog Line	TN742, TN746B, or TN769	2 to 19	Optional[9]
Digital Line	TN754B, B	2 to 19	Optional
Hybrid Line	TN762B	2 to 19	Optional
MET Line	TN735	2 to 19	Optional
DS1 Converter	TN574	2 to 19	Optional
DS1 Converter	TN1654	2 to 19	Optional
Auxiliary Trunk	TN763D	2 to 19	Optional[10]
Loop-Start CO Trunk	TN465C	2 to 19	
CO Trunk	TN747	2 to 19	Optional[11]
DID Trunk	TN753	2 to 19	Optional
DIOD Trunk	(TN2184)	2 to 19	
DS1 Interface	TN767C	2 to 19	Optional
DS1/E1 Interface	TN464C	1 to 20	Optional for E1 span or for ISDN—PRI
DS1 Tie Trunk	TN722	2 to 19	Optional

Continued on next page

Table 4-5. Circuit Packs in Expansion Control Carrier (J58890AF) — *Continued*

Name	Code	Slot Location	Notes
Tie Trunk	TN760	2 to 19	Optional[12]
DEFINITY	None	2 to 19	Optional
AUDIX System			

1. Required for Call Prompting answer detection or with OCM.
2. TN750C is required if your system will have multiple announcement boards. To use multiple announcement boards, you must have G3V4 software, and at least one TN750C (up to ten are allowed). Only one TN750/B may be present in the system when a TN750C is used. The announcements from a TN750/B can be saved and restored to a TN750C — but once the announcements are recorded onto a TN750C, do not copy announcements from a TN750C to a TN750 or TN750B, as it may corrupt the announcement data.
3. A TN748C is required for ACD and OCM applications.
4. A TN780 is required to provide international tones for DEFINITY ECS R5r system.
5. Use TN780 as Tone-Clock for Stratum 3 timing. Also required with the TN780 are the TN748, and TN744 for tone-detection.
6. Use TN780 as Tone-Clock for Stratum 3 timing. Also required with the TN780 are the TN748, and TN744 for tone-detection.
7. The TN2182 Tone-Clock provides tone detection, tone generation, and tone-clock in one circuit pack, and it replaces the TN756, TN768, and TN780 circuit packs, while providing the same functionality as the TN748 and TN420 circuit packs.
8. A TN726B (and a TN553) is required for a DEFINITY ECS R5r system-access port.
9. A TN746B is required to provide the complete set of analog line functions with a 16-port analog pack.
10. Use a TN763DB to connect an AUDICHRON announcement machine.
11. Use a TN747B to provide abandon call search for the ACD feature.
12. Use a TN760B for the CAS feature.

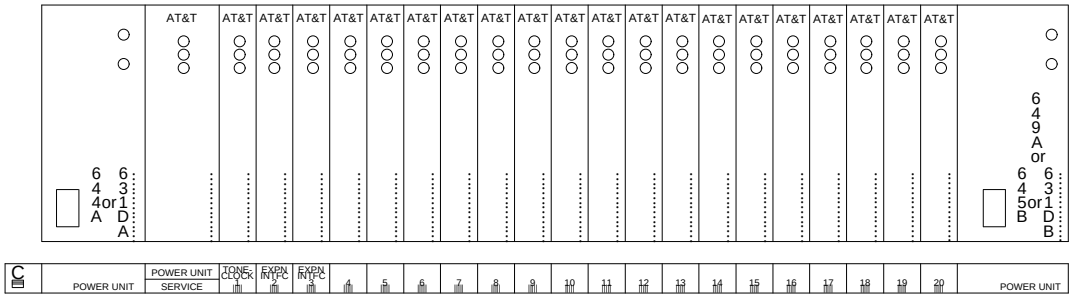


Figure 4-35. Circuit-Pack Locations in DEFINITY ECS R5r Port Carrier

Table 4-6. Circuit Packs in Port Carrier (J58890BB)

Name	Code	Slot Location	Notes
Power Unit (AC, +5V)	631DA1, 631WA1, or 631AR1	POWER UNIT (left side)	Required for AC
Power Unit (AC) (-48V/-5V)	631DB1, 631WB1, or 631BR1	POWER UNIT (right side)	Required for AC
Power Unit	TN736	18 and 19	Required in J58890BB or with 631BR1 or 631WB1
Neon Power Unit	TN752 or TN755B	18 and 19	Optional
Power Unit (DC, +5V)	644A1	POWER UNIT (left side)	Required for DC
Power Unit (DC) (-48V/-5V)	645B1	POWER UNIT (right side)	Required for DC
Power Unit (DC) (-48V/-5V)	649A	POWER UNIT (right side)	Required for DC
Ring Generator	(TN2202)	POWER UNIT	Note[1]
Expansion Interface	TN570B	EXPN INTFC/1-2	Optional
Call Classifier-Detector	TN744C	1- 20	
Call Classifier	TN744	POWER UNIT/ SERVICE, 1-20	Optional[2]
Announcement	TN750C	1- 20	Note[3]
Announcement	TN750	POWER UNIT/ SERVICE, 1-20	Optional

Continued on next page

Table 4-6. Circuit Packs in Port Carrier (J58890BB) — *Continued*

Name	Code	Slot Location	Notes
Maintenance/Test	TN771C	POWER UNIT/ SERVICE, 1-20	Optional
Speech Synthesizer	TN725B	POWER UNIT/ SERVICE, 1-20	Optional
Tone Detector	TN748B	POWER UNIT/ SERVICE, 1-20	Optional[4]
Tone-Clock or Tone-Clock or Tone-Clock	TN768 TN780 TN2182	TONE-CLOCK TONE-CLOCK TONE-CLOCK	Required[5] Note[6] Note[7]
DCP Interface (2-Wire, 16 Port)	TN2181	1- 20	
Data Line	TN726B	1 to 20	Optional[8]
ISDN-BRI Line (2-Wire)	TN2198	1 to 20	
ISDN BRI Line	TN556B	1 to 20	Optional
Packet Data Line	TN553	1 to 20	Optional
Packet Gateway	TN577	1 to 20	Optional
Pooled Modem	TN758	1 to 20	Optional
Analog Line (16-Port)	TN2183	1 to 20	
Analog Line	TN742, TN746B, or TN769	1 to 20	Optional[9]
Digital Line	TN754B	1 to 20	Optional
Hybrid Line	TN762B	1 to 20	Optional
MET Line	TN735	1 to 20	Optional
DS1 Converter	TN574	1 to 20	Optional
DS1 Converter	TN1654	1 to 20	Optional
Auxiliary Trunk	TN763D	1 to 20	Optional[10]
Loop-Start CO Trunk	TN465C	1 to 20	
CO Trunk	TN747	1 to 20	Optional[11]
DID Trunk	TN753	1 to 20	Optional
DIOD Trunk	(TN2184)	1 to 20	
DS1 Interface	TN767C	1 to 20	Optional
DS1/E1 Interface	TN464C	1 to 20	Optional for E1 span or for ISDN—PRI

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Table 4-6. Circuit Packs in Port Carrier (J58890BB) — *Continued*

Name	Code	Slot Location	Notes
DS1 Tie Trunk	TN722	1 to 20	Optional
Tie Trunk	TN760	1 to 20	Optional[12]
DEFINITY AUDIX System	None	1 to 20	Optional[13]

Continued on next page

1. Required for ring generation in France.
2. Required for Call Prompting answer detection or with OCM. Not required if the system has low traffic and a TN2182.
3. TN750C is required if your system will have multiple announcement boards. To use multiple announcement boards, you must have G3V4 software, and at least one TN750C (up to ten are allowed). Only one TN750/B may be present in the system when a TN750C is used. The announcements from a TN750/B can be saved and restored to a TN750C — but once the announcements are recorded onto a TN750C, do not copy announcements from a TN750C to a TN750 or TN750B, as it may corrupt the announcement data.
4. A TN748C is required for ACD and OCM applications. A TN748C is not required if the system TN744Cs or if the system has low traffic and a TN2182.
5. A TN768 or TN780 is required only if the port carrier resides in position B of a critical-reliability EPN cabinet.
6. Use TN780 as Tone-Clock for Stratum 3 timing. Also required with the TN780 are the TN748, and TN744 for tone-detection.
7. The TN2182 Tone-Clock provides tone detection, tone generation, and tone-clock in one circuit pack, and it replaces the TN756, TN768, and TN780 circuit packs, while providing the same functionality as the TN748 and TN420 circuit packs.
8. A TN726B (and a TN553) is required for a DEFINITY ECS R5r system-access port.
9. A TN746B is required to provide the complete set of analog line functions with a 16-port analog pack.
10. Use a TN763DB to connect an AUDICHRON announcement machine.
11. Use a TN747B to provide abandon call search for the ACD feature.
12. Use a TN760B for the CAS feature.
13. For adequate cooling, never locate a DEFINITY AUDIX System in port carrier “C.”

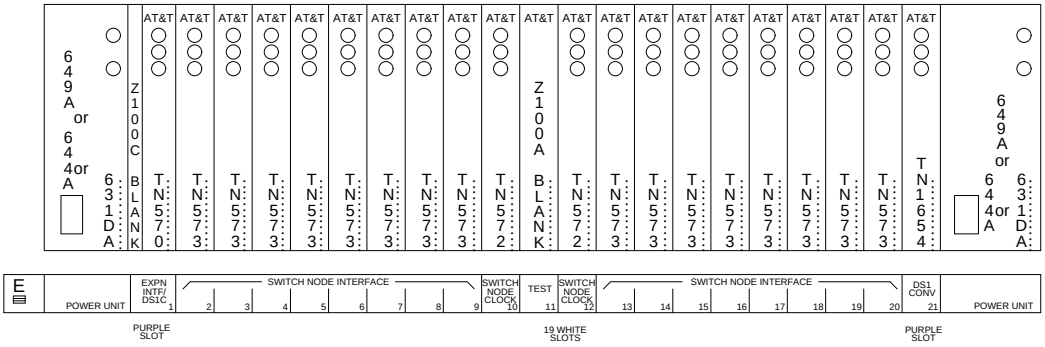


Figure 4-36. Circuit-Pack Locations in DEFINITY ECS R5r Switch Node Carrier

Table 4-7. Circuit Packs in DEFINITY ECS R5r Switch Node Carrier (J58890SA)

Name	Code	Slot Location	Notes
Power Unit (AC, +5V)	631DA1	POWER UNIT (both sides)	Required for AC
Power Unit (DC, +5V)	644A1	POWER UNIT (both sides)	Required for DC
Power Unit (DC, +5V)	649A	POWER UNIT (both sides)	Required for DC
DS1 Converter	TN1654	DS1 CONV	Optional
Expansion Interface	TN570B	EXPN INTFC	Used when SN carrier is in critical- reliability PPN
SN Clock	TN572	SWITCH NODE CLOCK 10 and 12 (required in SNs in critical reliability systems)	Required
SN Interface	TN573B	SWITCH NODE INTERFACE	One per PN, or one
		2 to 9, and 13 to 20	per interSN-to-SN link

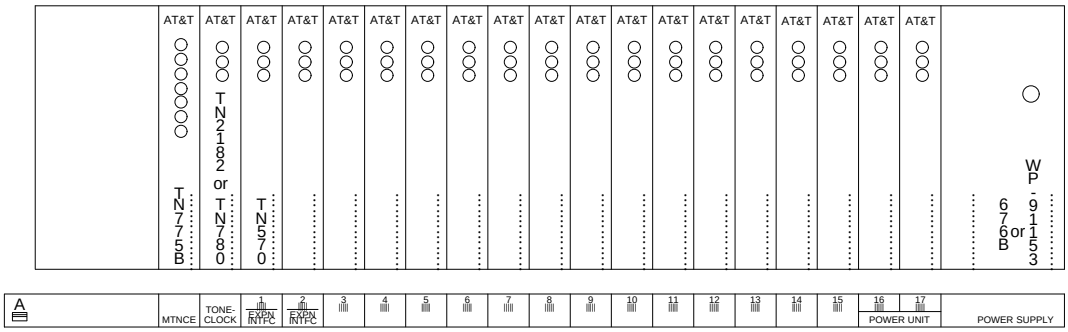


Figure 4-37. Circuit-Pack Locations in DEFINITY ECS R5r Expansion Control Cabinet

Table 4-8. Circuit Packs in DEFINITY ECS R5r Expansion Control Cabinet (J58890N)

Name	Code	Slot Location	Notes
Expansion Interface	TN570B	1/EXPN INTFC	Required
Expansion Interface	TN570B	2/EXPN INTFC	Optional
Maintenance	TN775B	MAINTENANCE	Required
Neon Power Unit	TN755B	POWER UNIT (16 and 17)	Optional
Announcement	TN750C	2 to 17	Note[1]
Announcement	TN750	2 to 17	Optional
Speech Synthesizer	TN725B	2 to 17	Optional
Power Supply (+5V/-48V/-5V/+12V)	WP-91153	POWER SUPPLY	Required for AC
Power Supply (DC) (+5V/-48V/-5V/+12V)	676B	POWER SUPPLY	Required for DC
Ring Generator	(TN2202)	POWER SUPPLY	Note[2]
Tone-Clock or Tone-Clock or Tone-Clock	TN768 TN780 TN2182	TONE-CLOCK TONE-CLOCK TONE-CLOCK	Required[3]+[4] Note[5] Note[6]
DCP Interface (2-Wire, 16 Port)	TN2181	2 to 17	

Continued on next page

Table 4-8. Circuit Packs in DEFINITY ECS R5r Expansion Control Cabinet (J58890N) — *Continued*

Name	Code	Slot Location	Notes
Data Line	TN726B	2 to 17	Optional [7]
ISDN-BRI Line (2-Wire)	TN2198	2 to 17	
ISDN BRI Line	TN556B	2 to 17	Optional
Packet Data Line	TN553	2 to 17	Optional
Packet Gateway	TN577	2 to 17	Optional
Pooled Modem	TN758	2 to 17	Optional
Analog Line (16-Port)	TN2183	2 to 17	
Analog Line	TN742, TN746B, or TN769	2 to 17	Optional[8]
Digital Line	TN754B	2 to 17	Optional
Hybrid Line	TN762B	2 to 17	Optional
MET Line	TN735	2 to 17	Optional
DS1 Converter	TN574	2 to 17	Optional
DS1 Converter	TN1654	2 to 17	Optional
Auxiliary Trunk	TN763D	2 to 17	Optional[9]
Loop-Start CO Trunk	TN465C	2 to 17	
CO Trunk	TN747	2 to 17	Optional[10]
DID Trunk	TN436B, TN459B, TN753	2 to 17	Optional
DIOD Trunk	(TN2184)	2 to 17	
DS1 Interface	TN767C	2 to 17	Optional
DS1 Tie Trunk	TN722	2 to 17	Optional
Tie Trunk	TN760	2 to 17	Optional[11]
DS1/E1 Interface	TN464C	2 to 17	Optional for E1 span or for ISDN—PRI
Call Classifier-Detector	TN744C	2 to 17	
Call Classifier	TN744	2 to 17	Optional[12]
Tone Detector	TN748B	2 to 17	Optional[13]
DEFINITY AUDIX System	None	4 to 17	Optional

Continued on next page

1. TN750C is required if your system will have multiple announcement boards. To use multiple announcement boards, you must have G3V4 software, and at least one TN750C (up to ten are allowed). Only one TN750/B may be present in the system when a TN750C is used. The announcements from a TN750/B can be saved and restored to a TN750C — but once the announcements are recorded onto a TN750C, do not copy announcements from a TN750C to a TN750 or TN750B, as it may corrupt the announcement data.

2. Required for ring generation in France.
3. A TN780 or TN2182 is required to provide international tones for DEFINITY ECS R5r system.
4. The TN2182 Tone-Clock provides tone detection, tone generation, and tone-clock in one circuit pack, and it replaces the TN756, TN768, and TN780 circuit packs, while providing the same functionality as the TN748 and TN420 circuit packs.
5. Use TN780 as Tone-Clock for Stratum 3 timing. Also required with the TN780 are the TN748, and TN744 for tone-detection.
6. The TN2182 Tone-Clock provides tone detection, tone generation, and tone-clock in one circuit pack, and it replaces the TN756, TN768, and TN780 circuit packs, while providing the same functionality as the TN748 and TN420 circuit packs.
7. A TN726B (and a TN553) is required for a DEFINITY ECS R5r system-access port
8. A TN746B is required to provide the complete set of analog line functions with a 16-port analog pack.
9. Use a TN763DB to connect an AUDICHRON announcement machine.
10. Use a TN747B to provide abandon call search for the ACD feature.
11. Use a TN760B for the CAS feature.
12. Required for Call Prompting answer detection or with OCM.
13. A TN748C is required for ACD and OCM applications. A TN748C is not required if the system TN744Cs or if the system has low traffic and a TN2182.

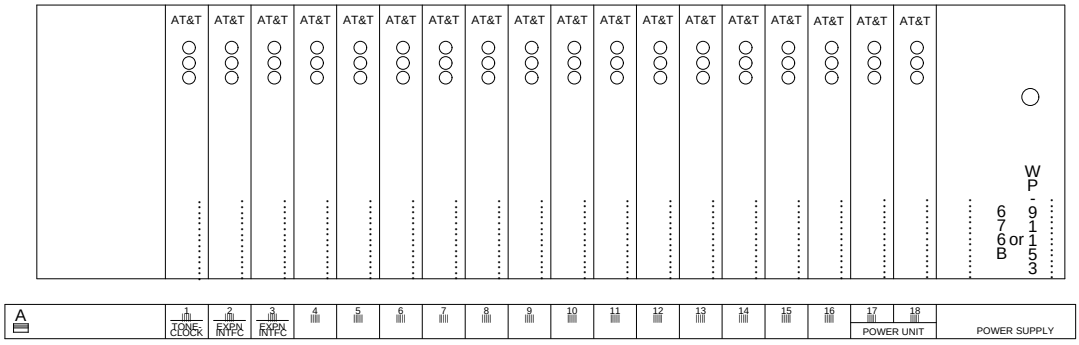


Figure 4-38. Circuit-Pack Locations in DEFINITY ECS R5r Port Cabinet

Table 4-9. Circuit Packs in DEFINITY ECS R5r Port Cabinet (J58890H)

Name	Code	Slot Location	Notes
Neon Power Unit	TN755B	POWER UNIT (17 and 18)	Optional
Power Supply (AC) (+5V/-48V/-5V/+12V)	WP-91153	POWER SUPPLY	Required for AC
Power Supply (DC) (+5V/-48V/-5V/+12V)	676B	POWER SUPPLY	Required for DC
Ring Generator	(TN2202)	POWER SUPPLY	Note[1]
Tone-Clock	TN768	TONE-CLOCK	Required (Note[2]+[3]
Tone-Clock	TN780	TONE-CLOCK	Note[4]
Tone-Clock	TN2182	TONE-CLOCK	Note[5]
Expansion Interface	TN570B	EXPN INTFC	Optional
DCP Interface (2-Wire, 16 Port)	TN2181	1to 18	
Data Line	TN726B	1 to 18	Optional[6]
ISDN-BRI Line (2-Wire)	TN2198	1to 18	
ISDN BRI Line	TN556B	1 to 18	Optional
Packet Data Line	TN553	1 to 18	Optional
Packet Gateway	TN577	1 to 18	Optional
Pooled Modem	TN758	1 to 18	Optional
Analog Line (16-Port)	TN2183	1 to 18	
Analog Line	TN742, TN746B, or TN769,	1 to 18	Optional [7]
Digital Line	TN754B	1 to 18	Optional
Hybrid Line	TN762B	1 to 18	Optional
MET Line	TN735	1 to 18	Optional
DS1 Converter	TN574	1 to 18	Optional
DS1 Converter	TN1654	1 to 18	Optional
Auxiliary Trunk	TN763D	1 to 18	Optional[8]
Loop-Start CO Trunk	TN465C	1to 18	
CO Trunk	TN747	1 to 18	Optional[9]
DIOD Trunk	(TN2184)	1 to 18	
DID Trunk	TN753	1 to 18	Optional
DS1 Interface	TN767C	1 to 18	Optional
DS1/E1 Interface	TN464C	1 to 18	Optional for E1 span or for ISDN—PRI

Continued on next page

Table 4-9. Circuit Packs in DEFINITY ECS R5r Port Cabinet (J58890H) — *Continued*

Name	Code	Slot Location	Notes
DS1 Tie Trunk	TN722	1 to 18	Optional
Tie Trunk	TN760	1 to 18	Optional[10]
Call Classifier-Detector	TN744C	1 to 18	
Call Classifier	TN744	1 to 18	Optional[11]
AUDIX System	None	5 to 18	Optional

1. Required for ring generation in France.
2. A TN768 or TN780 is required only if the port cabinet resides in position B of a critical-reliability EPN.
3. The TN2182 Tone-Clock provides tone detection, tone generation, and tone-clock in one circuit pack, and it replaces the TN756, TN768, and TN780 circuit packs, while providing the same functionality as the TN748 and TN420 circuit packs.
4. Use TN780 as Tone-Clock for Stratum 3 timing. Also required with the TN780 are the TN748, and TN744 for tone-detection.
5. The TN2182 Tone-Clock provides tone detection, tone generation, and tone-clock in one circuit pack, and it replaces the TN756, TN768, and TN780 circuit packs, while providing the same functionality as the TN748 and TN420 circuit packs.
6. A TN726B (and a TN553) is required for a DEFINITY ECS R5r system-access port.
7. A TN746B is required to provide the complete set of analog line functions with a 16-port analog pack.
8. Use a TN763DB to connect an AUDICHRON announcement machine.
9. Use a TN747B to provide abandon call search for the ACD feature.
10. Use a TN760B for the CAS feature.
11. Required ofr Call Prompting answer detection or with OCM.

8. Add Attendant Console

Requirements for 302A1 Attendant Console

Like any voice terminal, an attendant console is connected to an information outlet (modular wall connecting block).

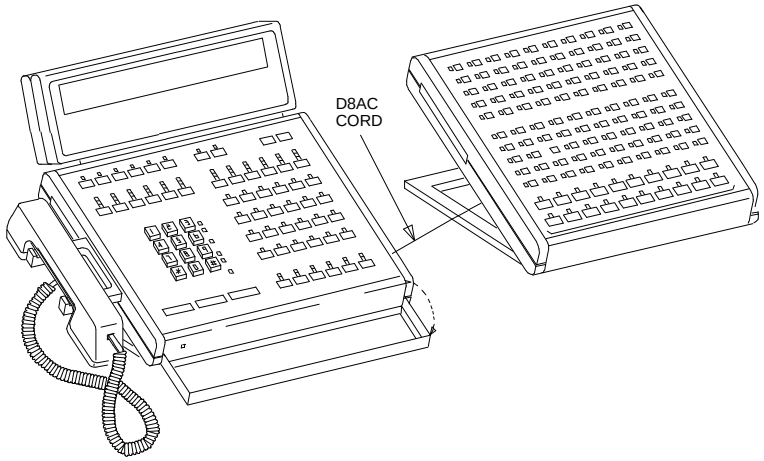


Figure 4-39. 302A1 Console and 26A1 Selector Console

Phantom Power

Since, like DCP voice terminals, an attendant console derives power for essential telecommunications functions through its DCP interface, a console's maximum distance from the system is limited. This maximum distance for a 302A1 console is:

- 5000 feet for 24-AWG wire
- 3400 feet for 26-AWG wire

The maximum distance for a 301B1 console is:

- 2400 feet for 25-AWG wire
- 1500 feet for 26-AWG wire

NOTE:
To install the 302B1 Console and 26A1 Selector Console, refer to "50. Add CallMaster 603A, 603D, or 603E" in this chapter.

Auxiliary Power

The nonessential functions of an attendant console and its optional 26A1 or 24A1 selector console derive their power from an auxiliary power source. Out of the DEFINITY ECS R5r maximum of 27 attendant consoles three of the consoles connected to each cabinet or single-carrier cabinet stack can derive auxiliary power from the system and through the auxiliary cable located in the

trunk/auxiliary field. Whenever possible, auxiliary power for a primary attendant console should be provided through this cable so that the console remains fully operational during short power outages.

NOTE:
For a console connected to an MCC DEFINITY ECS R5r system to realize the longest possible nominal battery holdover of 10 minutes, the console's TN754B or TN413 Digital Line circuit should reside in an EPN's expansion control carrier.

Depending on the location, a console connected to a circuit pack in another MCC DEFINITY ECS R5r carrier will receive no more than 15 seconds of holdover. Whereas, a console connected to a circuit pack in any single-carrier cabinet will receive 1/4 second of holdover.

An attendant console can also derive auxiliary power from either:

- Individual MSP-1 power supplies or 258A-type adaptors, or
- Bulk power supplies such as the 1145A1

located at the cross-connect field, at an information outlet, or at the attendant console's site.

A console's maximum distance from its auxiliary power source is:

- 800 feet for a 302A1
- 350 feet for a 301B1

Installation

1. Unpack the attendant console and inspect for damage. Report any damage for appropriate action per local procedures.
2. Determine the port assignment of the console from Attendant Console form.

EXAMPLE:	Port Number	2	A	04	06
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

3. Connect a modular line cord from the designated information outlet to the attendant console.
4. Install auxiliary power for the attendant console; refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, for detailed information.

5. Install labels per Attendant Console form and Display Module form assignments.
6. Install the handset bracket on either the left or right side of the console, as desired.
7. Insert the handset adapter on the same side of the handset bracket. A bracket is not required for a headset.

   NOTE:
   The handset adapter is available in two models: 854A-03 (black) or 854A-143 (burgundy).

8. Connect the handset cord to the jack on the same side of the console as the handset bracket.
9. See "7. Add Circuit Packs" earlier in this chapter, and install a TN754B or TN413 Digital Line circuit pack in the assigned carrier slot (if an additional circuit pack is required).
10. Administer forms listed under Attendant Console in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Requirements for 302B1 or 302C1 Attendant Console

The 302B1 and 302C1 attendant consoles have similiar capabilities and appearance as the 302A1 console, but can operate with either a 2-wire or 4-wire DCP interface to the system. This console automatically detects the wire count of its interface and establishes the correct DCP link accordingly.

Like the 302A1 console and any voice terminal, a 302B1 or 302C1 attendant console is connected to an information outlet (modular wall connecting block).

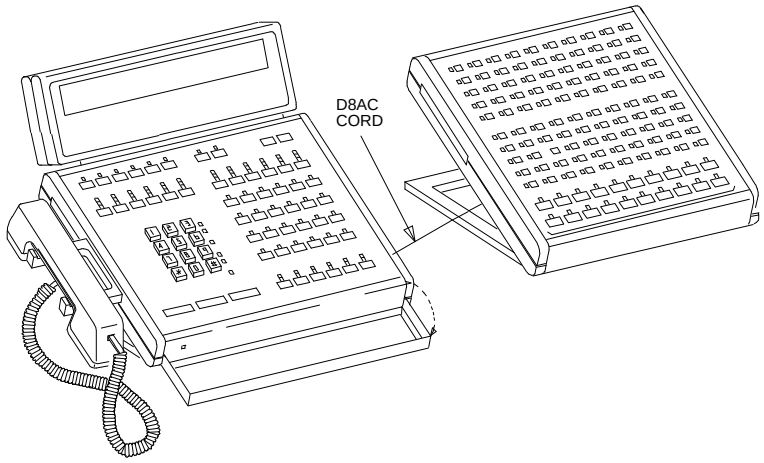


Figure 4-40. 302B1 Console and 26A1 Selector Console

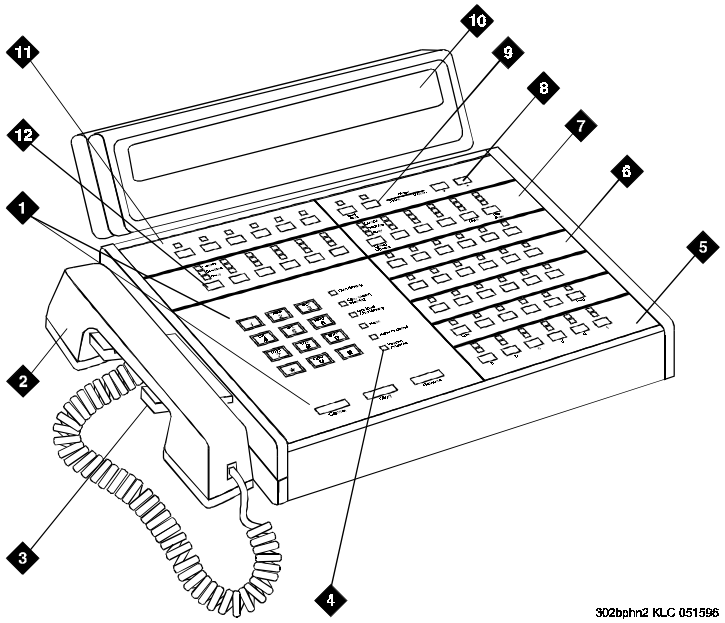


Figure 4-41. 302C1 Console

Hard-Wire Bridging

Analog-type hard-wire bridging has never been allowed for 4-wire (only) DCP endpoints such as 302A1 consoles and 7400-series voice terminals. This is because, from the *outgoing* perspective of these endpoints, hard-wire bridging provides no way of combining the digital output of two bridged DCP sets. From the *incoming* perspective, a bridged endpoint causes enough additional load to degrade the fairly wide-spectrum DCP signal. (And, 2-wire DCP interfaces require twice the spectrum of 4-wire interfaces.)

See CAUTION. Likewise, hard-wire bridging is not allowed for a 302B1 console installed with either a 2- or 4-wire interface to the system.

CAUTION:
Bridging or paralleling these endpoints can either cause:

- *Electrical damage to the consoles*
- *The system's circuit pack to remove power from the consoles*

Dual Wiring of 2-Wire and 4-Wire Endpoints

See previous CAUTION. A 2-wire and a 4-wire endpoint cannot be simultaneously wired to the same equipment location in a cross-connect field, even though they connect to differently colored wire pairs. The system uses separate circuit packs to interface 2- and 4-wire endpoints, and none of these circuit packs are capable of interfacing both.

Phantom Power

Since, like DCP voice terminals, a 302B1 derives power for essential telecommunications functions through its DCP interface, a console's maximum distance from the system is limited. This maximum distance for a 302B1 is:

- 5000 feet at 24AWG using 4-wire DCP interface
- 3400 feet at 26AWG using 4-wire DCP interface
- 4250 feet at 22AWG using 2-wire DCP interface
- 1650 feet at 26AWG using 2-wire DCP interface

Auxiliary Power

See NOTE. The nonessential functions of a 302B1 console and its optional 26A1 or 24A1 selector console derive their power from an auxiliary power source. Out of the DEFINITY ECS R5r maximum of 27 attendant consoles, three of the consoles connected to each cabinet or single-carrier cabinet stack can derive auxiliary power from the system and through the auxiliary cable located in the trunk/auxiliary field. Whenever possible, auxiliary power for a primary attendant console should be provided through this cable so that the console remains fully operational during short power outages.

NOTE:

For a console connected to an MCC DEFINITY ECS R5r system to realize the longest possible nominal battery holdover of 10 minutes, the console's:

- TN754B or TN413 (for 4-wire connectivity)
- TN2181 (for 2-wire connectivity)

Digital Line circuit should reside in an EPN's expansion control carrier.

Depending on the location, a console connected to a circuit pack in another MCC DEFINITY ECS R5r carrier will receive no more than 15 seconds of holdover. Whereas, a console connected to a circuit pack in any single-carrier cabinet will receive 1/4 second of holdover.

An attendant console can also derive auxiliary power from either:

- Individual 1154A or MSP-1 power supplies or 258A-type adapters, or
- Bulk power supplies such as the 1145A1

located at the cross-connect field, at an information outlet, or at the attendant console's site.

A 302B1 console's maximum distance from its auxiliary power source is 800 feet.

Installation

1. Unpack the attendant console and inspect for damage. Report any damage for appropriate action per local procedures.
2. Determine the port assignment of the console from Attendant Console form.

EXAMPLE:	Port Number	2	A	04	06
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

3. Connect a modular line cord from the designated information outlet to the attendant console.
4. Install auxiliary power for the attendant console; refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, for detailed information.
5. Install labels per Attendant Console form and Display Module form assignments.
6. Install the handset bracket on either the left or right side of the console, as desired.
7. Insert the handset adapter on the same side of the handset bracket. A bracket is not required for a headset.

   NOTE:
   The handset adapter is available in two models: 854A-03 (black) or 854A-143 (burgundy).

8. Connect the handset cord to the jack on the same side of the console as the handset bracket.
9. See "7. Add Circuit Packs" earlier in this chapter, and install a:
   - TN754B or TN413 Digital Line circuit pack for a 4-wire interface
   - TN2181 Digital Line circuit pack for a 2-wire interface

   in the assigned carrier slot (if an additional circuit pack is required).

Administration

1. Log in as "craft" at the `login:` prompt on the G3-MT or G3-MA.
2. See NOTE. Enter **`display system-parameters country-options`** and press RETURN to verify that the system's companding mode for its local stations is set to the desired value (usually, A-Law for Europe and Mu-Law for North America and Japan).

   NOTE:
   Refer to *DEFINITY Enterprise Communications Server Release 5 Implementation*, for a description of these forms.

3. See NOTE. If necessary, for a 302B1 console in a DEFINITY ECS R5r system, enter **`change terminal-parameters 603/302B1`** and press RETURN to change the default system-level parameters and audio levels for these terminals.

   NOTE:
   For detailed information about changing the default parameters and audio levels, refer to *DEFINITY Application Notes* available through the International Technical Assistance Center (ITAC).

4. Administer other forms listed under Attendant Console in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

9. Add Selector Console

Requirements

The selector console is connected to an attendant console by a 3-foot D8AC cord provided with the selector console (See Figure 4-42 and Figure 4-43).

Installation

1. Install a 3-foot D8AC cord between the DXS/BLF jack (under the attendant console) and the modular jack (under the selector console).
2. Install labels per Attendant Console form.
3. Administer forms listed under “Attendant Direct Extension Selection With Busy Lamp Field” in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

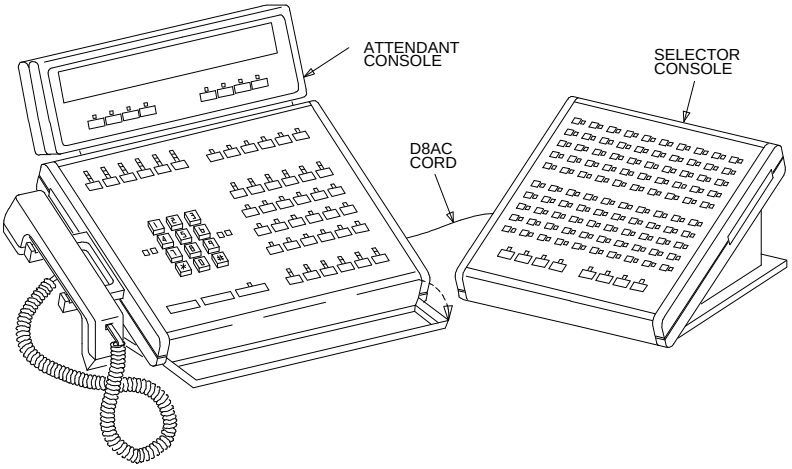


Figure 4-42. 301B1A Console and 24A1 Selector Console

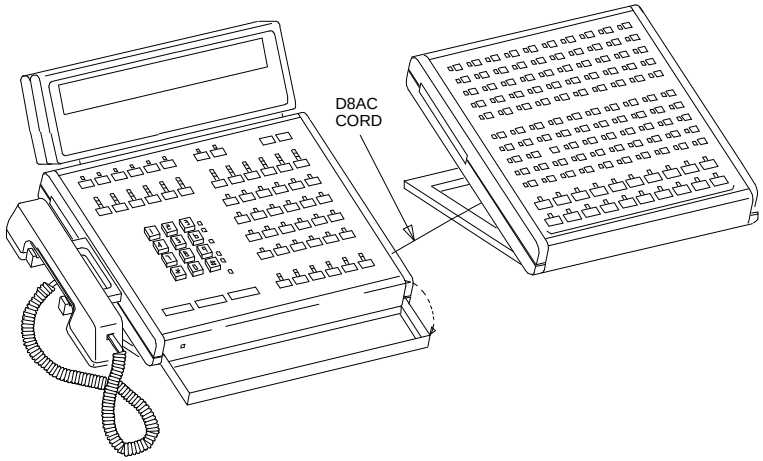


Figure 4-43. 302A Console and 26A1 Selector Console

10. Add CO, FX, WATS, and PCOL

Requirements

Each Central Office (CO), Foreign Exchange (FX), Wide Area Telecommunications Service (WATS), or Personal Central Office Line (PCOL) trunk is connected to one port of either an 8-port TN747 or to one of an assortment of international CO Trunk circuit packs. To add these trunks, do the following.

Installation

1. Determine the port assignment of the trunk from Trunk Group form.

EXAMPLE:	Port Number	3	A	07	01
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

2. See "7. Add Circuit Packs" earlier in this chapter, and install a TN747 or an international CO Trunk circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer forms listed under CO, FX, WATS, or PCOL Trunk Group in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

11. Add DID Trunks

Requirements

Each Direct Inward Dial (DID) trunk is connected to one port of an 8-port TN753 or to one of an assortment of international DID Trunk circuit packs. To add these trunks, do the following.

Installation

1. Determine the port assignment of the trunk from Trunk Group form.

EXAMPLE:	Port Number	1	A	07	01
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

2. See "7. Add Circuit Packs" earlier in this chapter, and install a TN753 or an international DID Trunk circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer forms listed under “DID Trunk Group” in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

12. Add Tie Trunks

Requirements

Each tie trunk is connected to one port of a 4-port TN760 or to an assortment of international Tie Trunk circuit packs. To add these trunks, do the following.

Installation

1. Determine the port assignment of the trunk from Trunk Group form.

EXAMPLE:	Port Number	3	A	02	01
		Cabinet (Port Network)	Carrier(or Single-Carrier Cabinet)	Slot	Circuit

2. See “9. Add Circuit Packs” and install TN760 or an international Tie Trunk circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. For customer-owned (not -leased) tie-trunk facilities (such as campus environments), TN760 circuit packs provide signaling capabilities beyond those specified by the industry-wide E&M standard. Use Figure 4-44 and Table 4-10 to choose the preferred signaling format, set switches on the TN760 circuit pack, and administer the port.
4. Administer forms listed under “Tie Trunk Group” in the *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

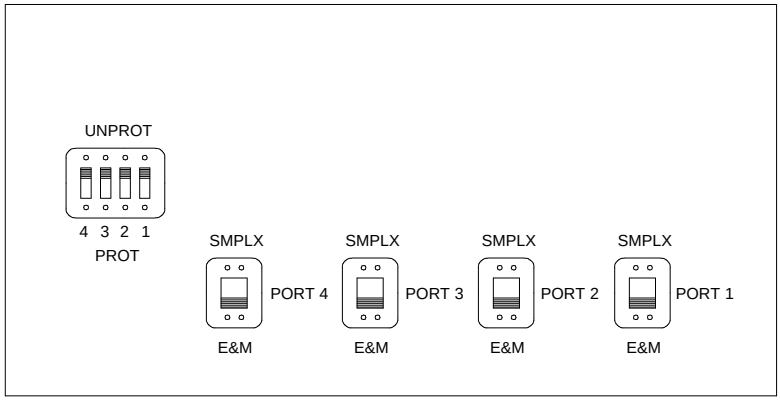


Figure 4-44. TN760 Tie Trunk Circuit Pack (Component Side)

Table 4-10. TN760 Option-Switch Settings and Administration

G1 or G3 Installation Situation		Preferred Signaling Format		Set E&M/SMPLX Option Switch to	Set Prot/Unprot Option Switch to	Administer Port As:
Circumstance	**To**	**G1 or G3**	**Far End**			
Collocated	DEFINITY, Sys 75/75XE, Sys 85, Sys 25	Simplex, Type 5	Simplex, Type 5	SMPLX		
Interbuilding	DEFINITY, Sys 75/75XE, Sys 85, Sys 25	Simplex, Type 5	Simplex, Type 5	SMPLX		
Collocated	Dimension. PBX	E&M Type 1 Compatible	E&M Type 1 Standard	E&M	Unprotected	Type1 Compatible
Interbuilding	Dimension PBX	Prot., Type 1 Compatible	Prot., Type 1 Standard	E&M	Protected	Type 1
Collocated	Network Interface	E&M Type 1 Standard	Don't Care	E&M	Unprotected	Type 1
Collocated	Other	E&M Type 1 Compatible	E&M Type 1 Standard	E&M	Unprotected	Type 1 Compatible
Interbuilding	Other	Prot., Type 1 Compatible	Prot., Type 1 Std., plus Protection Unit	E&M	Protected	Type 1 Compatible

13. Add DS1 Tie, CO, FX, WATS, and OPS

The TN722 DS1 Tie Trunk, TN767C DS1 Interface, and TN464C DS1/E1 Interface circuit packs provide connections to a 1.544 Mbps DS1 facility as 24 independent 64-kbps trunks. On any of the 24 ports, the TN767C and TN464C support ISDN—PRI *B-channel* transmissions between the TDM bus and the DS1 facility. Whereas, only ports on the TN464C support ISDN—PRI *D-channel* transmissions. The data-transmission formats are specified by the signaling on a per-trunk basis for automatic, immediate-start, delay-dial, or release-link trunks.

When upgrading from a TN722 to a TN767C:

- Remove all TN722 trunk members from affected trunk groups.
- Enter `remove ds1 PCSS` (PCSS is the slot in which the TN722 is located).
- Remove the TN722 circuit pack.
- Put the TN767C circuit pack into the same slot.
- Wait until the red LED goes off. The hardware tests take 12 to 20 seconds to run. When the red LED goes off, the tests have completed.

  If the red LED stays on, reseat the board and repeat this step.
- Enter `add ds1 PCSS`.
- Continue with appropriate procedures to set up members of trunk groups.

Service Interruption

Since the addition of DS1 tie-trunk service may require a service interruption, notify the customer in advance as to when the addition will be carried out.

Verify System Status

Before proceeding, the system should be examined for alarms, and every problem should be corrected. The system must be alarm-free.

Disable Alarm Origination

1. Enter **`change system-parameters maintenance`** and press RETURN.
2. Make a note of the *Alarm Origination Activated* field administration. If the feature is enabled, enter **n** in this field and press RETURN to disable Alarm Origination.

   You will enable this feature again in one of the final processes. See NOTE.

CAUTION:
If you do not disable Alarm Origination before making changes to the switch, the switch may generate alarms, resulting in unnecessary trouble tickets. Reducing redundant and unnecessary trouble tickets is critical for measuring the quality of Lucent services and products.

NOTE:
For earlier releases of the system software, you may also need to disable *Cleared Alarm Notification* and *Restart Notification* before you can submit the form successfully.

Save Translations

1. Log in at the G3-MT terminal.
2. If the system is high- or critical-reliability, enter **`status spe`** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.
3. Enter **`save translation`** [**`spe-a`** or **`both`**] **`disk`** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk(s).
4. If the system contains a TN750/B Announcement circuit pack, enter **`display announcements`** and press RETURN.

   If administered recorded announcements are listed, enter **`list configuration software-version`**, press RETURN. Check Page 2 of this form to find out when the announcements were last saved, and ask the customer whether any announcements have changed since then.

   If so, the current announcements can be saved using the save announcements command. Enter **`save announcements disk`** and press RETURN.
5. Enter **`backup disk`** [**`spe-a`** or **`both`**] and press RETURN. This command instructs the system to backup the current information on disk to the system tape(s).
6. Update backup tape(s), if required.

Shut Down DEFINITY LAN Gateway System

If a DEFINITY LAN Gateway system resides in the control cabinet to be upgraded, prepare to shut down the DEFINITY LAN Gateway assembly and allow the disk to completely spin down. See Caution. See WARNING.

CAUTION:
Before using this procedure to shut down the DEFINITY LAN Gateway, make sure that you save the system parameters if you plan to reuse the current system.

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

1. See WARNING. To avoid an unexpected LAN Gateway reboot after an unplanned switch reboot, unseat the LAN Gateway assembly from its backplane connectors in the carrier.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

2. Log onto the DEFINITY LAN Gateway if you have not previously logged on. *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 in.
3. When the main menu appears, select *Maintenance*.
4. Select *Reset System* from the *Maintenance* menu.
5. Select *Shutdown* from the *Reset System* menu.

Shut Down DEFINITY AUDIX System

1. See WARNING. 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. See WARNING. To avoid an unexpected AUDIX reboot after an unplanned switch reboot, unseat the AUDIX assembly from its backplane connectors.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Power Down System

NOTE:
Power down the system only if TN768 Tone-Clock is being replaced with a TN780 Tone-Clock in a standard-reliability system.

1. At the PPN, on the power-distribution unit, set the main circuit breaker to OFF.
2. At each EPN, on the power-distribution unit, set the main circuit breaker to OFF.

Add Circuit Packs

1. Determine the port assignments of the circuit packs to be added.
2. See "7. Add Circuit Packs" earlier in this chapter, and install the TN722 DS1 Tie Trunk, the TN767C DS1 Interface, or TN464C DS1/E1 Interface circuit pack in assigned carrier slot.

Install Cables

Install H600-307 cable from the cabinet to a channel service unit (CSU), and install cables from the CSU to cross-connect field as required.

Detailed descriptions for installing wiring are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

Reseat DEFINITY LAN Gateway System

1. See WARNING. Reseat the LAN Gateway assembly into its backplane connectors in the carrier.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Reseat DEFINITY AUDIX System

See WARNING. If a DEFINITY AUDIX System resides in the system, reseat the AUDIX assembly to its backplane connectors.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Power Up System

1. At the power-distribution unit, set the main circuit breaker to ON.
2. The system now goes through the level 4 rebooting process, loading the system translations from the disk. Rebooting takes 5 to 11 minutes.

   Refer to "Initialization and Recovery" and "LED Interpretation" chapters in *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r*, for circuit-pack LED indications and G3-MT terminal displays that occur during system reboot.
3. After the system reboot is finished and all trouble is cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

Restart DEFINITY LAN Gateway System

1. Log onto the DEFINITY LAN Gateway if you have not previously logged on. *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 in.
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.

NOTE:
To ensure that the upgrade completes successfully, perform all steps in the order provided.

Enter Added Translations

Administer forms listed under "DS1 Tie Trunk Service" in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Resolve Alarms and Enable Alarm Origination

1. Examine the alarm log. Resolve any alarms that may exist by using the *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r* manual.
2. See NOTE. See WARNING. If the *Alarm Origination Activated* field administration that you previously noted is already set to *y*, be sure to enable Alarm Origination. Otherwise you do not need to enable Alarm Origination (proceed to the next section directly).
3. Enter **`change system-parameters maintenance`** and press RETURN.

The *Alarm Origination Activated* field has been changed to *Alarm Origination to OSS Numbers* to support more than one OSS (INADS, etc.).

Enter **first-only** in this field to enable Alarm Origination (to the first OSS, which should be INADS).

Be sure to enter *y* in both *Cleared Alarm Notification* and *Restart Notification* fields if they are not enabled already. Press RETURN.

NOTE:
If you have lost the previous administration of the *Alarm Origination* field, you may register the system again with the INADS Database Administrator at the TSC. The INADS Database Administrator will enable Alarm Origination as part of the registration process.

WARNING:
If you do not enable Alarm Origination when the customer has purchased a services contract, the switch will not report any alarm to the TSC automatically, causing the TSC to be unable to fulfill the services contract.

Save Translations

1. If the system is high- or critical-reliability, enter **status spe** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.
2. Enter **save translation** [**spe-a** or **both**] **disk** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk(s).
3. If the system contains a TN750 Announcement circuit pack, enter **list configuration software-version** and press RETURN.

   If Page 2 of this form shows that recorded announcements were saved, these announcements can be restored using the restore announcements command. Enter **restore announcements** [**disk** | **tape**] and press RETURN.
4. Enter **backup disk** [**spe-a** or **both**] and press RETURN. This command instructs the system to backup the current information on disk to the system tape(s).
5. Update backup tape(s), if required.

14. Add Speech Synthesis

Requirements

The TN725B Speech Synthesizer circuit pack is required when the Voice Message Retrieval, Automatic Wakeup, or Do Not Disturb features are activated. The TN725B circuit pack does not require administration.

Installation

1. Determine the port assignment of the Speech Synthesizer circuit pack being added.
2. See "7. Add Circuit Packs" earlier in this chapter, and install the TN725B Speech Synthesizer circuit pack in the designated carrier slot.

15. Add Code Calling Access

The tones for the Code Calling feature are generated by the TN768 or TN780 Tone-Clock circuit packs in the DEFINITY ECS R5r port networks. This feature allows attendants, voice terminal users, and trunk users to page with coded signals. The feature is administered on the Loudspeaker Paging and Code Calling Access form.

Requirements

A TN763D (or an international TN417) Auxiliary Trunk circuit pack or a TN457 Speech Synthesizer circuit pack must be installed and connected for Loudspeaker Paging. The Code Calling Access feature shares the same ports used for Loudspeaker Paging. An Auxiliary Trunk circuit pack provides four ports for Loudspeaker Paging and Code Calling Access.

Installation

Administer the form listed under “Code Calling Access” in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

16. Add Pooled Modem

Requirements

The DEFINITY ECS R5r Modem Pooling supports two kinds of conversion resources: integrated conversion resources and combined conversion resources.

The integrated type requires a TN758 Pooled Modem circuit pack for each two conversion resources provided.

The combined type requires a port of a TN754B, TN413, or TN2136 Digital Line circuit pack and a port of either an 8-port TN742, TN769, or TN467 or a 16-port TN746B, TN468B, TN2135, TN2144, or TN2149 Analog Line circuit pack for each conversion resource provided.

Installation

1. Determine the port assignment of the circuit pack(s) to be added (if required).
2. See "7. Add Circuit Packs" earlier in this chapter, and install the appropriate circuit pack(s) in assigned carrier slot (if required).
3. Administer the forms listed under “Modem Pooling” in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

17. Add Off-Premises Terminals

Requirements — Off-Premises Terminals

See NOTE. An off-premises terminal is not physically located in the same building as the port network to which it is connected, and its access to the port network is provided by *public* right-of-way. An off-premises terminal must be an analog station (for example, a 2500 set). The outside cabling is engineered and provided by a telephone company. Appearances for off-premises terminals reside on the information outlet (RJ21X interface facility). Either any 8-port analog circuit pack or most 16-port analog circuit pack (except a TN746BA, TN468A, or TN479) can be used for off-premises terminals.

NOTE:
The neon message waiting capability provided by the TN769, TN746B, TN468B, TN2133, TN2144, or the TN2149 cannot be used off-premises.

The 16-port TN746BA, TN468A, or TN479 circuit packs do not support off-premises terminals.

Requirements — Out-of-Building Terminals

See NOTE. Out-of-building terminals are not physically located in the same building as the port network to which they are connected, but their access to the port network is provided by *private* right-of-way. Carbon block (or equivalent) protection must be provided at both building entrances. Either any 8-port or most 16-port circuit packs can be used for out-of-building terminals.

NOTE:
The 16-port TN746BA, TN468A, or TN479 circuit packs do not support out-of-building terminals.

Installation

1. Determine the port assignment of the terminal from Station Record form:

EXAMPLE:	Port Number	1	B	07	01
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

2. Connect modular line cord from the information outlet to off-premises terminal.
3. See "7. Add Circuit Packs" earlier in this chapter and install the Analog Line circuit pack in assigned carrier slot (if an additional circuit pack is required).
4. Administer the appropriate voice terminal form according to *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

18. Add External Alerting

Requirements

See NOTE. External alerting is provided by a device, such as a gong, chime, or bell, connected to an information outlet (modular wall connecting block). The switch side of the cross-connect field connects to any 8-port or to a 16-port (with restrictions) Analog Line circuit packs located in a port carrier.

NOTE:
The 16-port TN746BA, TN468A, or TN479 circuit packs do not support external alerting.

Up to five external alerting devices can be connected to one port of an Analog Line circuit pack.

Installation

1. Determine the port assignment of the Night Service — Trunk Answer From Any Station feature using the External Alert Port field of the Console Parameters form:

EXAMPLE:	Port Number	1	B	07	01
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

2. See"7. Add Circuit Packs" earlier in this chapter, and install the Analog Line circuit pack in assigned carrier/cabinet slot (if an additional circuit pack is required).
3. Administer External Alert Port number on the Console Parameters form per *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

19. Add Queue Warning Indicator

Requirements

See NOTE. An AC indicator (lamp), such as a 21C49, can be used as a queue warning indicator for a Uniform Call Distribution (UCD)/Direct Department Calling (DDC) queue. The lamp is connected to an information outlet (modular wall connecting block). The switch side of the cross-connect field is connected either to any 8-port or to a 16-port (with restrictions) Analog Line circuit pack.

NOTE:
The 16-port TN746BA, TN468A, or TN479 circuit packs do not support queue warning indications.

Installation

1. Determine the port assignment of the queue warning lamp from Hunt Group form:

EXAMPLE:	Port Number	1	B	07	01
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

2. See "7. Add Circuit Packs" earlier in this chapter, and install the Analog Line circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer the fields on the Hunt Group form listed under "Queue Status Indications" in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

20. Add Loudspeaker Paging Access

Requirements

Access to loudspeaker paging is provided by an information outlet (modular wall connecting block). A 4-port TN763D Auxiliary Trunk circuit pack must be installed for Loudspeaker Paging.

Installation

1. Determine the port assignment of the paging zone(s) from Loudspeaker Paging form:

EXAMPLE:	Port Number	3	B	02	01
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

2. See "7. Add Circuit Packs" earlier in this chapter, and install the TN763D Auxiliary Trunk circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer the forms listed under "Loudspeaker Paging Access" in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

21. Add Loudspeaker Paging with Music

Requirements

Background music may be added after installing the Loudspeaker Paging and Music-on-Hold features. The music source and loudspeaker equipment may be provided by the customer.

Installation

The music source is connected to the M1 and M2 terminals on the Loudspeaker Paging Access 278A adapter and from the adapter's CT and CR terminals to the loudspeaker paging equipment.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

22. Add PagePac Paging System

Requirements

The PagePac paging systems use a single port of a system circuit pack to provide single or multizone loudspeaker paging. A PagePac system may be used in addition to the standard loudspeaker paging and code-calling capabilities of the system. A TN763D Auxiliary Trunk circuit pack is used for PagePac paging equipment.

Three models are available:

- PagePac 20
- PagePac VS
- PagePac 50/100/200

PagePac 20

The PagePac is a 20-watt amplifier that can be used alone to provide a single zone of paging or it can be equipped with a ZoneMate 9 or 34 to provide multiple paging zones.

PagePac VS

The PagePac VS is a 35-watt amplifier that provides up to three paging zones. This unit is wall mountable. The optional feature cards (to provide music or talkback) are plugged into the lower half of the unit.

PagePac 50/100/200

The 50/100/200 PagePac Paging system will mount directly on the wall or on a 23-inch relay rack by using the appropriate adapters.

The unit provides three wattages: 50, 100, and 200. The PagePac amplifier can either be used alone to provide a single paging zone or add-on units can be provided to create a paging system with up to 24 paging zones.

Installation

1. Determine the port assignment of the paging zone(s) from Loudspeaker Paging form:

EXAMPLE:	Port Number	3	B	02	01
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

2. See "7. Add Circuit Packs" earlier in this chapter, and install the TN763D Auxiliary Trunk circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer forms listed under "Loudspeaker Paging Access" in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

23. Add Music-on-Hold Access

Requirements

Access to the music source is provided by an information outlet.

Either a 4-port TN763D Auxiliary Trunk or an 8- or 16-port Analog Line circuit pack (except a TN746B, TN468, or TN479) must be installed for Music-on-Hold.

Installation

1. Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.
2. Determine the port assignment of the feature from Feature-Related System Parameters form:

EXAMPLE:	Port Number	3	B	02	01
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

3. See "7. Add Circuit Packs" earlier in this chapter, and install the:

- 4-port TN763D auxiliary trunk
- 8-port TN742 analog line
- 8-port TN769 analog line
- 16-port TN746B analog line
- 16-port TN468B analog line

circuit pack in assigned carrier slot (if an additional circuit pack is required).

4. Administer the forms listed under "Music-on-Hold Access" in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

24. Add Analog Recorded Announcement

Requirements

Access for customer-provided analog recorded announcement equipment is provided by an information outlet.

An 8- or 16-channel 15A Digital Announcer provides recorded announcements for the Intercept Treatment — Recorded Announcement feature. If located outside an auxiliary cabinet, this model requires an MSP-1 power supply.

A Cook Electric 1-channel or 5-channel Digital Announcer is available and provides recorded announcements for the Intercept Treatment — Recorded Announcement feature. Both models require an AC adapter for 115-volt AC power.

Either an 8-port or a 16-port (with restrictions) Analog Line circuit pack is installed for recorded announcements.

NOTE:
The 16-port TN746BA, TN468A, or TN479 circuit packs do not support recorded announcements.

Installation

1. Determine the port assignment of the feature from Announcement form:

EXAMPLE:	Port Number	3	B	02	01
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

2. See "7. Add Circuit Packs" earlier in this chapter, and install the Analog Line circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer the forms listed under Recorded Announcements in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

25. Add Multiple Integrated Recorded Announcements

Requirements

The TN750C Multiple Integrated Announcement circuit pack records and stores announcements that can be played back on demand as part of a calling feature. The TN750C provides on-board flash memory, which provides internal backup of the announcements. This allows support for multiple circuit packs and eliminates the need for a 40-minute restore/download process after a power failure or system reload.

TN750C circuit packs are required if your system will have multiple announcement circuit packs. To use multiple announcement circuit packs, you must have at least G3 V4 software, and at least one TN750C circuit pack. No more than one TN750 or TN750B can reside in the system. The TN750C can be installed in any port or service (TDM) slot, and need not reside in a control carrier for extra power holdovers.

The following table shows the maximum number of announcement circuit packs you may have in your system:

Table 4-11. Maximum Announcement Boards Per DEFINITY ECS R5 System

System Type	Maximum Number of Announcement Boards
R5vs	1
R5s	1
R5i	5
R5r	10

The announcements from a TN750 or TN750B can be saved and then restored to a TN750C.

NOTE:
Do not copy or restore announcements from a TN750C to a TN750 or TN750B circuit pack, as this process may corrupt the announcement data.

TN750C Announcement Board

The TN750C circuit pack contains flash memory which provides internal backup of announcements on the circuit packs. Thus, the TN750C circuit pack does not need the save and restore processes still required for the TN750 and TN750B circuit packs. However, you can use the save and restore processes to copy announcements from the TN750 or TN750B to a TN750C circuit pack.

The TN750C circuit pack can be used to replace a TN750 or TN750B circuit pack in G3 V3 and earlier systems. The difference in operation is that the TN750C circuit pack automatically restores and reports the availability of announcements from its own internal flash memory in 5 minutes, rather than the approximately 40 minutes it took the TN750 or TN750B circuit pack from the mass-storage system.

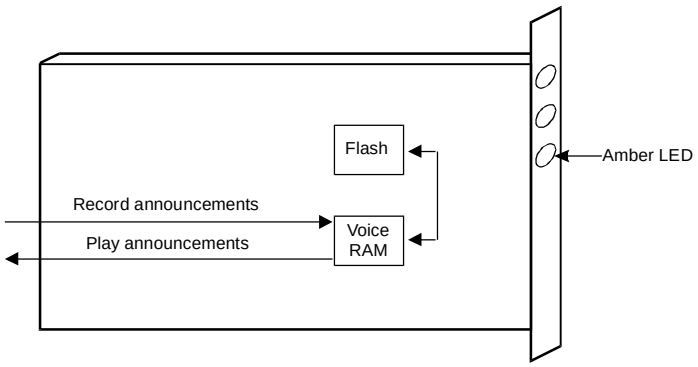


Figure 4-45. Operation of TN750C Multiple Integrated Announcement Circuit Pack

If a circuit pack being installed already has announcements in its flash memory, the amber LED will flash as the announcements are being copied to the Voice RAM.

Save and Restore Recorded Announcements

CAUTION:
If the amber LED is flashing, do not remove the circuit pack, as this will corrupt the announcement data.

The command syntax for saving from any TN750 circuit pack with Release 5 is:

Save announcements [from UUCSS]

and press RETURN

where UU is the universal cabinet number (1 for PPN, 2-44 for EPNs), C is the carrier designation (A, B, C, D, or E). SS is the number of the slot in which the circuit pack resides (01 to 21).

The command syntax for restoring to a TN750C circuit pack is:

Restore announcements [disk | tape [to UUCSS]

and press RETURN

where UU is the universal cabinet number (1 for PPN, 2-44 for EPNs), C is the carrier designation (A, B, C, D, or E). SS is the number of the slot in which the circuit pack resides (01 to 21).

When you execute a restore command and there are existing announcements on the circuit pack, you will receive the following warning message:

```
WARNING: This restore announcement command will overwrite
         the existing announcements on the specified
         board.
```

After five minutes have lapsed with no alterations to the announcements, the TN750C automatically copies the announcements from the Voice RAM to the internal flash memory. The amber LED on the front of the TN750C will flash during this operation.

You can only save the announcement contents of one circuit pack to mass storage (R5r tape or disk, or R5vs/si translation memory card) at a time. For the contents of every circuit pack to be saved, you must save to separate tapes or translation memory cards. Label each tape or translation memory card to match the circuit pack saved to it.

TN750 and TN750B Announcement Boards

NOTE:
The save and restore procedures described below are only necessary for TN750 and TN750B announcement circuit packs. You can also use them to copy announcements to TN750C announcement circuit packs, but TN750C

circuit packs use an internal backup process and do not need these save procedures.

The recorded announcements in the system can be saved on the mass-storage system by entering the `save announcements spe-active/spe-standby` command. These commands should only be used after business hours or when the system is operating during a low-usage period. The system takes about 40 minutes to transfer the recorded announcements from the announcement circuit pack to the mass-storage system. During this time period, the G3-MT terminal (where the save announcements command was executed) cannot be used to administer the system until the transfer is finished; however, all other administration terminals, if provided, are allowed to perform administration procedures.

The recorded announcements in the system can be restored to system memory from the system tape or translation memory card by entering the `restore announcements` command.

Recommended Installation Procedures

The following sections describe the various procedures to install the TN750C circuit pack on DEFINITY ECS systems.

Replace a TN750B with a TN750C or Move all Announcements from a TN750B to a TN750C

Use this procedure to replace a TN750B circuit pack with a TN750C circuit pack or to move every announcement from a TN750B circuit pack to a TN750C circuit pack.

NOTE:
Do not copy or restore announcements from a TN750C to a TN750 or TN750B circuit pack, as this process may corrupt the announcement data.

1. Save announcements from the TN750/B to the mass-storage system.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

2. Align and slide the TN750C circuit pack with latch lever opened into a vacant slot of a carrier.

   NOTE:
   Any carrier is acceptable since power holdover is not a concern.

3. Lift locking lever upward until latch pin engages.

4. Administer a new data module on the TN750C circuit pack, as described in *DEFINITY Communications System Generic 3 Implementation*.
5. Enter the **`restore announcements`** command for the TN750C circuit pack equipment location.
6. Wait until announcements have been copied from Voice RAM to flash memory. (i.e., amber LED on the TN750C stops flashing). This may take about ten minutes.
7. Execute the **`busyout board 01c11`** command for the TN750/B circuit pack, where "01c11" is an example circuit pack location.
8. Execute the **`change integrated announcements`** command. This modifies the translations for the TN750B circuit pack to reference the TN750C circuit pack.
9. Verify proper playback of the announcements from the TN750C circuit pack by calling them.
10. Execute the **`release board 01c11`** command for the TN750/B circuit pack, where "01c11" is an example circuit pack location.

Add Additional TN750C Boards

Use this procedure to add TN750C circuit packs to a system.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

1. Align and slide circuit pack with latch lever opened into a vacant slot in a carrier.

NOTE:
Any carrier is acceptable since power holdover is not a concern.

2. Lift locking lever upward until latch pin engages.
3. Administer a new data module on the TN750C circuit pack, as described in *DEFINITY Communications System Generic 3 Implementation*.
4. Administer new announcements to that TN750C slot by executing the **`change announcements`** command and filling in the "designated board location" field for the circuit pack's location.
5. Record the announcements, as described in *DEFINITY Communications System Feature Description*.
6. Wait until the announcements have been copied from Voice RAM to the on-board flash memory (i.e., the amber LED on the TN750C starts and then stops flashing). This may take about 10 minutes.

Move a Single Announcement from One Announcement Board to Another

1. Execute the **change announcements** command to change the circuit pack locations of a particular announcement. (You may also change the compression rate at this time.)
2. You must rerecord the announcement, as described in *DEFINITY Communications System Feature Description*.

Recommended Installation Procedures for G3 V3 and Earlier Systems

Replace a TN750/B Board with a TN750C Board

Use this procedure to replace a TN750/B circuit pack with a TN750C circuit pack on G3 V3 and earlier systems.

1. Save announcements from the TN750/B to the mass-storage system.
2. Execute the **busyout board 01c11** command for the TN750/B circuit pack, where "01c11" is an example circuit pack location.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

3. Remove the TN750B circuit pack from its slot.
4. Align and slide the TN750C circuit pack with latch lever opened into the same slot.
5. Lift locking lever upward until latch pin engages.
6. Execute the **restore announcements** command to ensure that your announcements are on the TN750C circuit pack.

New Integrated Announcement Commands

Use the following new commands to administer integrated announcements:

erase integrated announcements

change integrated announcements

list integrated announcements

display integrated announcements

See *DEFINITY Enterprise Communications Server Release 5 Implementation*, for more information about using these commands.

26. Add Recorded Telephone Dictation Access

Requirements

Access for recorded telephone dictation equipment is provided by an information outlet.

For analog line access, either an 8-port or a 16-port (with restrictions) Analog Line circuit pack is required.

NOTE:
The 16-port TN746BA, TN468A, or TN479 circuit packs do not support recorded telephone dictation access.

For auxiliary trunk access, a TN763D Auxiliary Trunk circuit pack is required.

Installation

1. Determine the port assignment of the feature either from the Station Record form when an Analog Line circuit pack is used or from the Trunk Group form for Customer Provided Equipment when an Auxiliary Trunk circuit pack is used.

EXAMPLE:	Port Number	3	B	02	01
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

2. See "7. Add Circuit Packs" earlier in this chapter, and install the Analog Line or the Auxiliary Trunk circuit pack in assigned carrier slot [if additional circuit pack(s) is required].
3. Administer the forms listed under "Recorded Telephone Dictation Access" in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Detailed descriptions for installing are contained *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

27. Add INADS Interface

Requirements

The interface between DEFINITY ECS R5r and the Initialization and Administration System (INADS) is through a two-way loop start trunk and the Processor circuit pack.

Installation

1. The INADS trunk should be specified to appear on the twenty-fifth pair of an RJ21X network-interface jack. The INADS trunk is connected to the UN331B Processor circuit pack through the Trunk/Auxiliary field.

   Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

2. Enter **`change system-parameters maintenance`** and press RETURN. See NOTE. The product identification and the INADS OSS telephone number must be obtained from the NTSO or the TSC.

   Enter the ten-digit product identification. Enter the INADS OSS telephone number in the *First OSS Telephone Number* field.

3. Enter **`first-only`** in the *Alarm Origination to OSS Numbers* field and press RETURN to enable Alarm Origination (to the first OSS).

   You should normally also enable *Cleared Alarm Notification* and *Restart Notification*.

   NOTE:
   DEFINITY ECS Release 5 supports up to two OSS telephone numbers. Some services contracts may require the second OSS telephone numbers and a different option in the *Alarm Origination to OSS Numbers* field to be administered.

28. Add CDR Interface

Requirements

For DEFINITY ECS R5r, three methods of accessing CDR equipment are available:

- Access through an MPDM or modular trunk data module (MTDM) requires a TN754B, TN413, or TN2224 Digital Line circuit pack.
- Access through a 212-type modem and requires an 8-port or a 16-port (with restrictions) Analog Line circuit pack. A TN758 Pooled Modem circuit pack or an external modem pool must also be provided.

  NOTE:
  The 16-port TN746BA, TN468A, or TN479 circuit packs do not support the Call Detail Recording Interface.

- Access through a TN726B Data Line circuit pack. A Z3A Asynchronous Data Unit (ADU) is required at the CDR output receiving device. On a DEFINITY ECS R5r, this arrangement also requires that a system access port (enabling Mode 2-to-Mode 3 data conversion) be provided.

Installation

See "7. Add Circuit Packs" earlier in this chapter, and install the Digital Line, the Analog Line (and if necessary the internal Pooled Modem), or Data Line circuit pack in assigned carrier slot.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

Administer the required translations using the forms listed under "Call Detail Recording" in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

29. Add Emergency Transfer

Requirements

Four emergency-transfer panels are supported by DEFINITY ECS R5r:

- 808A emergency-transfer panel — Each unit serves up to five power-failure transfer terminals. The unit provides automatic ground start and "restore after busy," which means that an emergency call proceeds in normal fashion even when the PBX is restored to normal operation.
- PORTA-SYSTEMS™ Model 574-5 panel — Each unit serves up to five power-failure transfer terminals. The unit provides automatic ground start.
- Z1A emergency-transfer panel — Each unit serves up to six power-failure transfer terminals. If the serving central office (CO) requires ground-start trunk signaling, a ground-start key must be installed on each power-failure transfer terminal.
- 609A emergency-transfer panel — Each unit serves up to ten power-failure transfer terminals. If the serving CO requires ground-start trunk signaling, a ground-start key must be installed on each power-failure transfer terminal.

Only 500- or 2500-type voice terminals can be used for emergency transfer. Both the 500- and 2500-type terminals can be used as normal DEFINITY ECS R5r stations.

For detailed wiring information, refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*. Also, refer to *AT&T 808A Emergency-Transfer Panel Installation Instructions*, 846-774-701, for detailed instructions on installing the 808A Emergency-Transfer Panel.

30. Add ISN Interface

Requirements

The interface between DEFINITY ECS R5r and the Information Systems Network (ISN) is through an ADU. The ADU connects to an ISN concentrator. This allows R5r and the ISN to share data capabilities.

Installation

1. Determine the port assignment of the ISN from Data Module form:

EXAMPLE:	Port Number	3	B	02	01
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

2. See "7. Add Circuit Packs" earlier in this chapter, and install the TN726B Data Line circuit pack in assigned carrier slot (if additional circuit pack is required).
3. Administer the forms listed under "Information System Network (ISN) Interface" in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

31. Add 3270 Data Module

Requirements

The 3270 data module is a protocol converter that allows the 3270 terminal to communicate with a host computer through the DEFINITY ECS R5r. The 3270 data module is connected to the TN754B or TN413 Digital Line circuit pack.

Installation

1. Determine the port assignment of the 3270 data module from Data Module form:

EXAMPLE:	Port Number	3	B	02	01
		Cabinet (Port Network)	Carrier (or Single- Carrier Cabinet)	Slot	Circuit

2. See "7. Add Circuit Packs"' earlier in this chapter, and install the TN754B Digital Line circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer the Data Module form per *DEFINITY Enterprise Communications Server Release 5 Implementation*.

32. Add ISDN—PRI

North American

The North American ISDN—PRI is a 1.544 Mbps digital interface that consists of a 1.536 Mbps signal multiplexed with an 8-kbps framing channel. The 1.536 Mbps is divided into 24 channels of 64 kbps each (23 "B" voice or data channel and 1 "D" signaling channel). The "D" channel multiplexes signaling messages for the 23 "B" channels.

A TN464C DS1/E1 circuit pack is required for the assignment of a signaling link and up to 23 ISDN—PRI Trunk Group members. A TN767C DS1 Interface can also provide up to 24 NFAS B channels. Each DS1 span provides 24 ports. A TN768 or TN780 Tone-Clock circuit pack is required to provide synchronization for the DS1 circuit pack.

As an option to the TN768 Tone-Clock, a TN780 Tone-Clock circuit pack (installed in the PPN) can interface external Stratum 3 synchronization for DS1 connections (See Section 43).

European

The European ISDN—PRI is a 2.048 Mbps digital interface that consists of a 1.920 Mbps signal controlled by two 64-kbps signaling channels. The 1.920 Mbps is divided into 30 "B" channels of 64 kbps each. The two signaling channels multiplex signaling and framing messages for the 30 "B" channels.

A TN464C DS1/E1 circuit pack is required for the assignment of the two signaling channels and up to 30 ISDN—PRI Trunk Group members. Each E1 span provides 32 ports. Except for North American private-network applications, a TN780 or TN419B Tone-Clock circuit pack normally provides synchronization for the DS1/E1 circuit pack.

As an option to the TN419B Tone-Clock, a TN780 Tone-Clock circuit pack (installed in the PPN) can interface external Stratum 3 synchronization for DS1 connections (See "41. Add Stratum 3 Clock").

Add Circuit Packs

1. Determine the port assignments of the circuit packs to be added.
2. See "7. Add Circuit Packs" earlier in this chapter, and install the TN464C DS1/E1 Interface or TN767C DS1 Interface circuit pack in assigned carrier slot.
3. See "7. Add Circuit Packs" earlier in this chapter, and install a TN748B Tone Detector circuit pack if required.

Install Cables

Install cables from cabinet to cross-connect field as required.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

Enter Added Translations

Administer forms listed under "Integrated Services Digital Network — Primary Rate Interface" in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Save Translations

1. If the system is high- or critical-reliability, enter **`status spe`** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.
2. Enter **`save translation [spe-a or both] disk`** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk(s).
3. Enter **`backup disk [spe-a or both]`** and press RETURN. This command instructs the system to backup the current information on disk to the system tape(s).
4. Update backup tape(s), if required.

33. Add CMS Interface

Requirements

See NOTE. The DEFINITY ECS R5r interface to the CMS is from a TN577 Packet Gateway through a PDM.

NOTE:
For a connection from a DEFINITY ECS R5r through a 105-series IDI to a CMS, the 105A IDI should not be reused. Instead, use a 105B IDI (PEC 65599, COMCODE 105778179) to minimize incompatibilities with the TN577 Packet Gateway circuit pack.

Add Circuit Packs

1. Determine the port assignment of the TN577 circuit pack to be added.

EXAMPLE:

Port Number	3	B	02	01
	Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

2. See "7. Add Circuit Packs" earlier in this chapter, and install the TN577 circuit pack(s) in assigned carrier slot (as required).

Install Cables

Install cables from cabinet to cross-connect field as required.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

Enter Added Translations

Administer the required translation data using the forms listed under Call Management System (CMS) Interface in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Save Translations

1. If the system is high- or critical-reliability, enter **`status spe`** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.

2. Enter **save translation** [**spe-a** or **both**] **disk** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk(s).
3. Enter **backup disk** [**spe-a** or **both**] and press RETURN. This command instructs the system to backup the current information on disk to the system tape(s).
4. Update backup tape(s), if required.

34. Add AUDIX Interface

Requirements

The DEFINITY ECS R5r interface to an AUDIX adjunct is through PDMs, either from a TN577 Packet Gateway or from a TN754B or TN413 Digital Line.

Up to sixteen ports from 8-port or 16-port (with restrictions) Analog Line circuit packs are also required for voice retrieval.

NOTE:
The 16-port TN746BA, TN468A, or TN479 circuit packs do not support AUDIX voice retrieval.

Add Circuit Packs

1. Determine the port assignments of the circuit packs to be added.

EXAMPLE:

Port Number	3	B	02	01
	Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

2. See "7. Add Circuit Packs" earlier in this chapter, and install the appropriate circuit pack(s) in assigned cabinet slot (as required).

   Up to sixteen vacant ports are required on Analog Line circuit packs.

   A TN577 Packet Gateway or a vacant port on a TN754B Digital Line circuit pack is required.

Install Cables

Install cables from cabinet to cross-connect field as required.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

Enter Added Translations

Administer the required translation data using the forms listed under "Audio Information Exchange (AUDIX) Interface" in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Save Translations

1. If the system is high- or critical-reliability, enter **status spe** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.
2. Enter **save translation** [**spe-a** or **both**] **disk** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk(s).
3. Enter **backup disk** [**spe-a** or **both**] and press RETURN. This command instructs the system to backup the current information on disk to the system tape(s).
4. Update backup tape(s), if required.

35. Add DEFINITY AUDIX System

The DEFINITY AUDIX System is an integrated hardware assembly (consisting of a TN566 or TN567 Multifunction circuit pack, a TN2169 or TN2170 Alarm circuit pack, a disk drive, and a tape unit) that resides in five contiguous port slots of either a DEFINITY ECS R5r expansion control carrier or port carrier.

Requirements

In order to give this assembly proper cooling, certain recommendations for its placement within a DEFINITY ECS R5r system should be followed. Providing optimum cooling may require that up to five port circuit packs be relocated and retranslated.

First, if possible, locate a DEFINITY AUDIX System in the same equipment room as the PPN.

Second, locate a DEFINITY AUDIX System in a carrier with close proximity to a cabinet's fan assembly.

NOTE:
Never locate a DEFINITY AUDIX System in port carrier "C" of a multicarrier cabinet.

Third, to minimize the voltage drop on a single-carrier cabinet, locate a DEFINITY AUDIX System as far to the right side of the single-carrier cabinet as possible.

NOTE:
Never locate a DEFINITY AUDIX System either in port slots "01" to "03" of an expansion control cabinet or in "01" to "04" of a port cabinet.

Installation

1. If necessary, to provide five contiguous port slots in a desirable location, relocate and retranslate port circuit packs. See "7. Add Circuit Packs" earlier in this chapter.
2. Unpack the DEFINITY AUDIX System and inspect for damage. Report any damage for appropriate action per local procedures.

3. It is not necessary to power down a DEFINITY ECS System before installing a DEFINITY AUDIX System.

   CAUTION:
   Although the AUDIX assembly can be installed in a live DEFINITY ECS system, be careful to protect the AUDIX assembly. Later, when the assembly is inserted, it will automatically power up (including the disk), run diagnostics, and boot. Therefore, to avoid an AUDIX disk crash, never remove the AUDIX assembly and never power down the DEFINITY ECS system without first shutting down the AUDIX assembly and allowing the disk to completely spin down.

4. Prepare to install the AUDIX assembly Y-cables behind the selected port slots. For details, refer to *DEFINITY AUDIX System Installation and Upgrade*, 585-300-118.

   CAUTION:
   To prevent damage to the AUDIX assembly, be sure that you install these cables before actually inserting the AUDIX assembly.

5. Continue installing the AUDIX assembly; refer to *DEFINITY AUDIX System Installation and Upgrade*, 585-300-118, for detailed information.
6. See NOTE. For information about administering a DEFINITY AUDIX installation, refer to *Switch Administration for DEFINITY AUDIX System*, 585-300-509.

   NOTE:
   The switch treats an installed DEFINITY AUDIX System as a TN754B Digital Line circuit pack connected to up to eight 7405D display voice terminals. These emulated stations (serving as AUDIX voice ports) are assigned as members of a hunt group that resides in a coverage path. Then, this coverage path is used by every station that covers to AUDIX. Also, AUDIX subscribers access the AUDIX system and retrieve messages by dialing the hunt group's access number.

36. Add PMS Access

Requirements

The interface between DEFINITY ECS R5r and the customer's PMS can either be through a PDM or an ADU. PDM connections require a port of a TN754B or TN413 Digital Line circuit pack, whereas ADU connections require a port of a TN726B Data Line circuit pack.

On a DEFINITY ECS, the ADU arrangement also requires that a system access port (enabling Mode 2-to-Mode 3 data conversion) be provided.

Installation

1. Determine the Digital Line or the Data Line port assignment from Data Module form:

EXAMPLE:	Port Number	3	B	02	01
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

2. See "7. Add Circuit Packs" earlier in this chapter, and install the TN754B Digital Line circuit pack or the TN726B Data Line circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer the forms listed under "Property Management System Interface" in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

37. Replace Two 8-Port with 16-Port Analog Pack

Requirements

When there is a need for more lines and the carrier port slots are full, this change-out will free a slot to add another circuit pack.

Assuming acceptable signaling characteristics for a specific system's venue, a 16-port TN746B, TN468B, TN2135, TN2144, or TN2149 Analog Line circuit pack can replace two 8-port packs with no functional limitations.

However, a 16-port TN746B, TN468, or TN479 circuit pack has some limitations to consider when replacing 8-port TN742, TN746B, TN769, or TN467 circuit packs. The functional limitations of the TN746B, TN468, or TN479 are as follows:

- Cannot be used for off-premises or out-of-building extensions
- Cannot be used for bridging
- Does not support voice terminals or modems or other vendor equipment requiring 48 volts. The TN746B, TN468, and TN479 provide a 24-volt battery feed circuit and will support only 500-series and 2500-series voice terminals with no adjuncts.

The TN746B, TN468B, TN2135, TN2144, and TN2149 can be used off premises with no limitations, but do not support neon message waiting.

Installation

1. For all stations (external alerting devices, announcements, etc.) that are assigned ports from a slot that currently has an 8-port Analog Line circuit pack administered, change the port assignments to temporary ports. (These temporary ports can either be spare ports on real analog boards or from spare slots that are administered as having analog boards. If there are no spare analog ports or spare slots, the stations must be removed from the system.)
2. Remove the two circuit packs to be replaced.

   ⚠ WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

   Determine the slot (any port slot) for the 16-port circuit pack, and align and slide circuit pack with latch lever opened into slot until some resistance is felt.

3. Lift locking lever upward until latch pin engages.
4. Behind the carrier, disconnect B25A cables from both slots.
5. Connect single end of 853B (Y) adapter cable to the 16-port circuit pack's slot on carrier.
6. Connect the two B25A cables to the double end of the 853B adapter cable.
7. At cross-connect field, change jumper wires or patch cords as required. Detailed descriptions for installing wiring are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.
8. Readminister the stations from Step 1 with the same ports that were taken away.
9. Administer the second eight ports on the 16-port pack as required in *DEFINITY Enterprise Communications Server Release 5 Implementation*.
10. Type in the **`list configuration board`** command or the **`display circuit-packs`** command to verify that the resident board is recognized as the correct 16-port circuit pack. If the board still appears as an 8-port circuit pack, reseat the board, and repeat this step.

38. Add DCS Interface

Systems in a DCS network are interconnected by both tie trunks (for voice communications) and data links (for control and transparent feature information). These data links, also called DCS signaling links, support the feature transparency.

Various subsets (depending on the specific configuration) of DS1 Interface circuit packs (including TN464C, TN767C, and TN722) provide the voice-communications interface.

Meanwhile, for DEFINITY ECS R5r, the interface (between the SPE and the physical signaling link) is provided by (or through) a TN577 Packet Gateway circuit pack. In some configurations, the TN577 passes the signaling information over a separate tie facility (usually via a DSU or PDM). In other configurations, the TN577 loops the signaling information through a PDM to a TN574 or TN413 Digital Line circuit for subsequent inclusion (via the switching fabric) in the same DS1 bit stream as the DCS voice transmissions.

As an option to the TN2182 Tone-Clock, a TN780 Tone-Clock circuit pack (installed in the PPN) can interface external Stratum 3 synchronization for DS1 connections (See "41. Add Stratum 3 Clock").

For further information about DCS, refer to the following documents:

- *AT&T System 75/85 Network and Data Services Reference Manual*, 555-025-201
- *DEFINITY Enterprise Communications Server Release 5 Feature Description*, 555-230-204
- *System 75 Application Notes Network Services*, 555-209-002

Add Circuit Packs

1. Determine the port assignments of the circuit packs to be added.
2. See "7. Add Circuit Packs" earlier in this chapter, and install the appropriate circuit pack(s) in assigned cabinet slot (as required).

   A TN464C, TN767C, or TN722 DS1 circuit pack is required.

   A TN577 Packet Gateway circuit pack is required.

   In some configurations, a vacant port on a TN754B or TN413 Digital Line circuit pack is required.

Install Cables

Install cables from cabinet to cross-connect field as required.

Detailed descriptions for installing wiring are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

Enter Added Translations

To enable DCS, set the DCS field on the System Parameters-Customer Options form to "y."

Administer the other required translation data using the forms listed under Distributed Communications System (DCS) in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Save Translations

1. If the system is high- or critical-reliability, enter **`status spe`** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.
2. Enter **`save translation`** [**`spe-a`** or **`both`**] **`disk`** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk(s).

39. Add Customer-Provided Alarm

A major, minor, and warning alarm is provided by the system to a customer-provided device such as a lamp or bell.

The CPE Alarm Activation Level field on the System-Parameters Maintenance form must be administered to indicate which level of alarm (major, minor, warning, or none) should activate the CPE device.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

40. Add CallVisor ASAI

Requirements

CallVisor™ ASAI (also known as LAN Gateway) provides up to eight ISDN BRI-based interfaces between the DEFINITY ECS system and a computer adjunct. The services provided by a CallVisor ASAI adjunct improves switch efficiency by initiating, receiving, and controlling calls on behalf of system users.

NOTE:
The ASAI protocol does not support passive bus (multipoint drop) connections (that would allow multiple endpoints to contend for an available B channel over the D channel). Therefore, each ASAI adjunct connection requires a separate port of a 12-port TN556B ISDN—BRI circuit pack.

Enter Added Translations

On the System-Parameters Customer-Options form, be certain that the Calling Party Number/Billing Number (CPN/BN) option is disabled, and enable the CallVisor ASAI Interface option. (Either CallVisor ASAI or CPN/BN can be enabled on the switch, but not both.) See *DEFINITY Enterprise Communications Server Release 5 Implementation*, for details on disabling and enabling options on these forms.

Add Circuit Packs

1. Determine the port assignments of the circuit packs to be added.
2. See "7. Add Circuit Packs" earlier in this chapter, and install the appropriate circuit pack(s) in assigned cabinet slot (as required).

EXAMPLE:	Port Number	3	B	02	01
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

In addition to the TN748C (Mu-Law) Tone Detector or the TN420C (A-Law) Tone Detector, a TN744 Call Classifier circuit pack is required for those customers who desire switch call classification for Outbound Call Management (OCM).

A vacant port is required on a TN556B ISDN—BRI circuit pack.

Install Cables

Install cables from cabinet to cross-connect field as required.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

Enter Added Translations

Administer the required translation data using the forms listed under "Adjunct/Switch Applications Interface (ASAI)" in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Save Translations

1. If the system is high- or critical-reliability, enter **`status spe`** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.
2. Enter **`save translation`** [**`spe-a`** or **`both`**] **`disk`** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk(s).
3. Enter **`backup disk`** [**`spe-a`** or **`both`**] and press RETURN. This command instructs the system to backup the current information on disk to the system tape(s).
4. Update backup tape(s), if required.

41. Add Stratum 3 Clock

DEFINITY ECS can be equipped with higher-accuracy Stratum 3 synchronization by using an external Stratum 3 clock and interface circuit packs. Stratum 3 clock synchronization can be used on standard-, high-, or critical-reliability systems.

The external clock is mounted at the cross connect field. One TN780 Tone-Clock circuit pack is required for standard-reliability systems, two for high- or critical-reliability systems.

Service Interruption

Since the addition of a Stratum 3 clock requires a service interruption, notify the customer in advance as to when the addition will be carried out.

Verify System Status

Before proceeding, the system should be examined for alarms, and every problem should be corrected. The system must be alarm-free.

Disable Alarm Origination

1. Enter **`change system-parameters maintenance`** and press RETURN.
2. Make a note of the *Alarm Origination Activated* field administration. If the feature is enabled, enter **n** in this field and press RETURN to disable Alarm Origination.

   You will enable this feature again in one of the final processes. See NOTE.

CAUTION:
If you do not disable Alarm Origination before making changes to the switch, the switch may generate alarms, resulting in unnecessary trouble tickets. Reducing redundant and unnecessary trouble tickets is critical for measuring the quality of Lucent services and products.

NOTE:
For earlier releases of the system software, you may also need to disable *Cleared Alarm Notification* and *Restart Notification* before you can submit the form successfully.

Save Translations

1. Log in at the G3-MT terminal.
2. If the system is high- or critical-reliability, enter **status spe** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.
3. Enter **save translation** [**spe-a** or **both**] **disk** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk(s).
4. If the PPN contains a TN750 Announcement circuit pack, enter **display announcements** and press RETURN.

   If administered recorded announcements are listed, enter **list configuration software-version**, press RETURN. Check Page 2 of this form to find out when the announcements were last saved, and ask the customer whether any announcements have changed since then.

   If so, the current announcements can be saved using the save announcements command. Enter **save announcements disk** and press RETURN.
5. Enter **backup disk** [**spe-a** or **both**] and press RETURN. This command instructs the system to backup the current information on disk to the system tape(s).
6. Update backup tape(s), if required.

Shut Down DEFINITY AUDIX or LAN Gateway System

1. If a DEFINITY AUDIX or LAN Gateway System resides in the PPN, 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. To avoid an unexpected AUDIX reboot after an unplanned switch reboot, unseat the AUDIX assembly from its backplane connectors.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Power Down PPN

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

Install the Clock Unit

Install the External Clock. See *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, for the installation information.

Install Circuit Packs

1. See WARNING. At the TONE-CLOCK slot of the PPN's control carrier, remove the Tone-Clock circuit pack and replace it with a TN780 Tone-Clock circuit pack.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

2. If the system is duplicated, repeat Step 1 for the PPN's other control carrier.

Install Cables

Install cables from cabinet to cross-connect field as required.

Detailed descriptions for installing wiring are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

Reseat DEFINITY AUDIX System

See WARNING. If a DEFINITY AUDIX System resides in the PPN, reseat the AUDIX assembly to its backplane connectors.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Power Up PPN

1. At the PPN, on the power-distribution unit, set the main circuit breaker to ON.
2. The system now goes through the level 4 rebooting process, loading the system translations from the disk. Rebooting takes 5 to 11 minutes.

Refer to "Initialization and Recovery" and "LED Interpretation" chapters in *DEFINITY Enterprise Communications Server Release 5 Maintenance*, for circuit-pack LED indications and G3-MT terminal displays that occur during system reboot.

3. After the system reboot is finished and all trouble is cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

Enter Added Translations

Administer forms listed under "DS1 Trunk Service" in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Resolve Alarms and Enable Alarm Origination

1. Examine the alarm log. Resolve any alarms that may exist by using the *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r* manual.
2. See NOTE. See WARNING. If the *Alarm Origination Activated* field administration that you previously noted is already set to *y*, be sure to enable Alarm Origination. Otherwise you do not need to enable Alarm Origination (proceed to the next section directly).
3. Enter **`change system-parameters maintenance`** and press RETURN.

   The *Alarm Origination Activated* field has been changed to *Alarm Origination to OSS Numbers* to support more than one OSS (INADS, etc.).

   Enter **`first-only`** in this field to enable Alarm Origination (to the first OSS, which should be INADS).

   Be sure to enter *y* in both *Cleared Alarm Notification* and *Restart Notification* fields if they are not enabled already. Press RETURN.

NOTE:
If you have lost the previous administration of the *Alarm Origination* field, you may register the system again with the INADS Database Administrator at the TSC. The INADS Database Administrator will enable Alarm Origination as part of the registration process.

WARNING:
If you do not enable Alarm Origination when the customer has purchased a services contract, the switch will not report any alarm to the TSC automatically, causing the TSC to be unable to fulfill the services contract.

Save Translations

1. If the system is high- or critical-reliability, enter **status spe** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.
2. Enter **save translation** [**spe-a** or **both**] **disk** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk(s).
3. Enter **backup disk** [**spe-a** or **both**] and press RETURN. This command instructs the system to backup the current information on disk to the system tape(s).
4. Update backup tape(s), if required.

42. Add ISDN—BRI

Requirements

BRI provides an ISDN-based interface between the DEFINITY ECS system and one or more stations or voice terminals.

Add Circuit Packs

1. Determine the port assignments of the circuit packs to be added.
2. See "7. Add Circuit Packs" earlier in this chapter, and install the appropriate circuit pack(s) in assigned cabinet slot (as required).

EXAMPLE:	Port Number	3	B	02	01
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

The TN556B TN2198 ISDN — BRI circuit pack and an NT1; or the TN2208 LAN Gateway assembly is required.

Install Cables

Install cables from cabinet to cross-connect field as required.

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

NOTE:
BRI requires a 12-port terminating resistor block (110AR1-12) for the 25-pair cable. This terminator is different from the 8-port 440A4 terminating block previously used for DCP.

Enter Added Translations

Administer the required translation data using the forms listed under 7500D voice terminals and 8500 voice terminals in *DEFINITY Enterprise Communications Server Release 5 Implementation*.

Save Translations

1. Enter **save translation** [**spe-a** or **both**] **disk** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk(s).
2. Enter **backup disk** [**spe-a** or **both**] and press RETURN. This command instructs the system to backup the current information on disk to the system tape(s).
3. Update backup tape(s), if required.

43. Add ISDN Voice Terminals

ISDN-BRI voice terminals can be added to the system as endpoints. The DEFINITY ECS R5r supports the 7505, 7506, 7507, 8503T, and 8510T voice terminals.

For instructions on adding BRI voice terminals, see *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

44. Add G3-MT or G3MA

Up to eight terminal-based (G3-MT) and/or PC-based (G3-MA) administration devices can be used. For detailed information about installing a G3-MT terminal, refer to Chapter 5 of *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*. For detailed information about installing a G3-MA PC, refer to *DEFINITY Communications System Generic 3 Management Applications Connectivity and Installation*, 585-229-206.

Brief terminal connection instructions are provided below. For detailed connection and usage instructions, refer to the following documents: For the 715 BCS terminal, see the *AT&T Information Systems 715 BCS User's Guide and Service Manual.* For the 715 GBCS terminal, see the *2900/715 GBCS User's Guide and Service Manual.* For the 715 GBCS-2 terminal, see the *715 GBCS -2 User's Guide and Service Manual*, 555-230-876.

715 BCS Terminal

1. Plug the keyboard cable into the 6-pin DIN jack on the rear of the terminal.
2. Plug the 25-pin DTE cable into the P2 port (center connector) on the rear of the terminal.
3. Change the autowrap option setting on PRIMARY/WINDOW 1 and WINDOW 2 from on to off to make the power-up option settings compatible with the DEFINITY ECS R5r. The customer will not have to change any option settings on the 715 BCS after powering up.

715 GBCS Terminal (2900/715)

1. Plug the keyboard cable into the 6-pin RJ-11 jack on the left side of the terminal. An adapter cable is available to convert a 6-pin DIN jack to an RJ-11 jack to allow a 715 BCS keyboard to be used.
2. Plug the 25-pin DTE cable into the P2 port (right side connector looking from the rear of the terminal).

715 GBCS-2 Terminal

1. Plug the keyboard cable into the keyboard jack on the rear of the terminal. This is a unique cable and must be connected to the 715 GBCS-2 only.
2. Plug the 25-pin DTE cable into the COM1 port (right side connector looking from the rear of the terminal).

45. Add Wideband Switching

With a single call setup per call, Wideband Switching supports high-bandwidth end-to-end connectivity between customer endpoints. These calls can transmit data at rates (in DS0, or 64-kbps, increments) either between 128 and 1536 kbps over T1 facilities or between 128 and 1984 kbps over E1 facilities. As a result, DEFINITY ECS systems also support CCITT-defined data-service rates (including H0 — 384 kbps or 6 DS0s, H1 — 1536 kbps or 24 DS0s, and H2 — 1920 kbps or 30 DS0s).

Wideband Switching allows for services and applications that require high bandwidth, such as:

- High-speed video conferencing
- Data backup
- Scheduled batch processing
- Primary data interfaces

For these purposes, DEFINITY ECS systems support wideband connectivity:

- Within private networks (including ETNs)
- With offerings from a variety of domestic IXCs and RBOCs
- With offerings from a variety of international carriers

However, with Wideband Switching, dedicated network facilities are no longer required for high-speed services. Instead, switched wideband network access can readily be used to cost-effectively:

- Serve as a reliable switched backup to a failure of dedicated network facilities
- Supplement the capacity of dedicated facilities to avoid provisioning enough dedicated facilities to handle peak traffic volumes

Configuration

At a high level, a DEFINITY ECS R5r system interfaces a wideband endpoint with a TN464C DS1/E1 Interface circuit pack. Also, either an AT&T ACCULINK™ Bandwidth Controller or an Ascend Multiband[1] Plus resides between the wideband endpoint (or, "application host") and the DEFINITY ECS R5r system.

1. Trademark of Ascend Communications, Inc.

Installation

For instructions about connecting Wideband Switching equipment to a DEFINITY ECS R5r system, see *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

For instructions about installing an ACCULINK Bandwidth Controller for use in Wideband Switching, see:

- *ACCULINK Bandwidth Controller System Guide*, 314-620-300
- *ACCULINK Bandwidth Controller Operating Guide*, 314-620-301
- *ACCULINK Bandwidth Controller Application and Release Notes*, 314-620-302

Administration

For instructions about assigning Wideband Switching to a DEFINITY ECS R5r system, see:

- *DEFINITY Enterprise Communications Server Release 5 Implementation*, 555-230-302.
- *DEFINITY Communications System Generic 3 V4 Wideband Technical Reference*, 555-230-230, Chapter 3.

46. Add OVATION System

The four models of the AT&T OVATION voice messaging system (Models 2000, 4000, 6000, and SSP) provide voice mail, fax mail, integrated distribution of voice and fax information, and customized call processing. An OVATION system supports a variety of telecommunications interfaces that conform to both North American and international standards. Also, where a specific switching system or national telecommunications network may deviate from standards, an OVATION system can often be translated to adjust its interface criteria to the peculiar requirements of the adjacent system.

The modular configuration and distributed architecture provide high reliability, incremental growth, and simple upgrading for a variety of applications in:

- Corporate message centers
- Voice- and fax-mail service bureaus
- Customer services and telemarketing
- Sales-force management

Configuration

At a high level, a DEFINITY ECS R5r system interfaces an OVATION system with digital signaling ports and analog voice ports (See Figure 4-46). Each signaling port, a TN754B or TN413 Digital Line circuit, connects either to a Switch Integration Device or to a VTG Voice Bridge[2] Series II residing between the DEFINITY ECS R5r system and the OVATION system. Using busy-indication information received from the signaling port, the Switch Integration Device controls the signaling for up to 24 directly connected voice ports, which can be composed of a variety of the DEFINITY ECS R5r Analog Line circuits.

Using three signaling ports, Switch Integration Devices, and COM ports, up to 64 voice ports can deliver messages to an OVATION system.

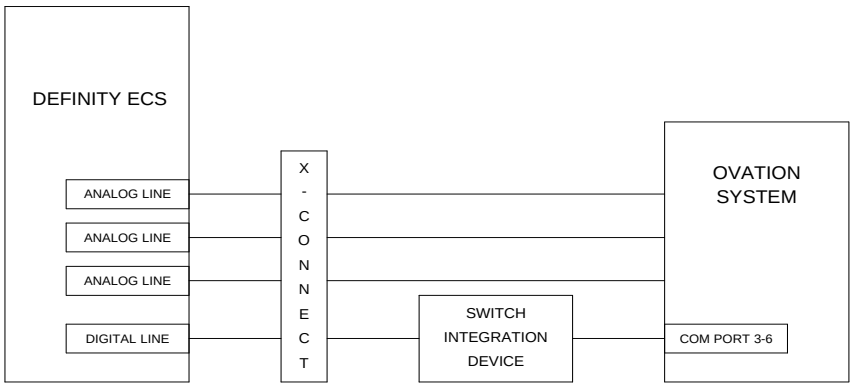


Figure 4-46. DEFINITY ECS R5r Connection to an OVATION System

Installation and Administration

For instructions about installing digital and analog line circuits as the DEFINITY ECS R5r interface to an OVATION system, see "7. Add Circuit Packs" earlier in this chapter.

For instructions about assigning a DEFINITY ECS R5r system to interface an OVATION system, see *Voice Bridge Series II AT&T Installation*, Chapter 1.

For instructions about installing the Switch Integration Device, see *Voice Bridge Series II AT&T Installation*, Chapter 2.

For instructions about installing an OVATION system, refer to the model's installation manual shipped with the specific system.

2. Trademark of Voice Technologies Group, Inc.

47. Add Greater Than 22nd EPN to System

EPNs cannot be added to a DEFINITY ECS R5r system unless three TN1650B Memory circuit packs and a TN1657 Vintage 4 (or higher) Disk Drive circuit pack reside in each PPN control carrier.

Refer to Chapter 1, "G3r V2, V3, or V4 to DEFINITY ECS Release 5r with Memory Addition" to add the TN1657 of Vintage 4 (or higher) Disk Drive.

Refer to "Install Memory Circuit Pack" on page 1-11 for instructions on installing the new TN1650B memory.

Then, refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, for instructions on installing the EPN.

48. Add Third Switch Node to System

The third switch node cannot be added to a DEFINITY ECS R5r system unless three TN1650B Memory circuit packs and a TN1657 Vintage 4 (or higher) Disk Drive circuit pack reside in each PPN control carrier.

Refer to Chapter 1 to add the TN1657 of Vintage 4 (or higher) Disk Drive.

Refer to "Install Memory Circuit Pack" on page 1-11 for instructions on installing the TN1650B memory.

Then, refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, for instructions on installing the EPN.

49. Add 8400-Series Voice Terminals

Several 8400-series 2-wire/4-wire DCP terminals can be assigned to the system in native mode. Also, as a convenience during installations, administrative information can be downloaded from the system to nonvolatile memory in these terminals.

For systems before G3 V3, 8400-series DCP sets needed to be aliased as a 7400-series set, and administrative information cannot be downloaded.

Requirements

A 4-wire 8400-series set is connected to the system in the same manner as any other 4-wire DCP voice terminal. A modular cable connects the set to an information outlet. From there, it connects through the cross-connect field and through a 25-pair cable to a 4-wire digital circuit pack such as the TN754B or TN413.

See NOTE. The tip and ring connections of 2-wire 8400-series sets are connected to a 16-port 2-wire TN2181 DCP circuit pack in a similar manner to the way that 2-wire analog endpoints are connected to a TN746B.

NOTE:
Unlike with some analog circuits, be careful to wire tip to tip and ring to ring between the circuit pack's port and the endpoint.

Hard-Wire Bridging

Analog-type hard-wire bridging has never been allowed for 4-wire (only) DCP endpoints such as 7400-series voice terminals. This is because, from the *outgoing* perspective of these endpoints, hard-wire bridging provides no way of combining the digital output of two bridged DCP sets. From the *incoming* perspective, a bridged endpoint causes enough additional load to degrade the fairly wide-spectrum DCP signal. (And, 2-wire DCP interfaces require twice the spectrum of 4-wire interfaces.)

See CAUTION. Likewise, hard-wire bridging is not allowed for 8400-series either sets with either 2-wire or 4-wire DCP interfaces to the system.

⚠ CAUTION:
Bridging or dual wiring of these endpoints can either cause:

- Electrical damage to the endpoints
- The system's circuit pack to remove power from the endpoints

Dual Wiring of 2-Wire and 4-Wire Endpoints

See previous CAUTION. A 2-wire and a 4-wire endpoint cannot be simultaneously wired to the same equipment location in a cross-connect field, even though they connect to differently colored wire pairs. The system uses separate circuit packs to interface 2- and 4-wire endpoints, and none of these circuit packs are capable of interfacing both.

Auxiliary Power

One of the 8400-series voice terminals, the 8434, derives power for its nonessential functions from an auxiliary power source.

The source of this power can be either:

- Individual MSP-1 power supplies or 258A-type adaptors, or
- Bulk power supplies such as the 1145A1

located at the cross-connect field, at an information outlet, or at the adaptor's site.

This voice terminal's maximum distance from its auxiliary power source is 250 feet.

Minimum Usable Vintage

For two of the 8400-series sets, administrative information cannot be downloaded to the sets through early vintages of the TN754B circuit pack. Therefore, when an 8410D or an 8434D voice terminal is installed as a 4-wire set connected to a TN754B circuit pack, the vintage of the TN754B circuit pack must be Vintage 11 or higher.

Administration

1. Log in as "craft" at the `login:` prompt on the G3-MT or G3-MA.
2. See NOTE. Enter **`display system-parameters country-options`** and press RETURN to verify that the system's companding mode for its local stations is set to the desired value (usually, A-law for Europe and Mu-law for North America and Japan).

   NOTE:
   Refer to *DEFINITY Enterprise Communications Server Release 5 Implementation*, for a description of these forms.

3. See NOTE. If necessary, for 8400-series terminals in a DEFINITY ECS R5r system, enter **`change terminal-parameters 8400`** and press RETURN to change the default system-level parameters and audio levels for these terminals.

   NOTE:
   For detailed information about changing the default parameters and audio levels, refer to *DEFINITY Application Notes* available through the International Technical Assistance Center (ITAC).

4. See NOTE. If necessary, for 8400-series terminals in a DEFINITY ECS R5r system, enter **`change display-messages softkey-labels`** and press RETURN to assign user-defined soft-key labels for these terminals.

   NOTE:
   On a per-station basis in the "station" form, these soft keys can be labeled in several languages (including English, French, Spanish, and Italian). However, on a system-wide basis, this "display-messages soft-key" form can also label soft keys in another language or can change the predefined names of the soft-key labels.

5. Determine the port assignment of the endpoint's 2-wire digital line from the "station" form.

EXAMPLE:	Port Number	2	A	04	06
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

6. Enter **`add station xxxxx`** `[[extension number] or` **`next`**`]` and press RETURN to add the new 8400-series set to the system and to assign its attributes.

Installation

See "7. Add Circuit Packs" earlier in this chapter, and install the:

- TN754B or TN413 circuit pack(s) for 8400-series installed as 4-wire sets
- TN2181 circuit pack(s) for 8400-series installed as 2-wire sets

in assigned carrier slot (if an additional circuit pack is required).

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

NOTE:
This manual gives separate wiring descriptions for 8400-series sets with 2-wire and 4-wire interfaces to the system.

Detailed descriptions for installing 8400-series voice terminals are contained in *8403, 8410, and 8434 Voice Terminal Instructions for Installation, Switch Administration, and Programming the Options*, 555-015-164.

50. Add CallMaster 603A, 603D, or 603E

603A and 603D CallMaster 4-wire DCP terminals can be assigned to the system in native mode. Also, 603E CallMaster 2-wire/4-wire DCP terminals can be assigned to the system in native mode. As a convenience during installations, administrative information can be downloaded from the system to nonvolatile memory in these terminals.

For systems before G3 V3, all of these CallMaster sets needed to be aliased as 602A CallMaster sets, and administrative information cannot be downloaded.

Requirements

603E 2-wire CallMaster sets are connected to the system in the same manner as any other 2-wire DCP voice terminal. A modular cable connects the sets to an information outlet. From there, it connects through the cross-connect field and through a 25-pair cable to a TN2181 2-wire digital circuit pack.

603A, 603D, and 603E 4-wire CallMaster sets are connected to the system in the same manner as any other 4-wire DCP voice terminal. A modular cable connects the sets to an information outlet. From there, it connects through the cross-connect field and through a 25-pair cable to a 4-wire digital circuit pack such as the TN754B or TN413.

Hard-Wire Bridging

Analog-type hard-wire bridging has never been allowed for 4-wire DCP endpoints such as 7400-series voice terminals. This is because, from the *outgoing* perspective of these endpoints, hard-wire bridging provides no way of combining the digital output of two bridged DCP sets. From the *incoming* perspective, a bridged endpoint causes enough additional load to degrade the fairly wide-spectrum DCP signal. (And, 2-wire DCP interfaces require twice the spectrum of 4-wire interfaces.)

See CAUTION. Likewise, hard-wire bridging is not allowed for a 603A, 603D, or 603E CallMaster installed with either a 2- or 4-wire interface to the system.

CAUTION:
Bridging or dual wiring of these endpoints can either cause:

- *Electrical damage to the endpoints*
- *The system's circuit pack to remove power from the endpoints*

Dual Wiring of 2-Wire and 4-Wire Endpoints

See previous CAUTION. A 2-wire and a 4-wire endpoint cannot be simultaneously wired to the same equipment location in a cross-connect field, even though they connect to differently colored wire pairs. The system uses separate circuit packs to interface 2- and 4-wire endpoints, and none of these circuit packs are capable of interfacing both.

Administration

1. Log in as "craft" at the `login:` prompt on the G3-MT or G3-MA.
2. See NOTE. Enter **`display system-parameters country-options`** and press RETURN to verify that the system's companding mode for its local stations is set to the desired value (usually, A-law for Europe and Mu-law for North America and Japan).

   NOTE:
   Refer to *DEFINITY Enterprise Communications Server Release 5 Implementation*, for a description of these forms.

3. See NOTE. If necessary, for 603-series terminals in a DEFINITY ECS system, enter **`change terminal-parameters 603/302B1`** and press RETURN to change the default system-level parameters and audio levels for these terminals.

   NOTE:
   For detailed information about changing the default parameters and audio levels, refer to *DEFINITY Application Notes* available through the International Technical Assistance Center (ITAC).

4. Determine the port assignment of the endpoint's 4-wire digital line from the "station" form.

EXAMPLE:	Port Number	2	A	04	06
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

5. Enter **`add station xxxxx`** `[[extension number) or` **`next`**`]` and press RETURN to add the new CallMaster set to the system and to assign its attributes.

Installation

See "7. Add Circuit Packs" earlier in this chapter, and install the:

- TN754B or TN413 circuit pack(s) for 4-wire sets
- TN2181 circuit pack(s) for 2-wire sets

in assigned carrier slot (if an additional circuit pack is required).

Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

NOTE:
This manual gives separate wiring descriptions for 2-wire and 4-wire 603E CallMaster sets.

51. Add Integrated CSU Module

An integrated CSU module is composed of a wallet-sized 120A CSU module integrated with either a:

- TN767D DS1 circuit pack
- TN464E DS1/E1 circuit pack (optioned only for 24-channel DS1 service)

For DEFINITY ECS R5r to realize the enhanced DS1-maintenance capabilities provided by new maintenance software on the DEFINITY ECS R5r system and firmware on the updated DS1 circuit packs, the 120A CSU module must be paired with either a:

- TN767E DS1 circuit pack
- TN464F DS1/E1 circuit pack (optioned only for 24-channel DS1 service)

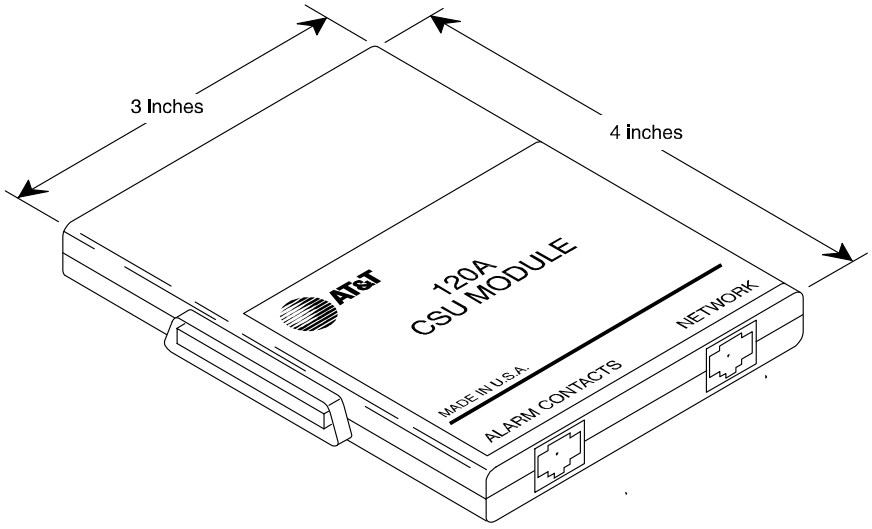


Figure 4-47. 120A CSU Module

Integrated CSUs present many advantages over traditional configurations using external CSUs. Some of these include:

- Simpler installation using fewer cables
- Automatic initialization and test of 120A by DS1
- Increased reliability with fewer parts (including a single processor on DS1 circuit pack)

- Lower power consumption without external power supplies
- Simpler maintenance, due to
  - Detection of on-line alarms by DS1
  - Convenient access to test jacks and LEDs on DS1 circuit pack
  - Ready access to DS1-associated performance counters using the G3-MT or G3-MA

Installation

For detailed information about installing an Integrated CSU Module refer to:

- *Integrated CSU Module Installation and Operation*, 555-230-193
- *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*

52. Add PassageWay Solution Interface

The current version of the PassageWay™ Solution interface connects a:

- 4-wire Mu-law DCP voice terminal including:
  - — 7400-series terminals
  - — 602A, 603A, and 603D CallMaster terminals
- Personal computer (PC) with Microsoft[3] Windows[4] operating system version 3.1 (or later)

through a single 4-wire Mu-law DCP port to a DEFINITY system (See Figure 4-5).

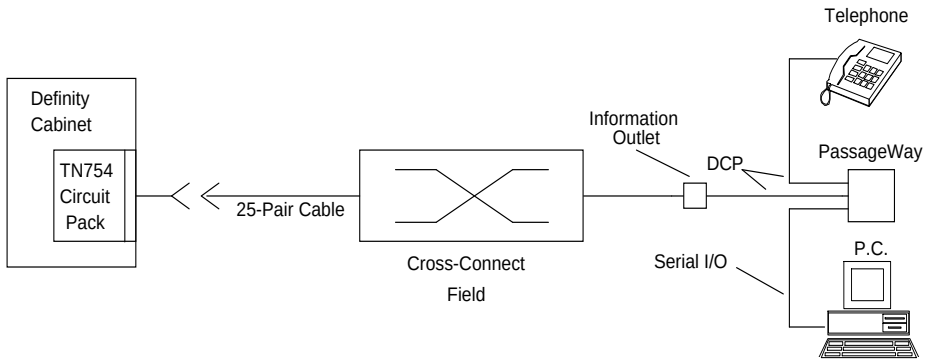


Figure 4-48. Typical System Interface for PassageWay Solution

The PassageWay Solution provides user applications including:

- AT&TBuzz
- AT&TCall
- AT&TConnect
- Log Viewer

and features such as:

- Autodialing using the Hayes[5] command set
- Dynamic Data Exchange linking PassageWay applications with other Windows applications

3. Registered trademark of the Microsoft Corporation.
4. Trademark of the Microsoft Corporation.
5. Registered trademark of the Hayes Corporation.

Interface Installation

Wiring

The PassageWay adaptor provides two standard 8-pin modular jacks, one for connection to the 4-wire Mu-law DCP terminal and the other for connection to a modular wall jack leading to the switch. This adaptor also provides a 9-pin RS-232 connection for the PC.

See NOTE. Figure 4-48 shows both the PC and voice terminal connected through the adaptor to a 4-wire Digital Line circuit pack (in this case a TN754B).

NOTE:
In the current offering of the PassageWay Solution, a TN419B A-law Digital Line circuit pack cannot serve as the switch-side interface, and a TN754B must always be selected for Mu-law companding.

Auxiliary Power

The PassageWay adaptor derives its power from an auxiliary power source.

Since the PassageWay adaptor only draws about 1 1/4 Watts at 20 to 60 Volts (or in the worst case about 1/10 Ampere of current), the adaptor can either derive power:

- Individually, when the adjacent DCP voice terminal only uses phantom power

  This arrangement provides a wide maximum distance from the adaptor to its auxiliary-power source.

- In parallel, using the same power source as its adjacent DCP voice terminal requiring auxiliary power

  This arrangement only slightly decreases the DCP voice terminal's maximum distance from its auxiliary-power source.

The source of this power can be either:

- Individual MSP-1 power supplies or 258A-type adaptors, or
- Bulk power supplies such as the 1145A1

located at the cross-connect field, at an information outlet, or at the adaptor's site.

Switch Administration

1. Determine the port assignment of the PassageWay interface's 4-wire Mu-law digital line from the "station" form.

EXAMPLE:	Port Number	2	A	04	06
		Cabinet (Port Network)	Carrier (or Single-Carrier Cabinet)	Slot	Circuit

2. See NOTE. Enter **`add station xxxxx`** `[[extension number) or` **`next`**`]` and press RETURN to add the PassageWay adaptor's adjacent 4-wire Mu-law DCP voice terminal to the system and to assign its attributes.

   If desired, an adjacent 7400-series voice terminal (without a display) can be aliased as a voice terminal with a display module. When this is done, the PassageWay Solution:

   - Simulates the display module — but not additional appearances or feature buttons
   - Provides the simulated module on the PC's screen

   NOTE:
   Be sure to assign the "station" form with the terminal type of adaptor's adjacent voice terminal or with a suitable alias. Do not use the "PC" terminal type as would be done with the PC/PBX Connection feature.

Installing the PassageWay Solution

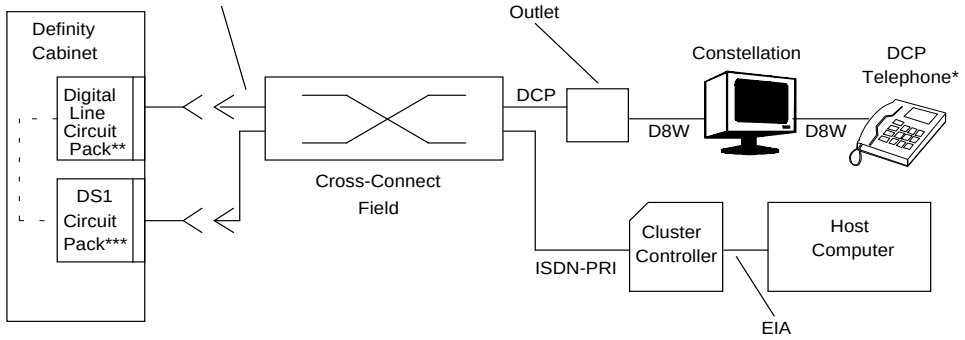
For detailed information about installing the PassageWay software refer to *PassageWay Solution User's Guide*, 560-201-102.

53. Add Constellation Interface

Requirements

A Constellation interface provides advanced telemarketing features for up to 23 ACD agents by integrating several voice and data components into a single configuration. The primary purpose of this configuration is to automatically present an appropriate data screen with each incoming call to an ACD agent.

Constellation does this by passing D-channel information (for incoming ACD calls from an ISDN network) to an I channel in the Memorex-Telex cluster controller (Model 6544) which converts the information to an EIA format for access to a host computer. Then, the host computer accesses its database and relays a call-associated data screen back to the answering ACD agent's Memorex-Telex data terminal (Model 6538 or 6539). This data screen can then be presented to the agent as the incoming call arrives at the agent's 4-wire DCP voice terminal (See Figure 4-6).



* Use with 7401D, 7406D, 602A1, 603A1, and 603D1 telephones

** Digital line pack can be a TN754 or TN413

*** DS1 circuit pack can be a TN464C or TN767C

Figure 4-49. Typical System Interface for Constellation

Installation

ISDN-PRI Interface to Cluster Controller

As shown in Figure 4-49, a North American 24-port DS1 (*not* a 32-port E1) interface connects the switch to a Model 6544 cluster controller. This allows each cluster-controller/host-computer combination to communicate with as many as 23 Constellation terminals.

For detailed information about installing an ISDN-PRI interface, refer to section "32. Add ISDN—PRI" .

Cluster Controller

The Model 6544 cluster controller passes call-related information from an ISDN trunk group to applications databases on as many as three host computers. It also downloads a terminal configuration to a Constellation terminal.

For detailed information about installing the cluster controller, refer to the Memorex-Telex instructions that accompany the controller.

Constellation Terminals and DCP Voice Terminals

Model 6538 and 6539 Constellation terminals are connected between the switch and a 4-wire DCP voice terminal using two standard 8-pin modular jacks. These jacks reside on a plug-in card installed in the base of the terminal. (Use the "PHONE" jack to connect the Constellation terminal to the 4-wire DCP voice terminal, and use the "LINE" jack to connect the Constellation terminal to the information outlet.)

As shown in Figure 4-49, ACD agents served by a Constellation interface can use the following 4-wire DCP voice terminals: 7401D, 7406D, 602A1, 603A1, and 603D1. These voice terminals can be assigned as endpoints with either:

- Mu-law companding using a TN754B
- A-law companding using a TN754B or TN413

Digital Line circuit pack.

For detailed information about installing a Constellation data terminal, refer to the Memorex-Telex instructions that accompany the terminal.

For detailed information about assigning a Constellation terminal to the switch, refer to the "Constellation Voice/Data Terminals" section of *DEFINITY Enterprise Communications Server Release 5 Implementation*.

54. Add First Switch Node

Requirements

A directly connected DEFINITY ECS R5r system can contain as many as three port networks (PNs), including the PPN. However, when either:

- A fourth port network (that is, a third EPN) is needed to provide increased capacity for the system
- Significant future growth is anticipated in a system with fewer than four port networks

a new switch node is normally added to the central location in a new multicarrier-cabinet (MCC) EPN containing:

- An expansion control carrier
- One switch node carrier (SNC) for a standard- or high-reliability system

  or

  Two switch node carriers for a critical-reliability system
- Up to three port carriers to accommodate the needed capacity

No Empty Carrier Position(s) at Central Location

An MCC EPN containing the switch node (SN) can be ordered for and installed at the central location.

There is no technical requirement dictating that the first (or any) switch node, comprised of SNC carrier(s), reside in the DEFINITY ECS R5r system's MCC PPN. In fact, for a field addition of the first switch node, ordering a new EPN with configured SNC carriers is recommended for relative simplicity of:

- Installation (since the factory will configure and test the new EPN cabinet)
- Maintenance (since the SPE and the new switch node will reside in the same equipment room)

Empty Carrier Position(s) at Central Location

Sometimes, a centrally located MCC port network has no port carrier in carrier position "E" and, if necessary for critical reliability, position "D." In this case, the SNC carrier(s) can be shipped loose and installed in these spare carrier positions.

Although, for new DEFINITY ECS R5r systems, the practice of placing the first switch node in the PPN has attempted to provide consistency for manufacturing and for technicians in the field, adding this switch node is much simpler within a new MCC EPN. For an addition of the first switch node, placing the SNC carriers in the PPN is difficult and not recommended because:

- All of the new equipment must be shipped loose (instead of being configured and tested as a complete cabinet by the factory).
- Port carrier(s) may have to be moved from the MCC PPN to a new centrally located MCC EPN.
- The lines and trunks in these port carrier(s) must be relabeled, rewired, and retranslated.
- SNC carrier(s) must fill the empty carrier positions left by the port carrier(s) moved from the PPN.
- A new port carrier may have to be added to the new MCC EPN.

Increased Capacity at Remote Location

At other times, the new switch node is being added to provide increased port capacity for a remote location. To provide this remote port capacity, either:

- Either an MCC or an SCC EPN can be ordered for and installed at the remote location. Also, using one of the above methods, the switch node can be ordered for and installed at the central location.

  For simpler system maintenance, this is the preferred practice to provide remote capacity. In this way, a technician can maintain the PPN and the switch node as collocated units.

- An MCC EPN containing the switch node can be ordered and installed for the fiber-remoted location.

  Since a DS1C-remoted connection does not provide sufficient bandwidth for the SNC, this new switch node can *only* reside in a *fiber*-remoted EPN. As a result, a remote switch node is subject to the normal distance limitations of fiber-remoted EPNs.

Engineering Specifications

The ATTOMS configurator does not automatically configure an addition of the first switch node for a DEFINITY ECS R5r system. Therefore, an E-1154 form *must* be completed and sent to the Design Center so that an engineer can manually configure and can issue engineering specifications for the addition.

An accurate floor plan must also be included with the E-1154 form so that the Design Center can verify that the equipment room has enough physical space for the new MCC EPN.

Presale Site Inspection

At a presale site inspection, the directly connected system's existing fibers must be checked for possible reuse with switch-node connectivity. During this inspection, coordinate with the Design Center engineer to determine whether any of the existing fibers are both accessible and long enough to accommodate switch-node connections with the planned cabinet layout.

Traffic Considerations

The switch fabric of a DEFINITY ECS R5r system with one switch node (like a directly connected system) is totally nonblocking.[6] However, like directly connected systems, switch-connected systems must be engineered to account for expected traffic levels on each port network's TDM/LAN bus, a truer limiting factor in PBX traffic.

Normally, from the perspective of traffic between port networks, the second switch node should not be added until the DEFINITY ECS R5r system grows beyond 16 port networks. However, a second switch node may be added in advance to prepare for future system growth.

Service Interruption

Since this switch-node addition requires a complete service interruption, coordinate with the customer in advance as to when the addition will be carried out.

Verify System Status

Before proceeding, the system should be examined for alarms, and every problem should be corrected. The system must be alarm-free.

6. Neglecting the possible existence of bandwidth-limiting (and therefore, traffic limiting)

Disable Alarm Origination

1. See WARNING. Enter **change system-parameters maintenance** and press RETURN.
2. Make a note of the *Alarm Origination Activated* field administration. If the feature is enabled, enter **n** in this field and press RETURN to disable Alarm Origination.

   You will enable this feature again in one of the final processes. See NOTE.

WARNING:
If you do not disable Alarm Origination before making changes to the switch, the switch may generate alarms, resulting in unnecessary trouble tickets. Reducing redundant and unnecessary trouble tickets is critical for measuring the quality of Lucent services and products.

NOTE:
For earlier releases of the system software, you may also need to disable *Cleared Alarm Notification* and *Restart Notification* before you can submit the form successfully.

Save Translations

1. Log in at the G3-MT terminal.
2. If the system is high- or critical-reliability, enter **status spe** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.
3. Enter **save translation** [**spe-a** or **both**] **disk** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk(s).
4. If the MCC port network (that will be powered down to install an SNC carrier) contains a TN750 Announcement circuit pack, enter **display announcements** and press RETURN.

   If administered recorded announcements are listed, enter **list configuration software-version**, press RETURN. Check Page 2 of this form to find out when the announcements were last saved, and ask the customer whether any announcements have changed since then.

   If so, the current announcements can be saved using the save announcements command. Enter **save announcements disk** and press RETURN.
5. Enter **backup disk** [**spe-a** or **both**] and press RETURN. This command instructs the system to backup the current information on disk to the system tape(s).
6. Update backup tape(s), if required.

Standard-Reliability System

Prerequisite Hardware

The equipment in the following table *must* be on-site before the switch-node addition begins.

Table 4-12. Required Hardware

PEC	Equipment	Description	Quantity
6350x		MCC Expansion Port Network	1[1]
63310	J58890SA	Switch Node Carrier	1
63335	103281788	TN570B Expansion Interface	1 per PN[2]
63322	103281804	TN572 Switch Node Clock	1[3]
63336	103281812	TN573B Switch Node Interface	1 per PN
63300	FL2P-P-xx	Fiber Cable	1 per EPN[4]
	H600-278 G2	EI-to-SNI Metallic Cable	1
63297 or 63304	106455348 or 106455363	9823-A Lightwave Transceiver or 9823-B Lightwave Transceiver	2 per EPN[5] or 2 per EPN[6]

1. Recommended, but not required if an empty carrier position resides in position 'E' of a centrally located MCC port network.
2. A directly connected system with 3 port networks uses 6 EIs. Whereas, a switch-connected system with 4 port networks uses 4. Therefore, these EIs may be reused from the existing directly connected system. However, if required for extra capacity, additional TN570B EIs (ordered separately) are also shipped with the EPN equipment.
3. For a standard-reliability system, the clock resides in slot “10” of the SNC carrier. The factory includes this clock with the PEC for the SNC carrier.
4. After coordinating with Design Center engineer, fibers that are accessible and long enough may be reused from the existing directly connected system.
5. One pair for each fiber connection. For each connection, one 9823-type is installed in the SNC’s PN, and a like transceiver in another PN.

A directly connected system with 3 port networks and a switch-connected system with 4 port networks both use 6 transceivers. Therefore, these transceivers may be reused from the existing directly connected system. However, if more than one EPN is ordered for extra capacity, additional 9823-type transceivers (ordered separately) are also shipped with the EPN equipment.

The distance limit of 9823-A transceivers is 4900 feet and 9823-B transceivers is 25,000 feet.

6. One pair for each fiber connection. For each connection, one 9823-type is installed in the SNC's PN, and a like transceiver in another PN.

A directly connected system with 3 port networks and a switch-connected system with 4 port networks both use 6 transceivers. Therefore, these transceivers may be reused from the existing directly connected system. However, if more than one EPN is ordered for extra capacity, additional 9823-type transceivers (ordered separately) are also shipped with the EPN equipment.

The distance limit of 9823-A transceivers is 4900 feet and 9823-B transceivers is 25,000 feet.

Remove Fiber Connections from System

1. For each fiber link, enter **busyout fiber-link *fiber #*** and press RETURN to busy out each fiber link in the system.
2. For each fiber link, enter **remove fiber-link *fiber #*** and press RETURN to remove each fiber link from system translations.
3. Enter **change circuit pack** and press RETURN to remove TN570B EI circuit packs from system translations.
4. Completely remove the existing fiber connections from the directly connected system (See following figures).

   Save the removed TN570B EI circuit packs, 9823-type transceivers, and FL2P-P-xx fiber cables. Some of these will be reused.

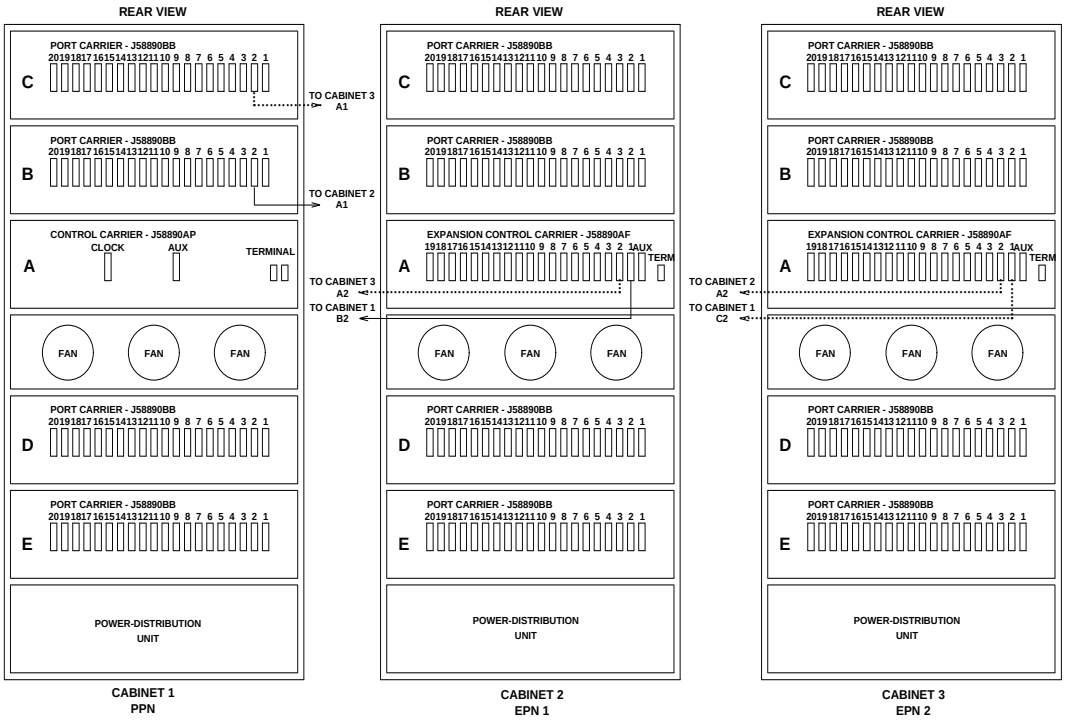


Figure 4-50. Directly Connected Standard-Reliability DEFINITY ECS R5r with Two MCC EPNs

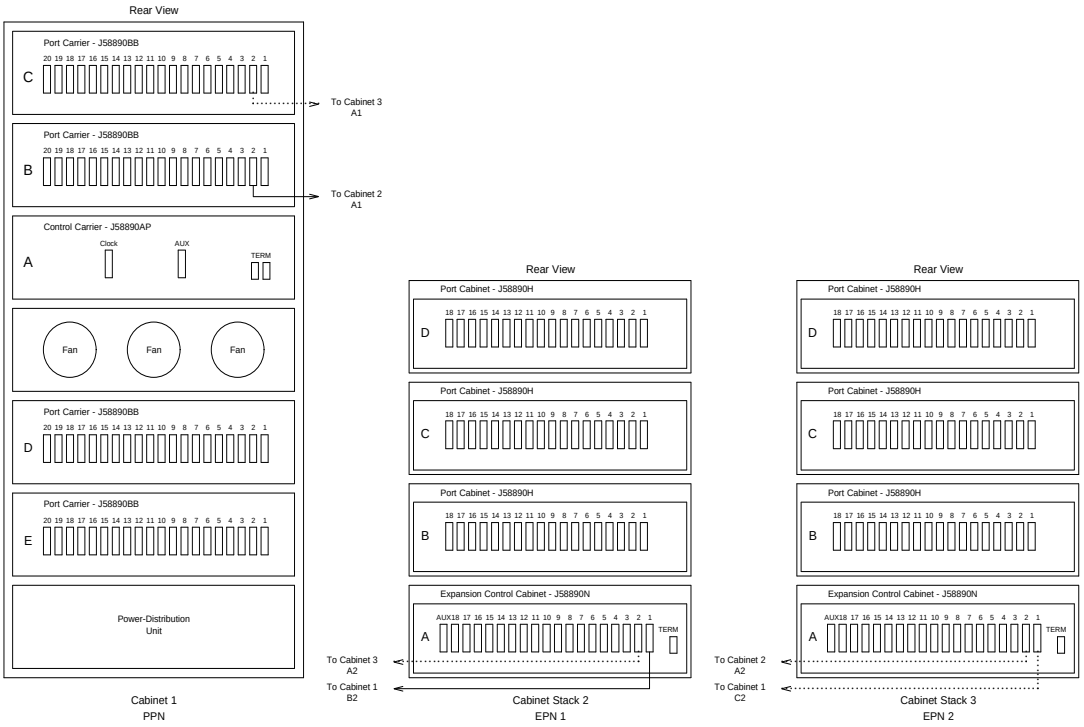


Figure 4-51. Directly Connected Standard-Reliability DEFINITY ECS R5r with Two SCC EPNs

Shut Down DEFINITY LAN Gateway System

If a DEFINITY LAN Gateway system resides in the control cabinet to be upgraded, prepare to shut down the DEFINITY LAN Gateway assembly and allow the disk to completely spin down. See Caution. See WARNING.

CAUTION:
Before using this procedure to shut down the DEFINITY LAN Gateway, make sure that you save the system parameters if you plan to reuse the current system.

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

1. See WARNING. To avoid an unexpected LAN Gateway reboot after an unplanned switch reboot, unseat the LAN Gateway assembly from its backplane connectors in the carrier.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

2. Log onto the DEFINITY LAN Gateway if you have not previously logged on. 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 in.
3. When the main menu appears, select Maintenance.
4. Select Reset System from the Maintenance menu.
5. Select Shutdown from the Reset System menu.

Shut Down DEFINITY AUDIX and Install New SNC Carrier

NOTE:
This section need not be executed if the new SNC carrier was shipped configured in a new MCC EPN.

1. See WARNING. If a DEFINITY AUDIX System resides in the MCC port network where the SNC carrier will be installed, 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. See WARNING. Unseat the AUDIX assembly from its backplane connectors.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

3. Power down the MCC port network where the new SNC carrier will reside.

4. Refer to the following portions of "5. Add Switch Node Carrier" earlier in this chapter for information about adding an SNC carrier:
   - Prepare New Switch Node Carrier
   - Install New Switch Node Carrier
   - Install Circuit Packs

   (See Figure 4-52 for typical circuit-pack locations in the new carrier.)
5. See WARNING. If a DEFINITY AUDIX System resides in the port network where the new SNC carrier was installed, reseat the AUDIX assembly to its backplane connectors.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

6. Power up the MCC port network where the new SNC carrier was installed.

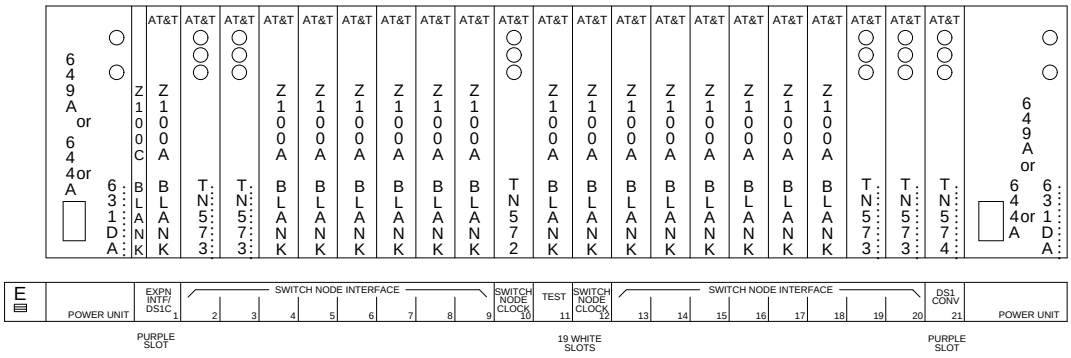


Figure 4-52. Typical Switch Node Carrier for Standard-Reliability DEFINITY ECS R5r with Four PNs

Install New MCC Expansion Port Network

NOTE:
This section may not need to be executed if a new SNC carrier was installed in a spare position of an MCC port network.

Refer to "Install Multicarrier Cabinet Expansion Port Network" in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, for instructions on installing the EPN.

Translate SNC Carrier

Refer to the “SNI Administration and SNI Board Insertion” section of *DEFINITY Communications System Generic 3r Maintenance*, for information about translating the new SNC carrier.

Add Fiber Connections to System

1. See NOTE. Add the new fiber connections to completely reconnect the port networks as a switch-connected system (See following figures).

   Reuse the removed TN570B EI circuit packs and 9823-type transceivers. Also, reuse any usable FL2P-P-xx fiber cables.

   NOTE:
   For detailed information about installing fiber connections refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

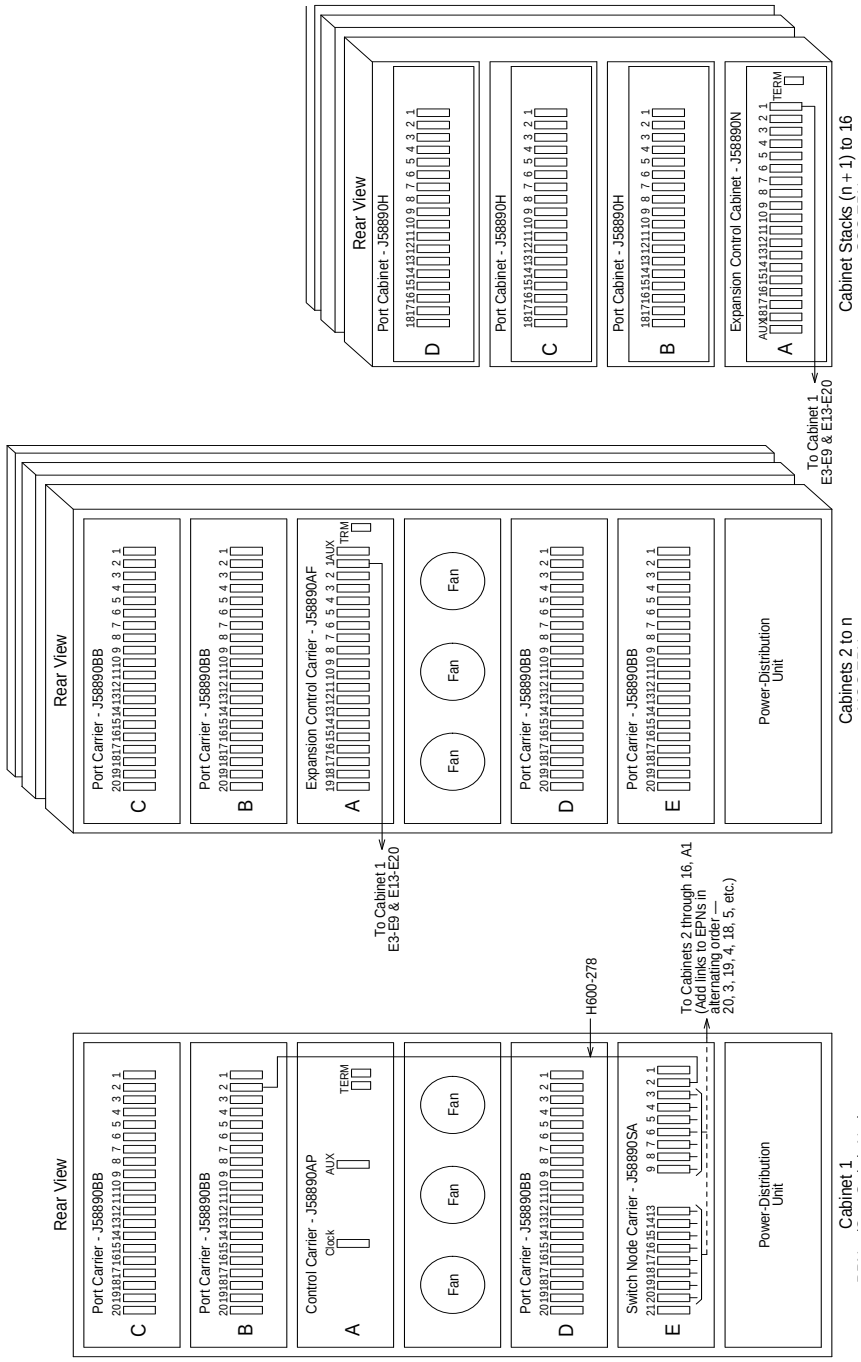


Figure 4-53. Switch-Connected Standard-Reliability DEFINITY ECS R5r with SNC in PPN

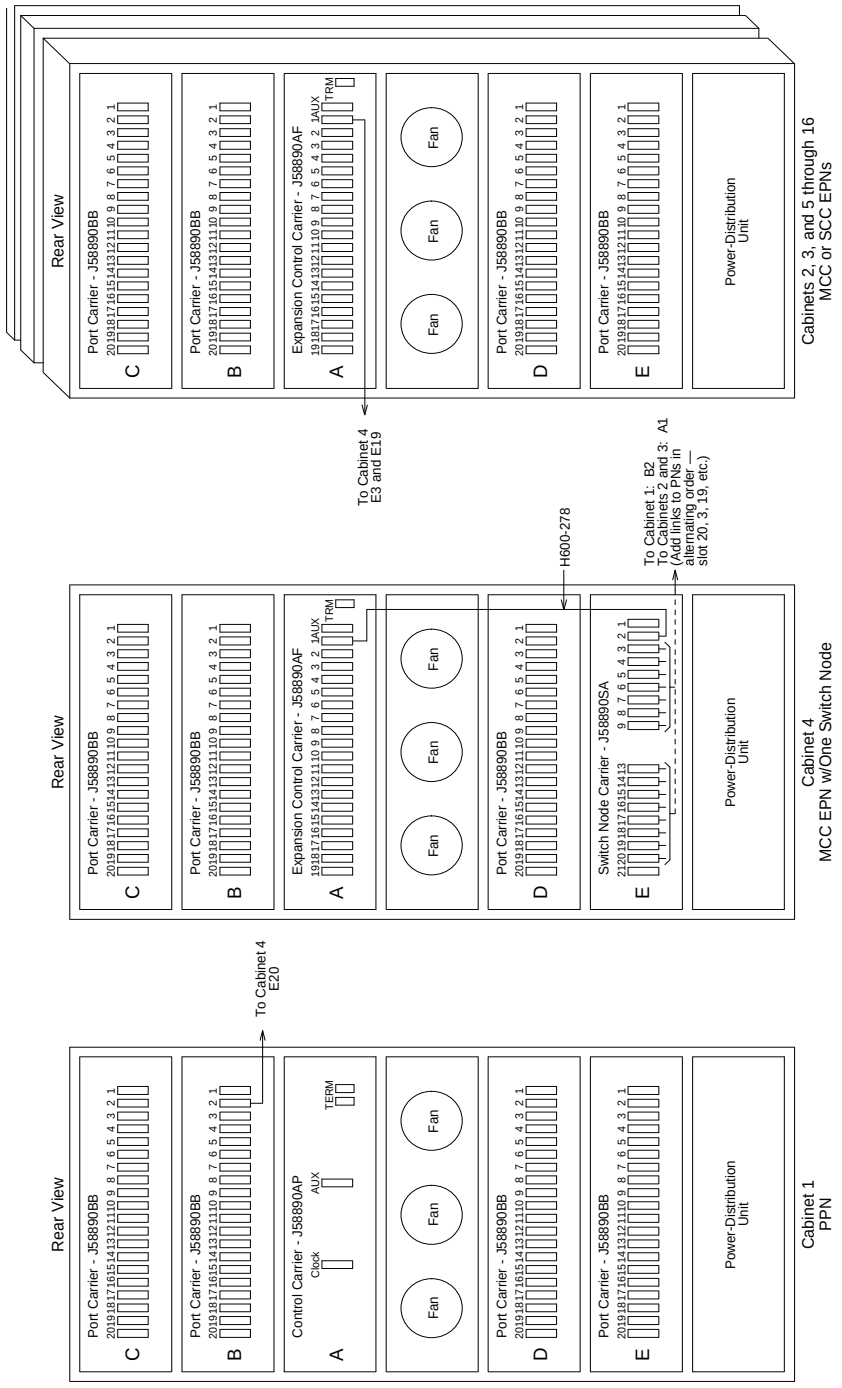


Figure 4-54. Switch-Connected Standard-Reliability DEFINITY ECS R5r with SNC in EPN

Translate New Fiber Connections

Refer to the "Fiber Link Administration" section of *DEFINITY Enterprise Communications Server Release 5 Implementation*, for information to translate the new fiber connections.

Reseat DEFINITY LAN Gateway System

1. See WARNING. Reseat the LAN Gateway assembly into its backplane connectors in the carrier.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Run Acceptance Tests

Refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, and perform the appropriate tests.

Resolve Alarms and Enable Alarm Origination

1. Examine the alarm log. Resolve any alarms that may exist by using the *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r* manual.
2. See NOTE. See WARNING. If the *Alarm Origination Activated* field administration that you previously noted is already set to *y*, be sure to enable Alarm Origination. Otherwise you do not need to enable Alarm Origination (proceed to the next section directly).
3. Enter **`change system-parameters maintenance`** and press RETURN.

   The *Alarm Origination Activated* field has been changed to *Alarm Origination to OSS Numbers* to support more than one OSS (INADS, etc.).

   Enter **`first-only`** in this field to enable Alarm Origination (to the first OSS, which should be INADS).

   Be sure to enter *y* in both *Cleared Alarm Notification* and *Restart Notification* fields if they are not enabled already. Press RETURN.

NOTE:
If you have lost the previous administration of the *Alarm Origination* field, you may register the system again with the INADS Database Administrator at the TSC. The INADS Database Administrator will enable Alarm Origination as part of the registration process.

WARNING:
If you do not enable Alarm Origination when the customer has purchased a services contract, the switch will not report any alarm to the TSC automatically, causing the TSC to be unable to fulfill the services contract.

Save Translations

1. Enter **save translation** [**spe-a**] **disk** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disk.
2. If a TN750 Announcement circuit pack resides in an MCC port network that was powered down to install an SNC carrier, enter **list configuration software-version** and press RETURN.

   If Page 2 of this form shows that recorded announcements were saved, these announcements can be restored using the restore announcements command. Enter **restore announcements** [**disk** | **tape**] and press RETURN.
3. Enter **backup disk** [**spe-a**] and press RETURN. This command instructs the system to backup the current information on disk to the system tape.
4. Update backup tape, if required.

Removed Equipment

According to pricing conventions for a switch-node addition, any unused fibers and TN570B Expansion Interface circuit packs belong to the customer.

If the customer decides not to keep unused fibers or EIs for possible reuse with a new EPN, then this equipment should be returned to Lucent Technologies. Also, any extra H600-278 metallic cables shipped loose with an SNC carrier should be returned to Lucent Technologies. The equipment should be returned according to the requirements outlined in:

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

High-Reliability System

Prerequisite Hardware

The equipment in Table 4-13 *must* be on-site before the switch-node addition begins.

Table 4-13. Required Hardware

PEC	Equipment	Description	Quantity
6350x		MCC Expansion Port Network	1[1]
63310	J58890SA	Switch Node Carrier	1
63335	103281788	TN570B Expansion Interface	2 for PPN[2] plus 1 per EPN
63322	103281804	TN572 Switch Node Clock	2[3]
63336	103281812	TN573B Switch Node Interface	2 for PPN plus 1 per EPN
63300	FL2P-P-xx	Fiber Cable	SN in PPN: 1 per EPN[4] SN in EPN: 1 per PN
633xx	FL2P-P-xx	Fiber Cable	SN in PPN: 1 per EPN[5] SN in EPN: 1 per PN
	H600-278 G2	EI-to-SNI Metallic Cable	SN in PPN: 2 SN in EPN: 1
63297 or 63304	106455348 106455363	9823-A Lightwave Transceiver 9823-B Lightwave Transceiver	2 per Fiber[6] 2 per Fiber[7]

Continued on next page

1. Recommended, but not required if an empty carrier position resides in position “E” of a centrally located MCC port network.
2. A directly connected system with 3 port networks uses 6 EIs. Whereas, a switch-connected system with 4 port networks uses 5. Therefore, these EIs may be reused from the existing directly connected system. However, if required for extra capacity, additional TN570B EIs (ordered separately) are also shipped with the EPN equipment.
3. For a high-reliability system, the clocks reside in slots “10” and “12” of the SNC carrier.
4. The factory includes one of the clocks with the PEC for the SNC carrier. The other must be ordered separately with its own PEC.
5. The factory includes one of the clocks with the PEC for the SNC carrier. The other must be ordered separately with its own PEC.
6. After coordinating with Design Center engineer, fibers that are accessible and long enough may be reused from the existing directly connected system.

7. One pair for each fiber connection. For each connection, one 9823-type is installed in the SNC's PN, and a like transceiver in another PN.

A directly connected system with 3 port networks uses 6 transceivers. Whereas, a switch-connected system with 4 port networks and the switch node in the:

PPN uses 6

EPN uses 8

transceivers. Therefore, the first 6 transceivers may be reused from the existing directly connected system. However, if the switch node will reside in an MCC EPN or if more than one EPN is ordered for extra capacity, additional 9823-type transceivers (ordered separately) are also shipped with the EPN equipment.

The distance limit of 9823-A transceivers is 4900 feet and 9823-B transceivers is 25,000 feet.

Remove Fiber Connections from System

1. For each fiber link, enter **busyout fiber-link *fiber #*** and press RETURN to busy out each fiber link in the system.
2. For each fiber link, enter **remove fiber-link *fiber #*** and press RETURN to remove each fiber link from system translations.
3. Enter **change circuit pack** and press RETURN to remove TN570B EI circuit packs from system translations.
4. Completely remove the existing fiber connections from the directly connected system (See following figures).

   Save the removed TN570B EI circuit packs, 9823-type transceivers, and FL2P-P-xx fiber cables. Some of these will be reused.

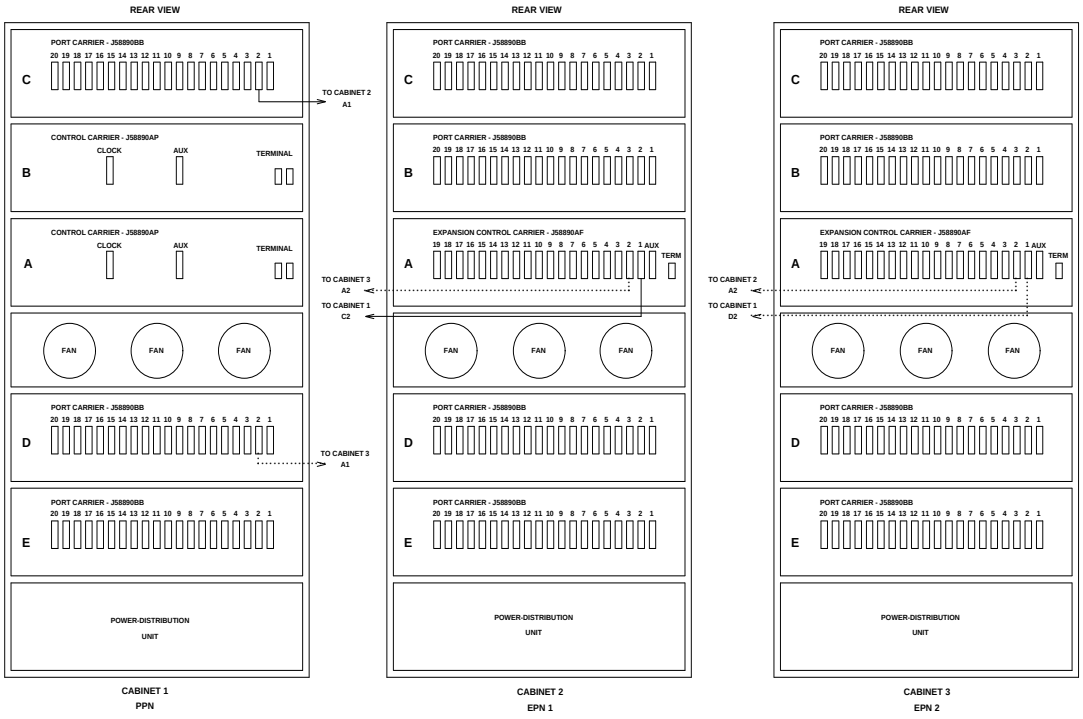


Figure 4-55. Directly Connected High-Reliability DEFINITY ECS R5r with Two MCC EPNs

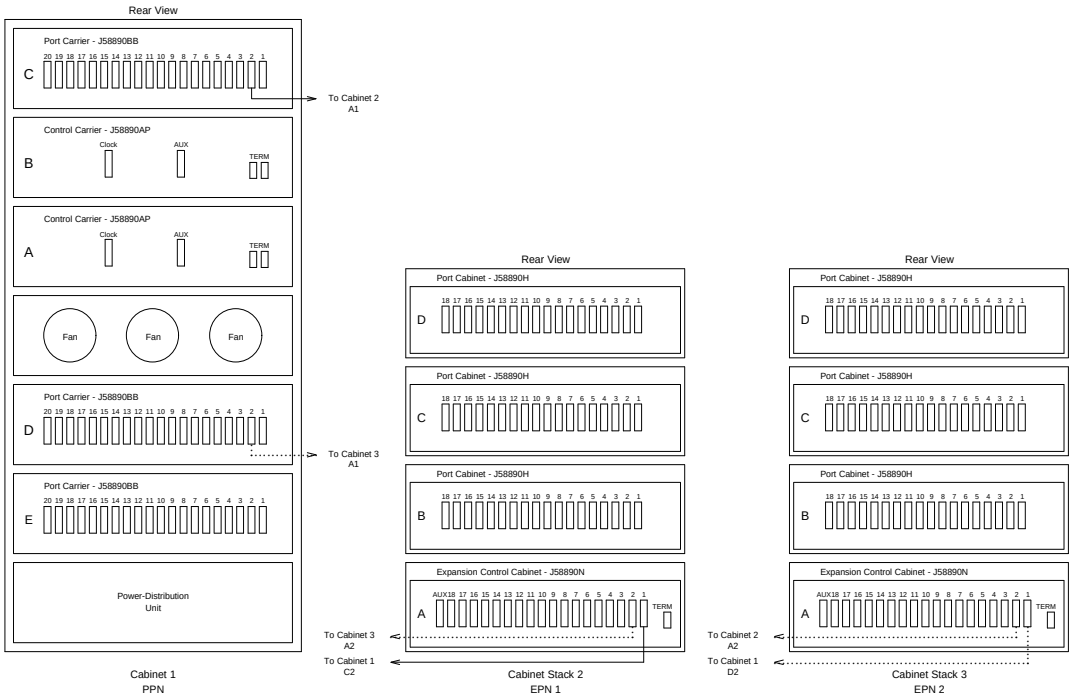


Figure 4-56. Directly Connected High-Reliability DEFINITY ECS R5r with Two SCC EPNs

Shut Down DEFINITY LAN Gateway System

If a DEFINITY LAN Gateway system resides in the control cabinet to be upgraded, prepare to shut down the DEFINITY LAN Gateway assembly and allow the disk to completely spin down. See Caution. See WARNING.

CAUTION:
Before using this procedure to shut down the DEFINITY LAN Gateway, make sure that you save the system parameters if you plan to reuse the current system.

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

1. See WARNING. To avoid an unexpected LAN Gateway reboot after an unplanned switch reboot, unseat the LAN Gateway assembly from its backplane connectors in the carrier.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

2. Log onto the DEFINITY LAN Gateway if you have not previously logged on. *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 in.
3. When the main menu appears, select *Maintenance*.
4. Select *Reset System* from the *Maintenance* menu.
5. Select *Shutdown* from the *Reset System* menu.

Shut Down DEFINITY AUDIX and Install New SNC Carrier

NOTE:
This section need not be executed if the new SNC carrier was shipped configured in a new MCC EPN.

1. See WARNING. If a DEFINITY AUDIX System resides in the MCC port network where the SNC carrier will be installed, 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. See WARNING. Unseat the AUDIX assembly from its backplane connectors.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

3. Power down the MCC port network where the new SNC carrier will reside.

4. See NOTE. Refer to portions of "5. Add Switch Node Carrier" earlier in this chapter for information about adding an SNC carrier:
   - Prepare New Switch Node Carrier
   - Install New Switch Node Carrier
   - Install Circuit Packs

   (See Figure 4-57 for typical circuit-pack locations in the new carrier.)

   NOTE:
   The right and left sides of an SNC carrier are powered separately. Therefore, when installing the two TN573B SNIs that connect to the TN570B EIs in the PPN, be sure to place these TN573Bs in opposite sides of the carrier. In this way, communication to the SPE will still exist if one side of the SNC carrier loses power.

5. See WARNING. If a DEFINITY AUDIX System resides in the port network where the new SNC carrier was installed, reseat the AUDIX assembly to its backplane connectors.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

6. Power up the MCC port network where the new SNC carrier was installed.

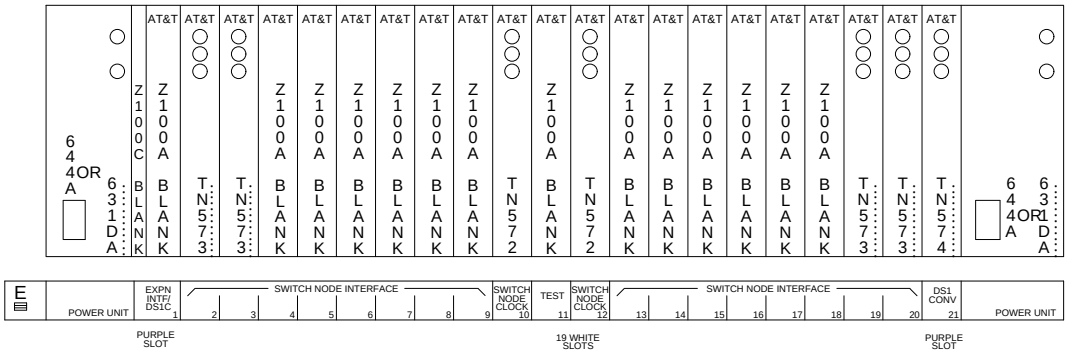


Figure 4-57. Typical Switch Node Carrier for High-Reliability DEFINITY ECS R5r with Four PNs

Install New MCC Expansion Port Network

NOTE:
This section may not need to be executed if a new SNC carrier was installed in a spare position of an MCC port network.

Refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, for instructions on installing the EPN.

Translate SNC Carrier

Refer to the "SNI Administration and SNI Board Insertion" section of *DEFINITY Communications System Generic 3r Maintenance*, for information about translating the new SNC carrier.

Add Fiber Connections to System

1. Add the new fiber connections to completely reconnect the port networks as a switch-connected system (See following figures).

   Reuse the removed TN570B EI circuit packs and 9823-type transceivers. Also, reuse any usable FL2P-P-xx fiber cables.

   NOTE:
   For detailed information about installing fiber connections refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

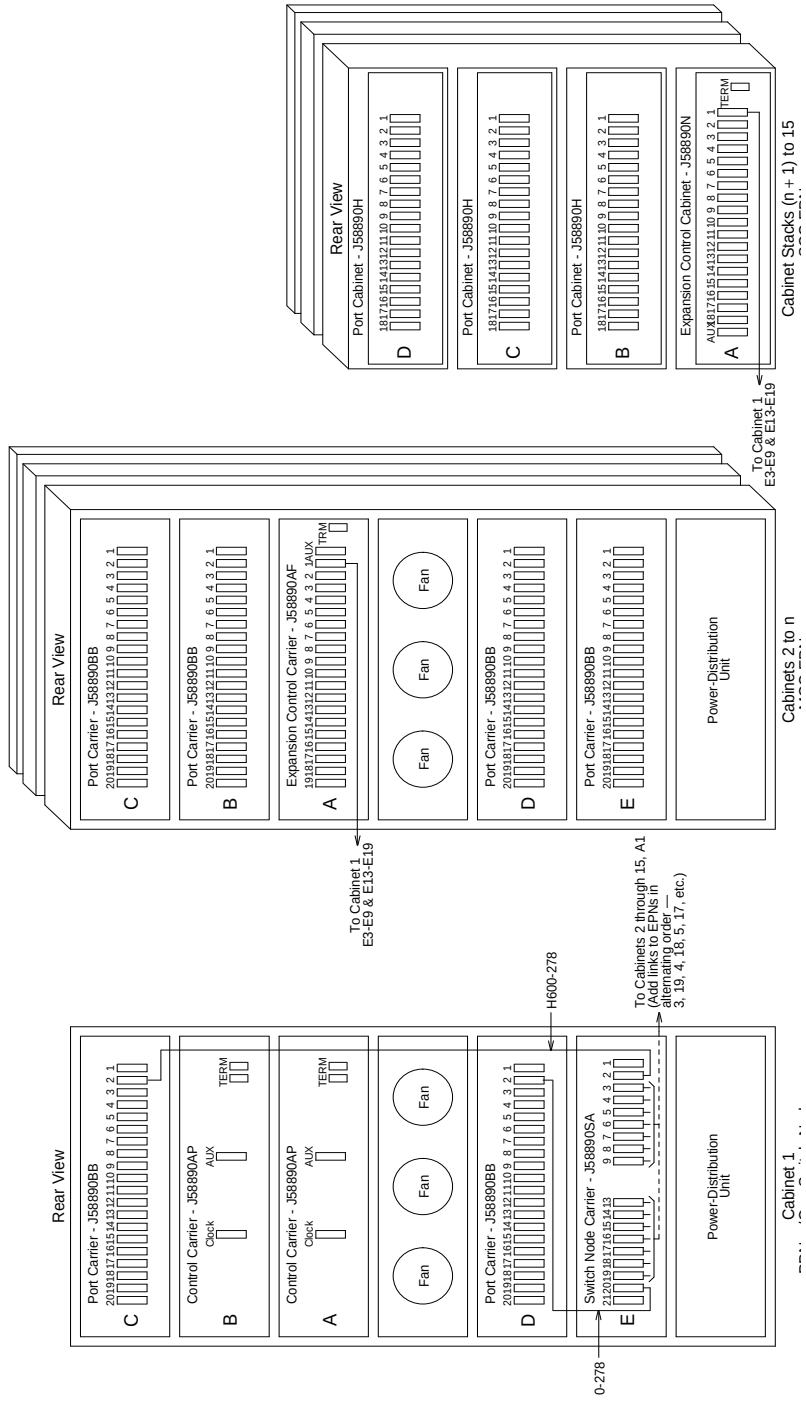


Figure 4-58. Switch-Connected High-Reliability DEFINITY ECS R5r with SNC in PPN

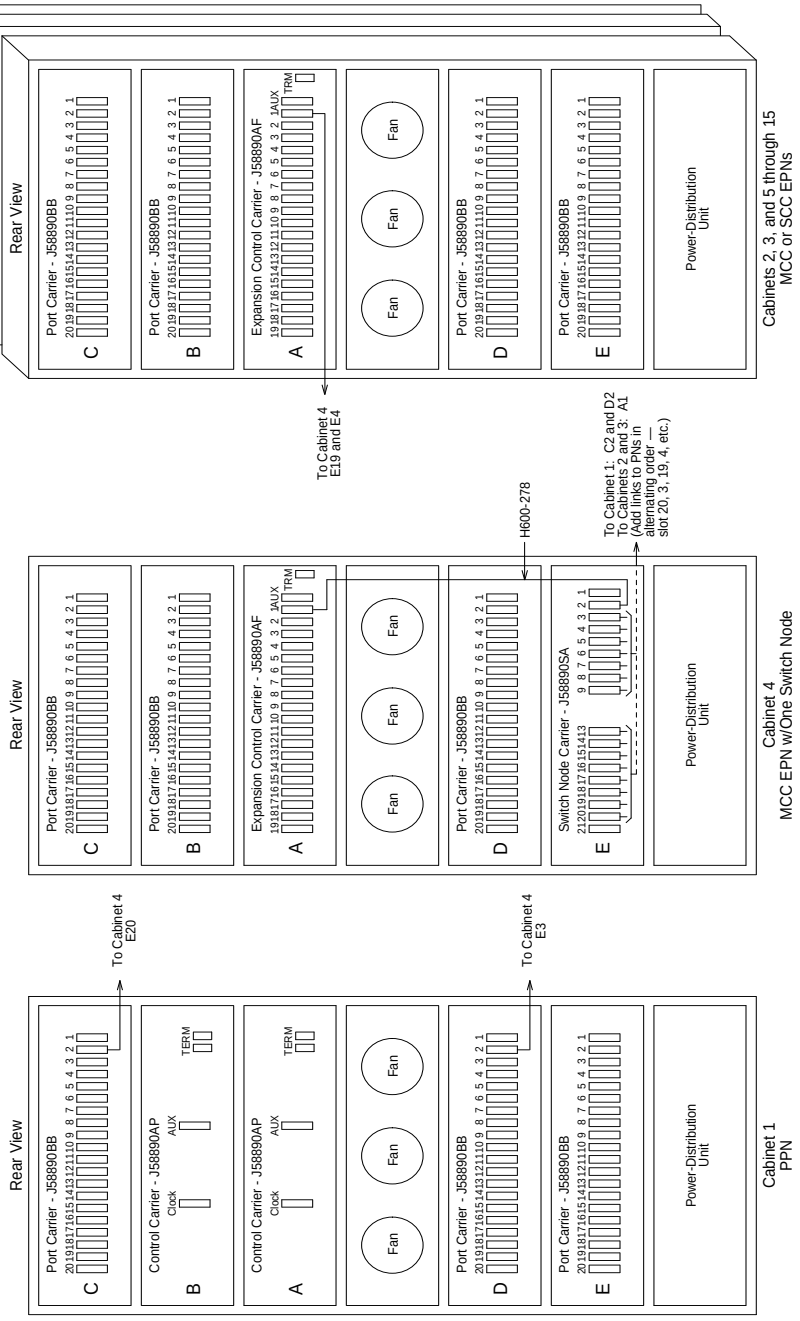


Figure 4-59. Switch-Connected High-Reliability DEFINITY ECS R5r with SNC in EPN

Translate New Fiber Connections

Refer to the "Fiber Link Administration" section of *DEFINITY Enterprise Communications Server Release 5 Implementation*, for information to translate the new fiber connections.

Save Translations

1. Enter **`status spe`** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.
2. Enter **`save translation`** [**`both`**] **`disk`** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disks.
3. If a TN750 Announcement circuit pack resides in an MCC port network that was powered down to install SNC carriers, enter **`list configuration software-version`** and press RETURN.

   If Page 2 of this form shows that recorded announcements were saved, these announcements can be restored using the restore announcements command. Enter **`restore announcements`** [**`disk`** | **`tape`**] and press RETURN.
4. Enter **`backup disk`** [**`both`**] and press RETURN. This command instructs the system to backup the current information on disk to the system tapes.
5. Update backup tapes, if required.

Reseat DEFINITY LAN Gateway System

1. See WARNING. Reseat the LAN Gateway assembly into its backplane connectors in the carrier.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

Restart DEFINITY LAN Gateway System

1. Log onto the DEFINITY LAN Gateway if you have not previously logged on. *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 in.
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.

Run Acceptance Tests

Refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, and perform the appropriate tests.

Resolve Alarms and Enable Alarm Origination

1. Examine the alarm log. Resolve any alarms that may exist by using the *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r* manual.
2. If the *Alarm Origination Activated* field administration that you previously noted is already set to *y*, be sure to enable Alarm Origination. Otherwise you do not need to enable Alarm Origination (proceed to the next section directly).
3. Enter **`change system-parameters maintenance`** and press RETURN.

   The *Alarm Origination Activated* field has been changed to *Alarm Origination to OSS Numbers* to support more than one OSS (INADS, etc.).

   Enter **`first-only`** in this field to enable Alarm Origination (to the first OSS, which should be INADS).

   Be sure to enter *y* in both *Cleared Alarm Notification* and *Restart Notification* fields if they are not enabled already. Press RETURN.
4. Enter **`save translation`** [**`both`**] **`disk`** and press RETURN.

NOTE:
If you have lost the previous administration of the *Alarm Origination* field, you may register the system again with the INADS Database Administrator at the TSC. The INADS Database Administrator will enable Alarm Origination as part of the registration process.

CAUTION:
If you do not enable Alarm Origination when the customer has purchased a services contract, the switch will not report any alarm to the TSC automatically, causing the TSC to be unable to fulfill the services contract.

Removed Equipment

According to pricing conventions for a switch-node addition, any unused fibers and TN570B Expansion Interface circuit packs belong to the customer.

If the customer decides not to keep unused fibers or EIs for possible reuse with a new EPN, then this equipment should be returned to Lucent Technologies. Also, any extra H600-278 metallic cables shipped loose with an SNC carrier should be returned to Lucent Technologies. The equipment should be returned according to the requirements outlined in:

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

Critical-Reliability System

Prerequisite Hardware

The equipment in the following table *must* be on-site before the switch-node addition begins.

Table 4-14. Required Hardware

PEC	Equipment	Description	Quantity
6350x		MCC Expansion Port Network	1[1]
63310	J58890SA	Switch Node Carrier	2
63335	103281788	TN570B Expansion Interface	2 per PN[2]
63322	103281804	TN572 Switch Node Clock	2[3]
63336	103281812	TN573B Switch Node Interface	2 per PN
63300 A	FL2P-P-xx	Fiber Cable	2 per EPN[4]
	SN in PPN: H600-278 G1 or SN in EPN: H600-278 G2	EI-to-SNI Metallic Cable EI-to-SNI Metallic Cable	2 2
63297 or 63304	106455348 106455363	9823-A Lightwave Transceiver 9823-B Lightwave Transceiver	2 per Fiber[5+6] 2 per Fiber[7]

Continued on next page

1. Recommended, but not required if an empty carrier position resides in positions “D” and “E” of a centrally located MCC port network.
2. A directly connected system with 3 port networks uses 12 EIs. Whereas, a switch-connected system with 4 port networks uses 8. Therefore, these EIs may be reused from the existing directly connected system. However, if required for extra capacity, additional TN570B EIs (ordered separately) are also shipped with the EPN equipment.
3. For a critical-reliability system, one clock resides in slot “10” of each SNC carrier.
4. The factory includes each clock with the PEC for each SNC carrier.
5. After coordinating with Design Center engineer, fibers that are accessible and long enough may be reused from the existing directly connected system.

6. One pair for each fiber connection. For each connection, one 9823-type is installed in the SNC's PN, and a like transceiver in another PN.

A directly connected system with 3 port networks and a switch-connected system with 4 port networks both use 12 transceivers. Therefore, these transceivers may be reused from the existing directly connected system. However, if more than one EPN is included in the order for extra capacity, additional 9823-type transceivers (ordered separately) are also shipped with the EPN equipment.

The distance limit of 9823-A transceivers is 4900 feet and 9823-B transceivers is 25,000 feet.

7. One pair for each fiber connection. For each connection, one 9823-type is installed in the SNC's PN, and a like transceiver in another PN.

A directly connected system with 3 port networks and a switch-connected system with 4 port networks both use 12 transceivers. Therefore, these transceivers may be reused from the existing directly connected system. However, if more than one EPN is included in the order for extra capacity, additional 9823-type transceivers (ordered separately) are also shipped with the EPN equipment.

The distance limit of 9823-A transceivers is 4900 feet and 9823-B transceivers is 25,000 feet.

Remove PNC Duplication from System Translations

1. Log in as "craft" at the `login:` prompt on the G3-MT or G3-MA.
2. Enter **`status pnc`** and press to determine which is the active port-network controller (PNC).

   If the active PNC is "pnc-b," enter **`reset pnc interchange`** and press RETURN to switch the active PNC to "pnc-a."
3. Enter **`busyout pnc`** and press RETURN to busy out the standby PNC.
4. Disable PNC duplication for the system by entering **`change system-parameters duplication`**, pressing RETURN, and setting the "PNC Duplication" field to "no."

Remove Fiber Connections from System

1. For each fiber link, enter **`busyout fiber-link`** ***`fiber #`*** and press RETURN to busy out each fiber link in the system.
2. For each fiber link, enter **`remove fiber-link`** ***`fiber #`*** and press RETURN to remove each fiber link from system translations.
3. Enter **`change circuit pack`** and press RETURN to remove TN570B EI circuit packs from system translations.
4. Completely remove the existing fiber connections from the directly connected system (See following figures).

   Save the removed TN570B EI circuit packs, 9823-type transceivers, and FL2P-P-xx fiber cables. Some of these will be reused.

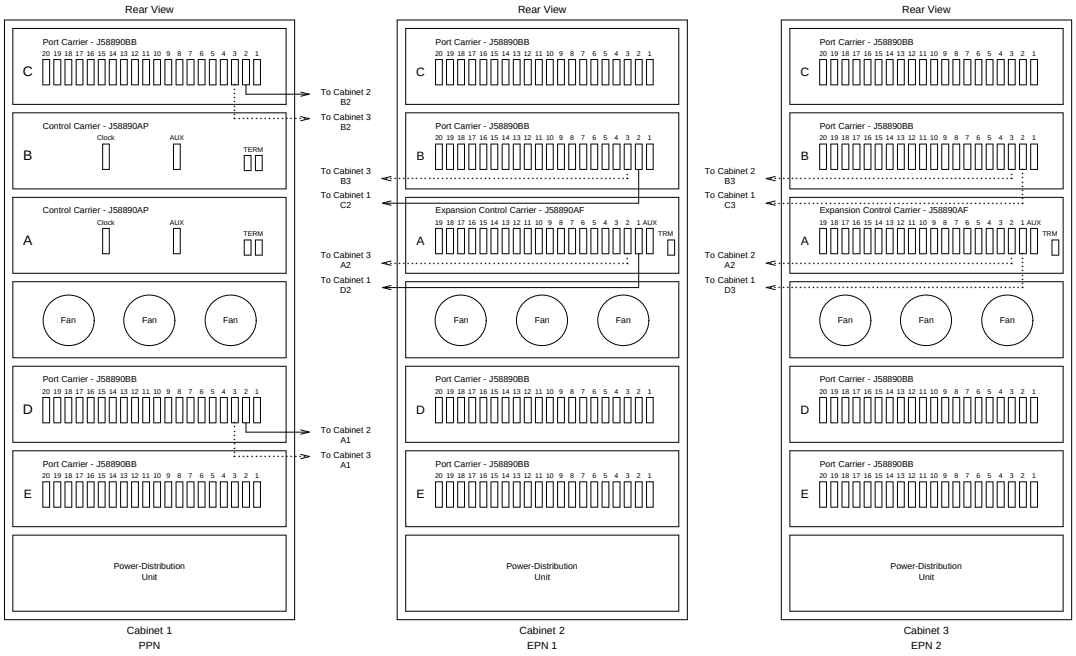


Figure 4-60. Directly Connected Critical-Reliability DEFINITY ECS R5r with Two MCC EPNS

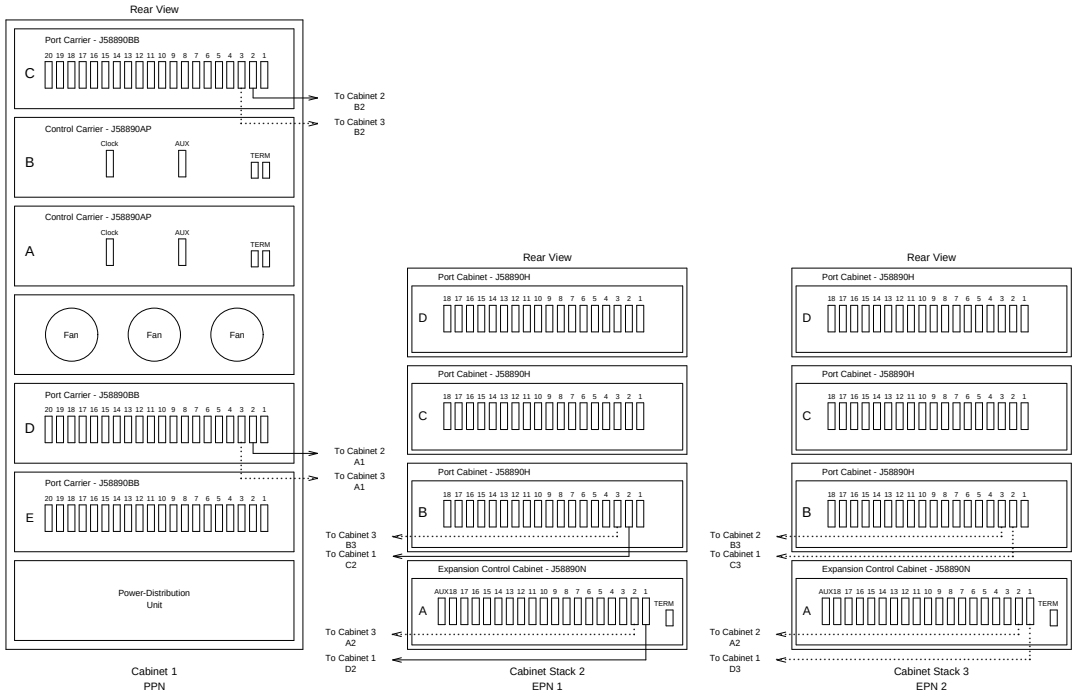


Figure 4-61. Directly Connected Critical-Reliability DEFINITY ECS R5r with Two SCC EPNs

Shut Down DEFINITY LAN Gateway System

If a DEFINITY LAN Gateway system resides in the control cabinet to be upgraded, prepare to shut down the DEFINITY LAN Gateway assembly and allow the disk to completely spin down. See Caution. See WARNING.

CAUTION:

Before using this procedure to shut down the DEFINITY LAN Gateway, make sure that you save the system parameters if you plan to reuse the current system.

WARNING:

Neglecting to shut down a DEFINITY LAN Gateway assembly before powering down the system cabinet where it resides can damage the LAN Gateway disk.

1. See WARNING. To avoid an unexpected LAN Gateway reboot after an unplanned switch reboot, unseat the LAN Gateway assembly from its backplane connectors in the carrier.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

2. Log onto the DEFINITY LAN Gateway if you have not previously logged on. *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 in.
3. When the main menu appears, select *Maintenance*.
4. Select *Reset System* from the *Maintenance* menu.
5. Select *Shutdown* from the *Reset System* menu.

Shut Down DEFINITY AUDIX and Install New SNC Carriers

NOTE:
This section need not be executed if the new SNC carriers were shipped configured in a new MCC EPN.

1. See WARNING. If a DEFINITY AUDIX System resides in the MCC port network where the SNC carrier will be installed, 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. See WARNING. Unseat the AUDIX assembly from its backplane connectors.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

3. Power down the MCC port network where the new SNC carriers will reside.
4. Refer to the following portions of "5. Add Switch Node Carrier" earlier in this chapter for information about adding SNC carriers:
   - Prepare New Switch Node Carrier
   - Install New Switch Node Carrier
   - Install Circuit Packs

   (See Figure 4-62 for typical circuit-pack locations in these new carriers.)
5. See WARNING. If a DEFINITY AUDIX System resides in the port network where the new SNC carrier was installed, reseat the AUDIX assembly to its backplane connectors.

   WARNING:
   Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet's frame.

6. Power up the MCC port network where the new SNC carriers were installed.

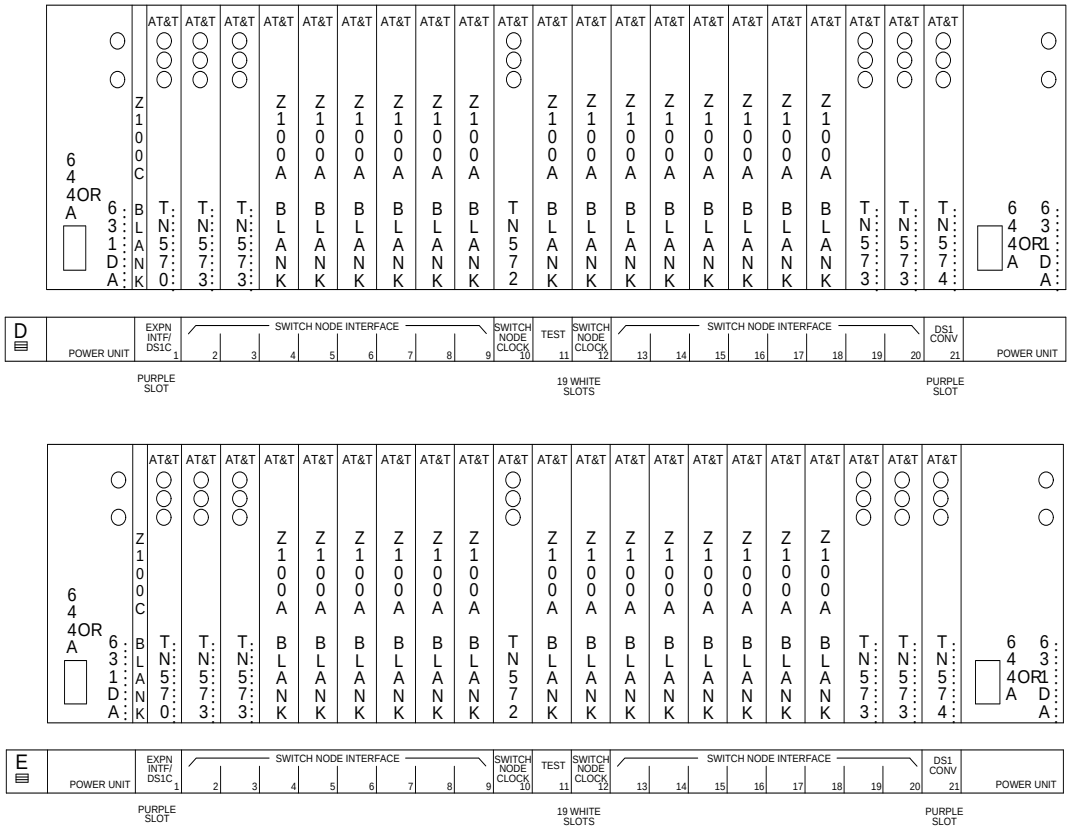


Figure 4-62. Typical Switch Node Carriers for Critical-Reliability DEFINITY ECS R5r with Four PNs

Install New MCC Expansion Port Network

NOTE:
This section may not need to be executed if new SNC carriers were installed in spare positions of an MCC port network.

Refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, for instructions on installing the EPN.

Add PNC Duplication to System Translations

Enable PNC duplication for the system by entering **change system-parameters duplication**, pressing RETURN, and setting the "PNC Duplication" field to "yes."

Translate SNC Carriers

Refer to the "SNI Administration and SNI Board Insertion" section of *DEFINITY Communications System Generic 3r Maintenance*, for information about translating the new SNC carriers.

Add Fiber Connections to System

1. See NOTE. Add the new fiber connections to completely reconnect the port networks as a switch-connected system (See following figures).

   Reuse the removed TN570B EI circuit packs and 9823-type transceivers. Also, reuse any usable FL2P-P-xx fiber cables.

NOTE:
For detailed information about installing fiber connections refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

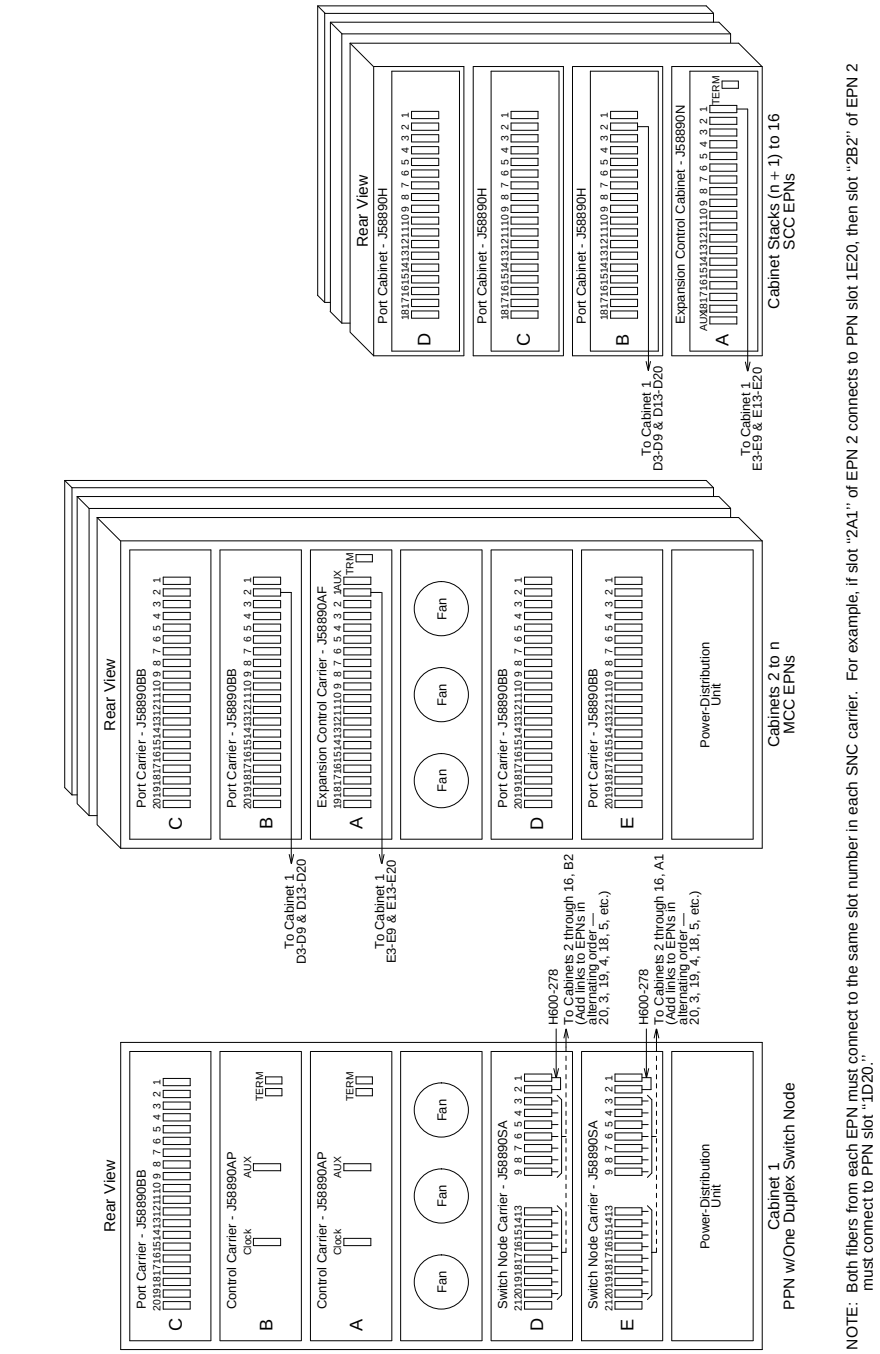


Figure 4-63. Switch-Connected Critical-Reliability DEFINITY ECS R5r with SNC in PPN

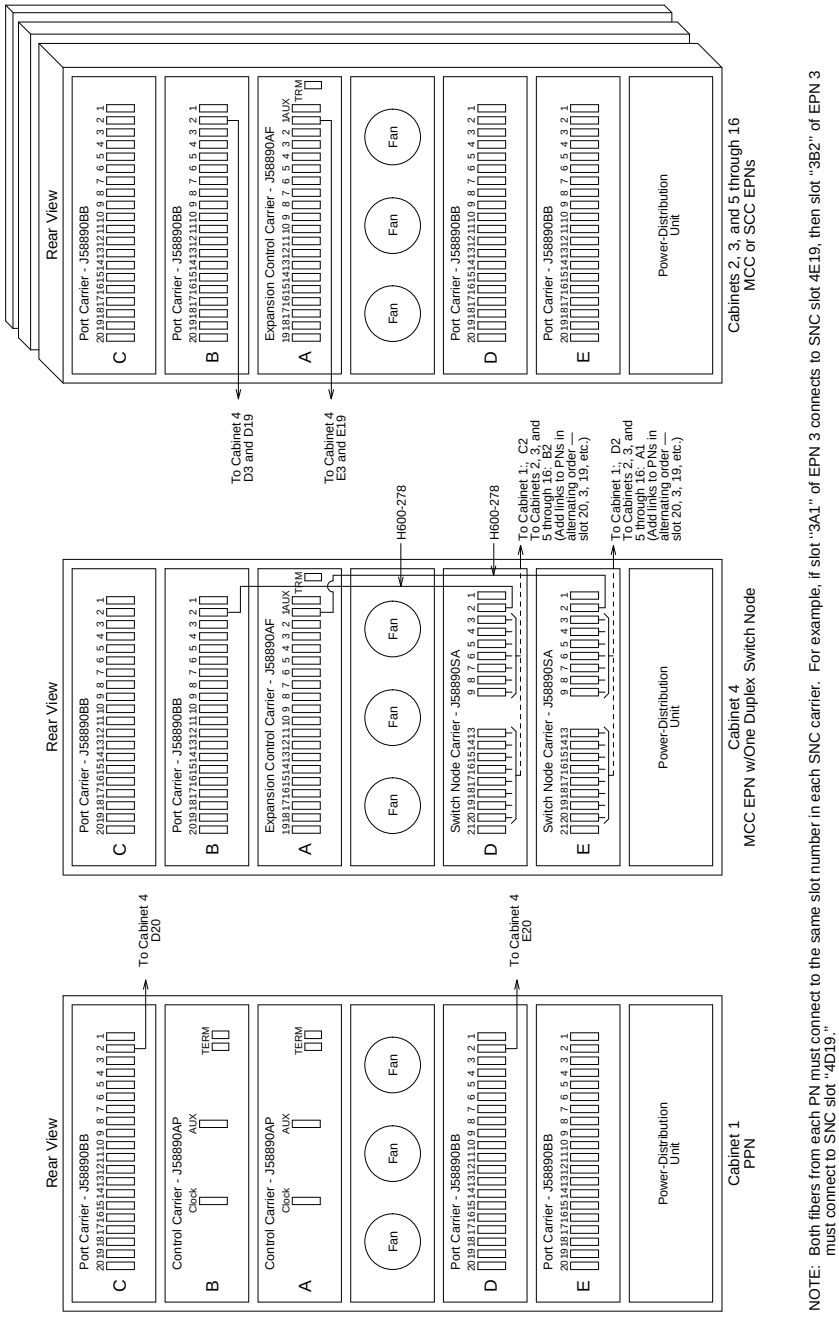


Figure 4-64. Switch-Connected Critical-Reliability DEFINITY ECS R5r with SNC in EPN

Translate New Fiber Connections

Refer to the “Fiber Link Administration” section of *DEFINITY Enterprise Communications Server Release 5 Implementation*, for information to translate the new fiber connections.

Reseat DEFINITY LAN Gateway System

1. See WARNING. Reseat the LAN Gateway assembly into its backplane connectors in the carrier.

WARNING:
Before inserting or removing a circuit pack from a cabinet, put on a wrist strap and attach its plug or clip to the cabinet’s frame.

Restart DEFINITY LAN Gateway System

1. Log onto the DEFINITY LAN Gateway if you have not previously logged on. *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 in.
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.

NOTE:
To ensure that the upgrade completes successfully, perform all steps in the order provided.

Save Translations

1. Enter **`status spe`** and press RETURN to verify that the standby SPE is refreshed and that the standby disk is in service.
2. Enter **`save translation`** [**`both`**] **`disk`** and press RETURN. This command instructs the system to take all translation information in memory and write it to the disks.
3. If a TN750 Announcement circuit pack resides in an MCC port network that was powered down to install SNC carriers, enter **`list configuration software-version`** and press RETURN.

   If Page 2 of this form shows that recorded announcements were saved, these announcements can be restored using the restore announcements command. Enter **`restore announcements`** [**`disk`** | **`tape`**] and press RETURN.

4. Enter **backup disk** [**both**] and press RETURN. This command instructs the system to backup the current information on disk to the system tapes.
5. Update backup tapes, if required.

Run Acceptance Tests

Refer to *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*, and perform the appropriate tests.

Resolve Alarms and Enable Alarm Origination

1. Examine the alarm log. Resolve any alarms that may exist by using the *DEFINITY Enterprise Communications Server Release 5 Maintenance for R5r* manual.
2. See NOTE. See WARNING. If the *Alarm Origination Activated* field administration that you previously noted is already set to *y*, be sure to enable Alarm Origination. Otherwise you do not need to enable Alarm Origination (proceed to the next section directly).
3. Enter **change system-parameters maintenance** and press RETURN.

   The *Alarm Origination Activated* field has been changed to *Alarm Origination to OSS Numbers* to support more than one OSS (INADS, etc.).

   Enter **first-only** in this field to enable Alarm Origination (to the first OSS, which should be INADS).

   Be sure to enter *y* in both *Cleared Alarm Notification* and *Restart Notification* fields if they are not enabled already. Press RETURN.
4. Enter **save translation** [**both**] **disk** and press RETURN.

NOTE:
If you have lost the previous administration of the *Alarm Origination* field, you may register the system again with the INADS Database Administrator at the TSC. The INADS Database Administrator will enable Alarm Origination as part of the registration process.

WARNING:
If you do not enable Alarm Origination when the customer has purchased a services contract, the switch will not report any alarm to the TSC automatically, causing the TSC to be unable to fulfill the services contract.

Removed Equipment

According to pricing conventions for a switch-node addition, any unused fibers and TN570B Expansion Interface circuit packs belong to the customer.

If the customer decides not to keep unused fibers or EIs for possible reuse with a new EPN, this equipment should be returned to Lucent Technologies. Also, any extra H600-278 metallic cables shipped loose with SNC carriers should be returned to Lucent Technologies. The equipment should be returned according to the requirements outlined in:

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

55. Add DEFINITY LAN Gateway

The DEFINITY LAN Gateway is an integrated hardware assembly (consisting of a TN2208 Multifunction circuit pack, a TN2170 Alarm circuit pack, a disk drive, and a tape unit) that resides in five contiguous port slots of either a DEFINITY ECS R5r expansion control carrier or port carrier.

Requirements

In order to give this assembly proper cooling, certain recommendations for its placement within a DEFINITY ECS R5r system should be followed. Providing optimum cooling may require that up to five port circuit packs be relocated and retranslated.

First, if possible, locate a DEFINITY LAN Gateway in the same equipment room as the PPN.

See NOTE. Second, locate a DEFINITY LAN Gateway in a carrier with close proximity to a cabinet's fan assembly.

NOTE:
Never locate a DEFINITY LAN Gateway in port carrier "C" of a multicarrier cabinet.

See NOTE. Third, to minimize the voltage drop on a single-carrier cabinet, locate a DEFINITY LAN Gateway as far to the right side of the single-carrier cabinet as possible.

NOTE:
Never locate a DEFINITY LAN Gateway either in port slots "01" to "03" of an expansion control cabinet or in "01" to "04" of a port cabinet.

Installation

1. If necessary, to provide five contiguous port slots in a desirable location, relocate and retranslate port circuit packs. See "7. Add Circuit Packs" earlier in this chapter.
2. Unpack the DEFINITY LAN Gateway and inspect for damage. Report any damage for appropriate action per local procedures.

3. It is not necessary to power down a DEFINITY ECS system before installing a DEFINITY LAN Gateway.

   CAUTION:
   Although the LAN Gateway can be installed in a live DEFINITY ECS system, be careful to protect the LAN Gateway. Later, when the assembly is inserted, it will automatically power up (including the disk), run diagnostics, and boot. Therefore, to avoid an LAN Gateway disk crash, never remove the LAN Gateway assembly and never power down the DEFINITY ECS system without first shutting down the LAN Gateway assembly and allowing the disk to completely spin down.

4. Prepare to install the LAN Gateway assembly Y-cables behind the selected port slots. For details, refer to *DEFINITY AUDIX System Installation and Upgrade*, 585-300-118.

   CAUTION:
   To prevent damage to the AUDIX assembly, be sure that you install these cables before actually inserting the AUDIX assembly.

   NOTE:
   The switch treats an installed DEFINITY LAN Gateway assembly as a TN754B Digital Line circuit pack connected to up to eight 7405D display voice terminals. These emulated stations (serving as ports) are assigned as members of a hunt group that resides in a coverage path. Then, this coverage path is used by every station that covers to LAN Gateway.

56. Removing an EPN

When down-sizing a system, it may be necessary to remove an EPN cabinet from the system configuration. A problem may be encountered on some older systems when removing the Tone Clock circuit packs. When displaying the “change circuit” of the B carrier in EPN2, two question marks (??) may appear, meaning no board designation. A minor alarm is generated and cannot be removed.

To remove an EPN from a system, perform the following steps:

1. Log onto the system, and be sure to answer **y** to the *Suppress Alarm Origination* question during login.
2. Power down the EPN to be removed.
3. Remove the associated EIs in the PPN.
4. If a second EPN is present, remove the EIs from the remaining EPN (if it is to remain operational).
5. Remove all fiber-optic cables and transceivers connecting to the EPN to be removed.
6. Administer all ports/stations that are using the EPN to be removed.
7. Use the “change circuit” procedure to blank out the EIs.
8. Save the translations to disk.
9. At the maintenance terminal, execute a **`reset system 4`** command.

The system reboots and performs the board insertion procedure. When completed, all references to the removed EPN and its circuit packs and ports are removed. The minor alarm is cleared.

57. Upgrading TN574 DS1 CONV Circuit Packs to TN1654 DS1 CONV Circuit Packs

The DS1 CONV Complex is part of the Port Network Connectivity (PNC), consisting of two TN1654 DS1 Converter circuit packs connected by one to four DS1 facilities. It is used to extend the range of the 32 Mbps fiber links that connect EPNs to either the PPN or the Center State Switch, allowing EPNs to be located at remote sites.

The TN1654 DS1 Converter circuit pack is a redesign of the TN574 DS1 Converter board. The TN1654 provides functionality equivalent to the TN574 but also adds a 32-Channel E1 interface for international support as well as circuit-switched wideband connections (NxDS0). The TN1654 is supported beginning with DEFINITY ECS Release 5.

The DS1 CONV circuit packs contain on-board firmware that detects alarms and errors, communicates status to maintenance software, and runs tests in the background or on demand from maintenance software. The overall maintenance software strategy includes demand tests, recovery strategies, error and alarm logging, and periodic audits. Maintenance of the DS1 facilities is covered under the DS1-FAC maintenance object in *DEFINITY Enterprise Communications System Release 5 Maintenance for R5r*. Detailed descriptions for installing are contained in *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Multi-Carrier Cabinets*.

The DS1CONV Complex can extend a fiber link between two EIs or between an EPN EI and an SNI. Fiber links between two SNIs or between the Processor Port Network (PPN) and the Center Stage Switch (CSS) cannot be extended.

NOTE:
The TN1654 board is not compatible with the TN574 board.

A DS1CONV Complex may consist of two TN574 boards or two TN1654 boards but a TN574 cannot be combined with a TN1654 in the same complex. A system with multiple DS1CONV-remoted EPNs may contain DS1CONV Complexes of both types, TN1654 board-pairs and TN574 board-pairs. Critical reliability configurations with a pair of DS1CONV Complexes serving an EPN require identical board pairs and facilities. For example, a TN574 DS1CONV Complex and a TN1654 DS1CONV Complex may not be used together to serve the same EPN in a critical reliability configuration.

DS1CONV circuit packs are connected to TN570 Expansion Interface (EI) circuit packs and TN573 Switch Node Interface (SNI) circuit packs via metallic cables as shown in the following figure. A fiber link cable can be used instead of the metallic cable if it is necessary to locate the DS1CONV far from the connected EI or SNI circuit pack, for example, in an adjacent cabinet.

The DS1CONV circuit pack can be placed in any regular slot in a PN carrier. However, the DS1CONV circuit pack can only be placed in slots 1 and 21 in a Switch Node (SN) carrier. The DS1CONV circuit pack is not connected to the TDM bus or the SN backplane. Communication to the circuit pack is done through the connected EI or the SNI circuit packs. Therefore, there is considerable interaction between the DS1CONVs and the connected EIs and the SNIs. A special so-called "Y" cable connects the DS1CONV circuit pack to the Fiber Endpoint and to the facilities.

NOTE:
The two DS1CONV boards, TN1654 and TN574, use unique "Y" cables that are incompatible with each other.

The TN573 SNI circuit pack is incompatible with the TN1654 DS1CONV board. A TN573B or later suffix SNI board must be used when connecting to a TN1654 DS1CONV board.

The TN573B SNI board is fully backward compatible with the TN573 board and can be connected to either TN1654 or TN574 DS1CONV boards.

NOTE:
A TN573B or later suffix board must be used when connecting a SNI board to a TN1654 DS1 Converter board. Error 125 will be logged and an on-board minor alarm will be generated against the SNI board if it is incompatible with the TN1654 circuit pack.

Figures Figure 4-65, Figure 4-66 and Figure 4-67 show DS1CONV connections in a direct connect PNC configuration and between the CSS and an EPN in a Critical Reliability System configuration (duplicated PNC).

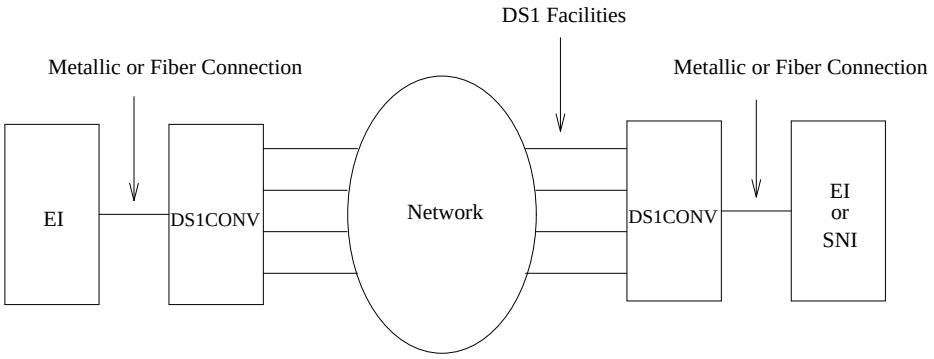


Figure 4-65. DS1CONV Connection to EIs and SNIs

Figure 4-66. DS1 CONV Complex in Direct Connect PNC

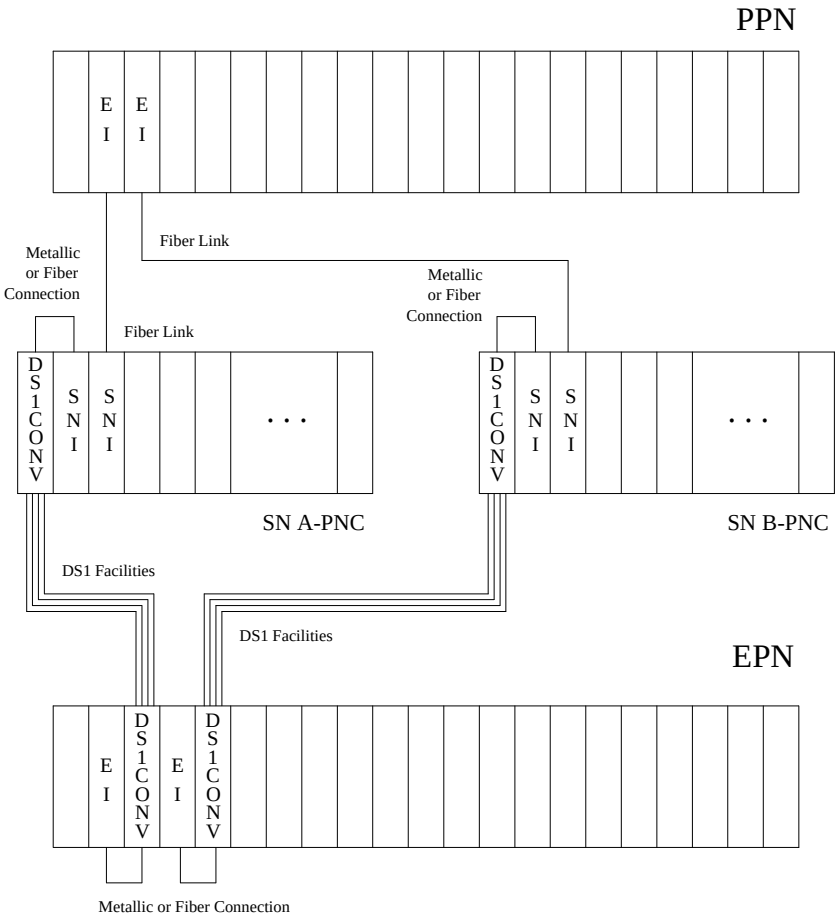


Figure 4-67. DS1CONV Complex in Duplicated PNC with 1 SN

DS1CONV Administration and Board Insertion

Board insertion is the detection of a circuit pack by the system. The DS1CONV circuit pack will not be inserted unless the circuit pack type, TN574 or TN1654, is entered into the associated field in circuit pack administration screen. The Fiber Endpoint (the EI or the SNI) must also be inserted and be operational for the DS1CONV circuit pack to function.

Fiber link administration must be completed before the DS1CONV maintenance can be operational. Fiber links are administered via the **`add fiber-link`** command. Fiber Endpoints, DS1CONV circuit pack locations and DS1 facility options are entered as a part of the fiber link administration.

Administration steps for a Standard Reliability and High Reliability System (no PNC Duplication)

1. Administer carriers via the **add/change cabinet** command.
2. Administer circuit packs via the **change circuit-pack** command.
3. Administer connectivity and the facility options of the DS1CONV Complex via the **add/change fiber-link** command.

Administration steps for a Critical Reliability System (PNC duplication)

1. Enable PNC duplication feature using **change system-parameter customer-option** command.
2. Administer carriers via the **add/change cabinet** command.
3. Administer circuit packs via the **change circuit-pack** command.
4. Administer connectivity and the DS1 facility options of each DS1CONV Complex via the **add/change fiber-link** command.
5. Turn on PNC duplication via the **change system-parameter duplication** command.

TN1654 Board Configuration Switch Settings

The TN1654 DS1CONV circuit pack is field configurable for T1 or E1 operation so that a single board serves worldwide application. All four DS1 facilities are configured to either T1 or E1 as a group via an option switch located on the component side of the circuit pack. If T1 operation is selected, four additional switches are used to select the framing mode for each facility. Each facility can be set to either D4 or ESF framing. If E1 operation is selected, the same four switches are used to select the E1 facility line termination impedance. The E1 line termination impedance for each facility can be set to either 120Ω for twisted-pair or 75Ω for coaxial wiring.

T1 or E1 operation must also be administered for the TN1654 DS1CONV board on the *fiber-link* form via the *Bit Rate* field.

NOTE:
An error will be logged and an alarm will be raised if there is a T1/E1 inconsistency between the administered bit rate and the board option switch setting.

The T1 facility framing mode and the E1 facility line termination impedance are defined by the option switch settings only. Administration of these values is not allowed. The *fiber-link* form will display the selected option switch settings for each facility.

DS1CONV LEDs

The TN574 DS1CONV board has seven LEDs on its faceplate. The TN1654 DS1CONV board has eleven LEDs on its faceplate. The top three system standard LEDs are used to provide an indication of the state of the DS1CONV board. These LEDs are under firmware control until the board has established a link to the SPE via the EI or SNI. Once the link is established, software controls the three LEDs. If the link breaks, the LEDs are again under firmware control.

The red and green LEDs have the traditional use where red means an alarm condition and green indicates that maintenance testing is in progress. The red and green LED is also turned on during circuit pack initialization by firmware. When the control link to the circuit pack is lost, firmware controls the red LED to indicate an alarm condition.

The yellow LED under firmware control indicates the state of the physical Fiber Interface, the Fiber Channel (link to EI or SNI), the DS1 Control Channel (link to opposite DS1CONV board) and the SPE communications link in the following manner and order of priority. (The yellow LED remains on for longer periods of time as the DS1CONV Complex becomes closer to being fully operational.)

1. If the Fiber is Out of Frame or if a Fiber Loss of Signal condition exists, the yellow LED will flicker at a 5 Hz rate (on for 100 mS, off for 100 mS).
2. If the Fiber Channel is down (DS1 Converter circuit pack/fiber endpoint communications), the yellow LED will flash at a 1 Hz rate (on for 500 mS, off for 500 mS).
3. If the DS1 Control Channel is down between the two DS1CONVs in the DS1CONV Complex, the yellow LED will pulse at a 1/2 Hz rate (on for 1 second, off for 1 second).
4. If the SPE communications link is down, the yellow LED will wink off every 2 seconds for 200 ms (2 seconds on, 200 mS off).
5. If all is well with the Fiber Interface and all communications channels, the yellow LED will remain on continuously in a Standard Reliability and High Reliability System configuration. In Critical Reliability systems (duplicated PNC), an active DS1CONV circuit pack will have its yellow LED on continuously, and a standby DS1CONV circuit pack will have its yellow LED off. The LED will then be under software control.

The bottom four green LEDs on the TN574 DS1CONV board are under hardware control. The four green LEDs indicate, for each DS1CONV facility, whether a receive signal is present for the DS1 facility

The next four LEDs on the TN1654 DS1CONV board are labeled STATUS LEDs and are for future use. These LEDs will not be lit.

The bottom four LEDs on the TN1654 board are labeled SPAN LEDs. These LEDs are under firmware control. If the facility is not administered, then the LED is not lit. The LED is lit amber if the facility is running alarm free. If the facility is

detecting either a red alarm (loss-of-signal or loss-of-frame), a yellow alarm (remote frame alarm) or a blue alarm (AIS signal) then the LED is lit red. The SPAN SELECT Switch on the TN1654 faceplate is for future use. Pushing the switch will have no affect on the board.

Downtime required when Upgrading to TN1654 DS1CONV Circuit Packs

WARNING:
Upgrading from TN574 DS1CONV circuit packs to TN1654 DS1CONV circuit packs will require down time for the affected EPN.

The TN1654 DS1 Converter circuit pack is not compatible with the TN573 SNI circuit pack, the TN574 DS1CONV board, the Y-cable used to connect to the TN574 DS1CONV board or pre-Release 5 software.

NOTE:
All DS1CONV boards and Y-cables in the affected EPN/fiber-link must be upgraded. If the EPN is remoted via a Center-Stage Switch, the connected SNI must also be upgraded. A TN573B or later suffix SNI board must be used when connecting to a TN1654 DS1CONV board.

The fiber-link administration for the TN574 DS1CONV Complex must be removed via the **`remove fiber-link`** command. The **`change circuit-pack`** form must be updated to reflect that TN1654 boards are now being used. The TN1654 DS1CONV Complex can then be administered via the **`add fiber-link`** command.

Replacing a DS1CONV Circuit Pack with the same type of DS1CONV Circuit Pack —Simplex PNC

WARNING:
Do not power down a Switch Node carrier to replace a circuit pack.

WARNING:
Replacing a Switch Node Interface, Switch Node Clock, Expansion Interface or DS1 Converter circuit pack on a simplex system disrupts service. The service effect can range from outage of a single EPN to outage of the entire system.

WARNING:
A DS1 Converter Complex must consist of two TN574 boards or two TN1654 boards. A TN574 cannot be combined with a TN1654 in the same DS1CONV Complex.

Complete the following steps to replace a DS1CONV Circuit Pack:

1. Log onto the system, and be sure to answer **y** to the *Suppress Alarm Origination* question during login.
2. Enter **`busyout board UUCSS`**

   where *UUCSS* represents the cabinet-carrier-slot address of the circuit pack to be replaced. A G3-MT logged in at the EPN Maintenance circuit pack will remain active in spite of the busyout.
3. Replace the circuit pack with the same DS1CONV board type.
4. Wait for the circuit pack to reset.

   Red and green LEDs will light and then go out.
5. Enter **`release board UUCSS`**

   CAUTION:
   Do not busyout any Expansion Interface circuit pack after this point.

6. Enter **`test alarms long clear`** for category *exp-intf*.
7. Wait 5 minutes for SNI-BD, FIBER-LK AND DS1C-BD alarms to clear, or enter **`clear firmware counters a-pnc`**

Replacing a DS1CONV Circuit Pack with the same type of DS1CONV Circuit Pack — Duplicated PNC

WARNING:
On a system with duplicated PNC, synchronization may be provided over a combination of active and standby components. This condition is indicated by an OFF-BOARD WARNING alarm against TDM-CLK with error type 2305. Repairs to standby PNC in this state may disrupt service. Otherwise, if the active PNC is functional, replacement of a standby component will not disrupt service.

WARNING:
In duplicated PNC configurations, one DS1CONV complex in the fiber-link serves as the active and the second DS1CONV complex serves as the standby. Each DS1 Converter Complex consists of two TN574 boards or two TN1654 boards. A TN574 cannot be combined with a TN1654 in the same DS1CONV Complex. It is also required that all four DS1CONV boards and interconnecting facilities that serve an EPN be of the same type. Note, however, that TN574 and TN1654 boards can coexist within the same system, they just cannot be in the same fiber-link.

Complete these steps to replace a DS1CONV circuit pack with the same type of DS1CONV circuit pack in a duplicated PNC:

1. Log onto the system, and be sure to answer **y** to the *Suppress Alarm Origination* question during login.
2. Enter **`status pnc`**

   Verify that the component to be replaced is on the standby PNC.
3. Enter **`busyout pnc`**
4. Enter **`busyout board UUCSS`**

   where *UUCSS* represents the cabinet-carrier-slot address of the circuit pack to be replaced.
5. Replace the circuit pack with the same DS1CONV board type.
6. Enter **`release board UUCSS`**

   CAUTION:
   Do not busyout any Expansion Interface circuit pack after this point.
7. Enter **`test alarms long clear`** for category *exp-intf*
8. Wait 5 minutes for SNI-BD, SNI-PEER, FIBER-LK, and DS1C-BD alarms to clear, or enter **`clear firmware counters`** [**`a-pnc`** | **`b-pnc`**]

Use the letter designation of the pnc which holds the replaced component (the standby pnc).

9. Enter **`status pnc`**

   If either PNC state-of-health is not “functional”, consult the PNC-DUP section of *DEFINITY Enterprise Communications System Release 5 Maintenance for R5r*.

10. Enter **`release pnc`**

Upgrading TN574 DS1CONV Circuit Packs in a Fiber-Link to TN1654s —Simplex PNC

Use these steps for a simplex PNC.

WARNING:
Do not power down a Switch Node carrier to replace a circuit pack.

WARNING:
Replacing a Switch Node Interface, Switch Node Clock, Expansion Interface or DS1
Converter circuit pack on a simplex system disrupts service. The service effect can range from outage of a single EPN to outage of the entire system.

WARNING:
A DS1 Converter Complex must consist of two TN574 boards or two TN1654 boards. A TN574 cannot be combined with a TN1654 in the same DS1CONV Complex.

WARNING:
The two DS1CONV boards, TN1654 and TN574, use unique “Y” cables that are incompatible with each other.

WARNING:
A TN573B or later suffix board must be used when connecting a SNI board to a TN1654 DS1 Converter board.

Follow these steps to upgrade to the TN1654 DS1CONV Circuit Pack

1. Log onto the system, and be sure to answer **`y`** to the *Suppress Alarm Origination* question during login.
2. Enter **`list fiber-link`**

   Determine the fiber-link number associated with the two TN574 circuit packs to be upgraded.

3. Enter **busyout fiber-link** [**fiber #**]

   where *fiber #* represents the fiber-link number associated with the TN574 DS1CONV Complex that is being upgraded to a TN1654 DS1CONV Complex.

   NOTE:
   Make note of the administration of these fibers, as you must re-enter it later.

4. Enter **remove fiber-link** [**fiber #**]
5. Remove the TN574 DS1CONV circuit packs from the system.
6. Replace the TN574 Y-cables with appropriate TN1654 Y-cables. One of the three following cable comcodes must be used:
   - 847245750
   - 847245768
   - 847245776
7. Replace the removed TN574 DS1CONV circuit packs with TN1654 DS1CONV circuit packs. Prior to installing the TN1654 boards, review the prior section, *TN1654 Board Configuration Switch Settings*.

   If a TN1654 DS1CONV board is connected to an SNI board, upgrade the SNI to a TN573B or greater.
8. Wait for the circuit packs to reset.

   Red and green LEDs will light and then go out.
9. Enter **change circuit-packs** [**cabinet #**]. Update the form to show that TN1654 boards are now being used instead of TN574 boards. Also update the connected SNI, if applicable, to suffix B.

   where *cabinet #* represents the cabinet associated with a DS1CONV board. The appropriate *change circuit-packs* form needs to be updated for both DS1CONV boards. Also, if needed, re-add translations for connected EI boards.
10. Enter **add fiber-link** [**fiber #**] to re-add the fiber-link using TN1654 DS1CONV circuit packs. See the *Definity Enterprise Communication Server Release 5 Implementation Manual*, for details on TN1654 administration.

    where *fiber #* represents the fiber-link number associated with the TN574 DS1CONV Complex that is being upgraded to a TN1654 DS1CONV Complex.
11. Enter **test alarms long clear** for category *exp-intf.*
12. Wait 5 minutes for SNI-BD, FIBER-LK AND DS1C-BD alarms to clear, or enter **clear firmware-counters a-pnc**

WARNING:
A TN573B or later suffix board must be used when connecting a SNI board to a TN1654 DS1 Converter board.

Upgrading TN574 DS1CONV Circuit Packs in a Fiber-link to TN1654s—Duplicated PNC

Follow the steps in this section for a duplicated PNC.

WARNING:
Do not power down a Switch Node carrier to replace a circuit pack.

WARNING:
In duplicated PNC configurations, one DS1CONV complex in the fiber-link serves as the active and the second DS1CONV complex serves as the standby. Each DS1 Converter Complex consists of two TN574 boards or two TN1654 boards. A TN574 cannot be combined with a TN1654 in the same DS1CONV Complex. It is also required that all four DS1CONV boards and interconnecting facilities that serve an EPN be of the same type. Note, however, that TN574 and TN1654 boards can coexist within the same system, they just cannot be in the same fiber-link.

WARNING:
The two DS1CONV boards, TN1654 and TN574, use unique "Y" cables that are incompatible with each other.

WARNING:
A TN573B or later suffix board must be used when connecting a SNI board to a TN1654 DS1 Converter board.

Follow these steps:

1. Log onto the system, and be sure to answer **y** to the *Suppress Alarm Origination* question during login.
2. Enter **status pnc**
3. Verify that the A-PNC is active. If the B-PNC is active, enter the **reset pnc interchange** command to cause the A-PNC to go active.
4. Enter **busyout pnc-standby**

   Fiber link can not be removed if PNC duplication is operational. Busyout the standby PNC first.
5. Enter **change system-parameters duplication**. Change the *Enable Operation of PNC Duplication?* field to *n*.

   Disable PNC duplication.
6. Enter **list fiber-link**

   Determine the fiber-link number associated with the four TN574 circuit packs to be upgraded.
7. Enter **busyout fiber-link** [***fiber #***]

   where *fiber #* represents the fiber-link number associated with the TN574 DS1CONV Complexes that are being upgraded to TN1654 DS1CONV Complexes.

   NOTE:
   Make note of the administration of these fibers, as you must re-enter it later.
8. Enter **remove fiber-link** [**fiber #**]
9. Remove the TN574 DS1CONV circuit packs from both the PNC and the EPN.
10. Replace the TN574 Y-cables with appropriate TN1654 Y-cables. One of the three following cable comcodes must be used:
    - 847245750
    - 847245768
    - 847245776
11. Replace the removed TN574 DS1CONV circuit packs with TN1654 DS1CONV circuit packs. Prior to installing the TN1654 boards, review the prior section, *TN1654 Board Configuration Switch Settings*.
12. If a TN1654 DS1CONV board is connected to an SNI board, upgrade the SNI to a TN573B or greater.
13. Wait for the circuit packs to reset.

    Red and green LEDs will light and then go out.

14. Enter **change circuit-packs** [**cabinet #**]. Update the form to show that TN1654 boards are now being used instead of TN574 boards. Also update the connected SNI, if applicable, to suffix B.

    where *cabinet #* represents the cabinet associated with a DS1CONV board. The appropriate *change circuit-packs* form needs to be updated for all four DS1CONV boards. Also, if needed, re-add translations for connected EI boards.

15. Enter **change system-parameters duplication**. Change the *Enable Operation of PNC Duplication?* field to *y*.

    Enable PNC duplication.

16. Enter **add fiber-link** [**fiber #**] to re-add the fiber-link using TN1654 DS1CONV circuit packs. See the *Definity Enterprise Communication Server Release 5 Implementation Manual*, for details on TN1654 administration.

    where *fiber #* represents the fiber-link number associated with the TN574 DS1CONV Complexes that are being upgraded to TN1654 DS1CONV Complexes.

17. Enter **test alarms long clear** for category *exp-intf*.

18. Wait 5 minutes for SNI-BD, SNI-PEER, FIBER-LK and DS1C-BD alarms to clear, or enter **clear-firmware counters** [**a-pnc** | **b-pnc**].

19. Enter **status pnc**

    If either PNC State of Health is not “functional”, consult the PNC-DUP section of the *DEFINITY Enterprise Communications System Release 5 Maintenance for R5r Manual*.

WARNING:
A TN573B or later suffix board must be used when connecting a SNI board to a TN1654 DS1 Converter board.

Circuit Packs and Equipment

5

Circuit Packs in DEFINITY

Table 5-1 lists the circuit packs sorted by apparatus code, including circuit packs used in non-US installations. For more information on the circuit packs and other equipment related to DEFINITY ECS, refer to the *DEFINITY Enterprise Communications Server System Description and Specifications*.

Table 5-1. Circuit Packs and Circuit Modules

Apparatus Code	Name	Type
631DA1	AC Power Unit	Power
631DB1	AC Power Unit	Power
644A1	DC Power Unit	Power
645B1	DC Power Unit	Power
649A	DC Power Converter	Power
676B	DC Power Supply	Power
982LS	Current Limiter	Power
CFY1B	Current Limiter	Power
CPP1	Memory Expansion	Control

Continued on next page

Table 5-1. Circuit Packs and Circuit Modules — *Continued*

Apparatus Code	Name	Type
ED-1E546 (TN2169) (TN2170) (TN566) (TN567)	DEFINITY AUDIX R3 System	Port Assembly
ED-1E546 (TN2208) (TN2170)	Call Visor ASAI over the DEFINITY (LAN) Gateway R1	Port Assembly
TN417	Auxiliary Trunk	Port
TN419B	Tone-Clock	Control
TN420B/C	Tone Detector	Service
TN429	Direct Inward/Outward Dialing (DIOD) Trunk	Port
TN433	Speech Synthesizer	Service
TN436B	Direct Inward Dialing Trunk	Port
TN437	Tie Trunk	Port
TN438B	Central Office Trunk	Port
TN439	Tie Trunk	Port
TN447	Central Office Trunk	Port
TN457	Speech Synthesizer	Service
TN458	Tie Trunk	Port
TN459B	Direct Inward Dialing Trunk	Port
TN464C/ D/E/ F	DS1/E1 Interface - T1, 24 Channel - E1, 32 Channel	Port
TN465/B/C	Central Office Trunk	Port
TN467	Analog Line	Port
TN468B	Analog Line	Port
TN479	Analog Line	Port
TN497	Tie Trunk	Port
TN553	Packet Data Line	Port
TN556/B	ISDN-BRI 4-Wire S/T-NT Line (A-Law)	Port
TN570/B/C	Expansion Interface	Port
TN572	Switch Node Clock	Control
TN573/B	Switch Node Interface	Control

Continued on next page

Table 5-1. Circuit Packs and Circuit Modules — *Continued*

Apparatus Code	Name	Type
TN574	DS1 Converter - T1, 24 Channel	Port
TN577	Packet Gateway	Port
TN722B	Digital Signal Level 1 Tie Trunk	Port
TN725B	Speech Synthesizer	Service
TN726/B	Data Line	Port
TN735	MET Line	Port
TN742	Analog Line	Port
TN744/B	Call Classifier	Service
TN744/C/D	Call Classifier - Detector	Service
TN746/B	Analog Line	Port
TN747B	Central Office Trunk	Port
TN748/B/C/D	Tone Detector	Service
TN750/B/C	Announcement	Service
TN753	Direct Inward Dialing Trunk	Port
TN754/B	Digital Line 4-Wire DCP	Port
TN755B	Neon Power Unit	Power
TN756	Tone Detector	Service
TN758	Pooled Modem	Port
TN760B/C/D	Tie Trunk	Port
TN762B	Hybrid Line	Port
TN763B/C/D	Auxiliary Trunk	Port
TN765	Processor Interface	Control
TN767B/C/D/E	DS1 Interface - T1, 24 Channel	Port
TN768	Tone-Clock	Control
TN769	Analog Line	Port
TN771D	Maintenance/Test	Service
TN772	Duplication Interface	Control
TN773	Processor	Control
TN775/B	Maintenance	Service
TN776	Expansion Interface	Port

Continued on next page

Table 5-1. Circuit Packs and Circuit Modules — *Continued*

Apparatus Code	Name	Type
TN777/B	Network Control	Control
TN778	Packet Control	Control
TN780	Tone-Clock	Control
TN786	Processor	Control
TN786B	Processor	Control
TN789	Radio Controller	Control
TN790	Processor	Control
TN1648	System Access/Maintenance	Control
TN1650B	Memory	Control
TN1654	DS1 Converter - T1, 24 Channel/E1, 32 Channel	Port
TN1655	Packet Interface	Control
TN1656	Tape Drive	Control
TN1657	Disk Drive	Control
TN2135	Analog Line	Port
TN2136	Digital Line 2-Wire DCP	Port
TN2138	Central Office Trunk	Port
TN2139	Direct Inward Dialing Trunk	Port
TN2140/B	Tie Trunk	Port
TN2144	Analog Line	Port
TN2146	Direct Inward Dialing Trunk	Port
TN2147/C	Central Office Trunk	Port
TN2149	Analog Line	Port
TN2180	Analog Line	Port
TN2181	Digital Line 2-Wire DCP	Port
TN2182/B	Tone-Clock -Tone Detector and Call Classifier	Control
TN2183	Analog Line	Port
TN2184	DIOD Trunk	Port
TN2198	ISDN-BRI 2-Wire U Interface	Port
TN2199	Central Office Trunk	Port
TN2202	Ring Generator	Power

Continued on next page

Table 5-1. Circuit Packs and Circuit Modules — *Continued*

Apparatus Code	Name	Type
TN2224	Digital Line, 24-Port, 2-Wire DCP	Port
UN330B	Duplication Interface	Control
UN331B	Processor	Control
UN332	Mass Storage/Network Control	Control
WP-90510	AC Power Supply (Compact Single-Carrier Cabinet)	Power
WP-91153	AC Power Supply (Single-Carrier Cabinet)	Power

Abbreviations

A

AA
Archangel

AAC
ATM Access Concentrator

AAR
Automatic Alternate Routing

AC
Alternating Current

ACA
Automatic Circuit Assurance

ACB
Automatic Callback

ACD
Automatic Call Distribution

ACU
Automatic Call Unit

ACW
After Call Work

AD
Abbreviated Dialing

ADAP
AUDIX Data Acquisition Package

ADM
Asynchronous Data Module

ADU
Asynchronous Data Unit

AE
Access Endpoint

AG
ASAI Gateway

AIM
Asynchronous Interface Module

AIOD
Automatic Identification of Outward Dialing

ALBO
Automatic Line Build Out

ALM-ACK
Alarm Acknowledge

AMW
Automatic Message Waiting

AN
Analog

ANI
Automatic Number Identification

AOL
Attendant Offered Load

AP
Applications Processor

APLT
Advanced Private Line Termination

ARS
Automatic Route Selection

ASAI
Adjunct Switch Applications Interface

ASCII
American Standard Code for Information Interchange

ATB
All Trunks Busy

ATD
Attention Dial

ATM
Asynchronous Transfer Mode

AUDIX
Audio Information Exchange

AUX
Auxiliary

AVD
Alternate Voice/Data

AWOH
Administration Without Hardware

AWT
Average Work Time

B

BCC
Bearer Capability Class

BCMS
Basic Call Management System

BCT
Business Communications Terminal

BER
Bit Error Rate

BHCC
Busy Hour Call Completions

BLF
Busy Lamp Field

BN
Billing Number

BOS
Bit Oriented Signaling

BPN
Billed Party Number

BPS
Bits Per Second

BRI
Basic Rate Interface

BTU
British Thermal Unit

B8ZS
Bipolar Eight Zero Substitution

C

CA-TSC
Call-Associated Temporary Signaling Connection

CACR
Cancellation of Authorization Code Request

CAG
Coverage Answer Group

CAMA
Centralized Automatic Message Accounting

CARR-POW
Carrier Port and Power Unit for AC Powered Systems

CAS
Centralized Attendant Service or Call Accounting System

CBC
Call-By-Call or Coupled Bonding Conductor

CC
Country Code

CCIS
Common Channel Interoffice Signaling

CCITT
Consultative Committee for International Telephone and Telegraph

CCMS
Control Channel Message Set

CCS
Centum (Hundred) Call Seconds

CCSA
Common Control Switching Arrangement

CDM
Channel Division Multiplexing

CDOS
Customer-Dialed and Operator Serviced

CDR
Call Detail Recording

CDRP
Call Detail Record Poller

CDRR
Call Detail Recording and Reporting

CDRU
Call Detail Recording Utilities

CEM
Channel Expansion Multiplexing

CEPT1
European Conference of Postal and Telecommunications Rate 1

CI
Clock Input

CISPR
International Special Commitee on Radio Interference

cm
Centimeter

CM
Connection Manager

CMDR
Centralized Message Detail Recording

CMS
Call Management System

CO
Central Office

COR
Class of Restriction

COS
Class of Service

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

CSA
Canadian Safety Association

CSCC
Compact Single Carrier Cabinet

CSCN
Center Stage Control Network

CSD
Customer Service Document

CSM
Centralized System Management

CSS
Center Stage Switch

CSSO
Customer Services Support Organization

CSU
Channel Service Unit

CTS
Clear to Send

CWC
Call Work Codes

D

DAC
Dial Access Code or Direct Agent Calling

dB
Decibel

dBA
Decibels in reference to Amperes

dBrnC
Decibels above reference noise with C filter

DC
Direct Current

DCE
Data Communications Equipment

DCO
Digital Central Office

DCP
Digital Communications Protocol

DCS
Distributed Communications System

DDC
Direct Department Calling

DDD
Direct Distance Dialed

DID
Direct Inward Dialed

DIOD
Direct Inward and Outward Dialing

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

DOSS
Delivery Operations Support System

DOT
Duplication Option Terminal

DPM
Dial Plan Manager

DPR
Dual Port RAM

DS1
Data Signal Level 1

DS1C
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 Multi-Frequency

DTS
Disk Tape System

DXS
Direct Extension Selection

E

E & M
Ear and Mouth (receive and transmit)

EAA
Expansion Archangel

EAL
Expansion Archangel Link

EBCDIC
Extended Binary-Coded Decimal Interexchange Code

ECC
Error Correct Code

ECMA
European Computer Manufacturers Association

EFP
Electronic Power Feed

EI
Expansion Interface

EIA
Electronic Industries Association

EMI
Electro-Magnetic Interference

EPN
Expansion Port Network

EPROM
Erasable Programmable Read Only Memory

EPSCS
Enhanced Private Switched Communications Services

ERL
Echo Return Loss

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

F

FAC
Feature Access Code

FAS
Facility-Associated Signaling

FAT
Facility Access Trunk

FAX
Facsimile

FCC
Federal Communications Commission

FEAC
Forced Entry of Account Codes

FEP
Front End Processor

FIC
Facility Interface Codes

FNPA
Foreign Numbering-Plan 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)

GM
Group Manager

GPTR
General-Purpose Tone Receiver

GRS
Generalized Route Selection

H

HNPA
Home Numbering Plan Area Code

Hz
Hertz

I

IAS
Inter-PBX Attendant Service

IC
Inter-Cabinet

ICC
Intercarrier Cable

ICD
Inbound Call Director

ICDOS
International Customer Dialed Operator Serviced

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

IMT
Intermachine Trunk

in
Inch

INADS
Initialization and Administration System

INS
ISDN Network Service

INWATS
Inward Wide Area Telephone Service

IO
Information Outlet

ISDN
Integrated Services Digital Network

IS/DTT
Integrated Services/Digital Tie Trunk

ISN
Information Systems Network

ISO
International Standards Organization

ISV
Independent Software Vendor

ITP
Installation Test Procedures

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 Build Out

LDN
Listed Directory Number

LDS
Long-Distance Service

LEC
Local Exchange Carrier

LED
Light Emitting Diode

LINL
Local Indirect Neighbor Link

LOFC

LSU
Local Storage Unit

LWC
Leave Word Calling

M

MAC
Medium Access

M-Bus
Memory Bus

MA-UUI
Message Associated User-to-User Signaling

MADU
Modular Asynchronous Data Unit

MAP
Maintenance Action Process

MAPD
Multiapplication Platform for DEFINITY

Mbps
Megabits Per Second

MCC
Multi-Carrier 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

MET
Multibutton Electronic Telephone

MF
Multi-Frequency

MFB
Multifunction Board

MFC
Multi-Frequency Code

MHz
Megahertz

MIM
Management Information Message

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

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

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
Multi-Tasking Terminal

MWL
Message Waiting Lamp

Mbps
Megabits Per Second

Mbyte
Megabytes

N

NANP
North American Numbering Plan

NAU
Network Access Unit

NCA/TSC
Non-Call Associate/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 Connection Circuit Pack

NFAS
Non-Facility Associated Signaling

NI
Network Interface

NID
Network Inward Dialing

NM
Network Management

NN
National Number

NPA
Numbering Plan Area

NPE
Network Processing Element

NQC
Number of Queued Calls

NSE
Night Service Extension

NSU
Network Sharing Unit

NXX
Public Network Office Code

O

OA
Operator Assisted

OCM
Outbound Call Management

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

OTQ
Outgoing Trunk Queuing

P

PACCON
Packet Control

PAD
Packet Assembly/Disassembly

PBX
Private Branch Exchange

PC
Personal Computer

PCM
Pulse Code Modulation

PCOL
Personal Central Office Line

PCOLG
Personal Central Office Line Group

PCS
Permanent Switched Calls

PDM
Processor Data Module

PDS
Premises Distribution System

PE
Processing Element

PEC
Price Element Codes

PEI
Processor Element Interchange

PGATE
Packet Gateway

PGN
Partitioned Group Number

PI
Processor Interface

PIB
Processor Interface Board

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

PPM
Parts Per Million, or Periodic Pulse Metering

PPN
Processor Port Network

PRI
Primary Rate Interface

PROCR
Processor

PSC
Premises Service Consultant

PSDN
Packet Switch Public Data Network

PT
Personal Terminal

PTC
Positive Temperature Coefficient

PTT
Postal Telephone and Telegraph

R

RAM
Random Access Memory

RBS
Robbed-Bit Signaling

RC
Radio Controller

RCL
Restricted Call List

REN
Ringer Equivalency Number

RFP
Request For Proposal

RHNPA
Remote Home Numbering Plan Area

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
Read-Only Memory

RPN
Routing Plan Number

RS-232C
Recommended Standard 232C

RS-449
Recommended Standard 449

RSC
Regional Support Center

S

SABM
Set Asynchronous Balance Mode

SAC
Send All Calls

SAKI
Sanity and Control Interface

SAT
System Access Terminal

SCC
Single Carrier Cabinet or 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
Small Computer System Interface

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

SIT
Special Information Tones

SMDR
Station Message Detail Recording

SN
Switch Node

SNA
Systems Network Architecture

SNC
Switch Node Clock

SNI
Switch Node Interface

SPE
Switch Processing Element

SPID
Service Profile Identifier

SSI
Standard Serial Interface

SSM
Single Site Management

SSV
Station Service

ST3
Stratum 3 Clock Board

STARLAN
Star-Based Local Area Network

SVN
Security Violation Notification

SXS
Step-by-Step

SYSAM
System Access and Administration

T

TAAS
Trunk Answer from Any Station

TABS
Telemetry Asynchronous Block Serial

TAC
Trunk Access Code

TC
Technical Consultant

TCM
Traveling Class Mark

TDM
Time Division Multiplex(ing)

TDR
Time of Day Routing

TEG
Terminating Extension Group

TEI
Terminal Endpoint Identifier

TOD
Time of Day

TOP
Task Oriented Protocol

TSC
Technical Service Center

TTR
Touch-Tone Receiver

TTT
Terminating Trunk Transmission

TTTN
Tandem Tie Trunk Network

TTY
Teletypewriter

U

UAP
Usage Allocation Plan

UART
Universal Asynchronous Transmitter

UAS

UCD
Uniform Call Distribution

UCL
Unrestricted Call List

UDP
Uniform Dial Plan

UL
Underwriter Laboratories

UM
User Manager

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
Vector Directory Number

VIS
Voice Information System

VLSI
Very Large Scale Integration

VM
Voltmeter

VNI
Virtual Nodepoint Identifier

W

WATS
Wide Area Telecommunications Service

WCC
World Class Core

WCR
World Class Routing

WCTD
World Class Tone Detection

WFB
Wireless Fixed Base

WSA
Waiting Session Accept

WSS
Wireless Subscriber System

Z

ZCS
Zero Code Suppression

Glossary

Numerics

3B2 Message Server
An AT&T software application that combines voice and data messaging services for voice terminal users whose extensions are connected to a G3 switch.

800 service
A service in the United States that allows incoming calls from a certain area or areas to an assigned number for a flat-rate charge based on usage.

A

abandoned call
An incoming call, where the caller hangs up before being answered.

access code
A 1-, 2-, or 3-digit dial code used to activate or cancel a feature, or access an outgoing trunk. The star (*) and pound (#) can be used as the first digit of an access code.

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."

ACCUNET
A trademarked name for a family of digital services offered by AT&T in the USA.

ACD
See **Automatic Call Distribution**. ACD also refers to the "Work State" indicating that the agent is on an ACD call.

ACD split (or split)
A group of extensions that are staffed by agents trained to handle a certain type of incoming call. Valid split numbers range from 1~through 99. Each number identifies a unique grouping of ACD agent positions. ACD split is also referred to as an *ACD hunt group* or *hunt group*.

ACD work modes
See **work modes**.

active-notification association
A "link" that is initiated by the adjunct allowing it to receive Event Reports for a specific switch entity, for example, an outgoing call. This association is initiated by the adjunct via the *Event Notification Request* capability.

active-notification call
A call for which Event Reports are being sent over an active-notification association (communication channel) to the adjunct. Sometimes referred to as a monitored call.

active notification domains
Domains are VDNs and ACD split extensions for which Event Notification has been requested.

adjunct-control association
A relationship initiated by an application via the *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 calls
Include all the calls that can be controlled using an adjunct-control association. These calls must have been originated via the *Third Party Make Call* or *Domain (Station) Control* capabilities or must have been taken control of via the *Third Party Take Control* or *Domain (Station) Control* capabilities.

adjunct-controlled splits
ACD splits administered to be under adjunct control. Agents logged into such splits must do all telephony and ACD login and/or logout and change work mode functions through the adjunct (except for auto-available adjunct controlled splits, whose agents may not be logged in and/or logged out or have their work modes changed).

adjunct-monitored calls
Include all the adjunct-controlled calls and the active-notification calls. In addition it includes calls which provide event reporting over domain-control associations.

ANSI
The **American National Standards Institute.** This is a United States professional/technical association supporting a variety of statndards.

adjunct
A processor that does one or more tasks for another processor and that is optional in the configuration of the other processor.

adjunct-switch application interface (ASAI)
An AT&T recommendation for interfacing adjuncts and communications systems, based on the CCITT Q.932 specification for layer 3.

administer
To access and change parameters associated with the services or features of a system.

Administered Connection (AC)
Administered Connection is 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 terminal
A terminal used to administer and maintain a system. See also **terminal**.

Administration Without Hardware (AWOH)
Provides the ability to administer ports without the need for the associated terminals or other hardware to be physically present.

after call work (ACW) mode
In this mode, agents are unavailable to receive ACD calls. Agents should enter the ACW mode to perform ACD-related activities such as filling out a form after an ACD call. If agents are in the Manual-In mode and disconnect from an ACD call, they automatically enter the ACW mode. Agents normally using Auto-In mode can enter the ACW state by depressing the ACW button while on a call.

agent (or ACD agent)
An answering position who receives calls directed to a split. A member of an ACD hunt group (ACD split).

agents in multiple splits
An agent may be logged into more than one split (three maximum). If, while logged into more than one split, the agent (1) answers an ACD call, (2) is in ACW mode for any split, or (3) makes or receives a direct extension call, the switch will not distribute additional ACD calls to that agent.

agent report
Provides historical traffic information for internally measured agents.

American National Standard Code for Information Interchange
See **ASCII**.

analog
The representation of information by means of continuously variable physical quantities such as amplitude, frequency, and phase.

analog data
Data that is transmitted over a digital facility in analog (pulse code modulation) 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**.

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. See also **archange**l.

answerback code
An assigned number used to respond to a page from a code-calling or loudspeaker-paging system, or to retrieve a parked call.

appearance
A software process that is associated with an extension and whose purpose is to supervise a call. Also called ‘‘call appearance,’’ ‘‘line appearance,’’ and ‘‘occurrence.’’

application
Refers to an adjunct entity 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
Amicro-icomputer 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.

architecture
The organizational structure of a system, including hardware and/or software.

ARS
See **Automatic Route Selection**.

ASCII (American National Standard Code for Information Interchange)
The standard code, using a coded character set consisting of 7-bit coded characters (eight bits, including parity check), used for information interchange among data processing systems, data communications systems, and associated equipment. The ASCII set consists of control characters and graphic characters.

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**.

association
An association is a communication channel between the adjunct and switch for messaging purposes. An active association is one which applies to an existing call on the switch or to an extension on the call.

asynchronous data unit (ADU)
A data communications equipment (DCE) type device that allows direct connection between RS-232C equipment and a digital switch.

attendant
A person at a console on a customer's premises who provides personalized service for incoming callers and voice-services users by performing switching and signaling operations. See also attendant console.

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**.

Audio Information Exchange (AUDIX)
A fully integrated voice-mail system that can be used with a variety of communications systems to provide call-history data, such as subscriber identification and reason for redirection.

auto-in trunk groups
Those trunk groups where the CO processes all of the digits for the incoming call. Whenever the switch determines that the CO has seized a trunk from an Auto-In trunk group, it automatically (without processing any digits) connects the trunk to the destination. The destination will typically be an ACD split where(emif there are no agents available(emthe call will go into a queue in which the callers wait to be answered in the order in which they arrived.

auto-in work mode
One of four agent work modes. The work mode where an agent indicates, to the system, that the agent is ready to process another call as soon as the current call is completed. Specifically, if an agent disconnects from an ACD call while in Auto-in Work Mode, then that agent immediately becomes available to receive another ACD call. *See* **Manual-In Work Mode** for a contrast.

Automatic Call Distribution (ACD) split
Calls of a similar type are distributed among agents.

automatic trunk
A trunk that does not require the sending or receiving of 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."

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). This restoration is done within seconds of a service disruption so that critical data applications can remain operational.

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
In this mode, agents are unavailable to receive ACD calls. Agents should enter aux-work mode when involved in non-ACD activities such as taking a break, going to lunch, or placing an outgoing call.

When agents log in, they are automatically placed in the Aux-Work mode. They can then use the Auto-In or Manual-In feature to make themselves available to answer the first call.

Also, the last available agent in a split cannot enter the aux-work mode if any ACD calls are remaining in the queue. If the last available agent attempts to enter aux-work mode, the following occurs: (1) Calls in the queue are routed to the agent until the queue is empty (2) If the last available agent has an aux-work button, the light next to the button flashes until all calls in the queue are answered. When the last call is answered, the light next to the button goes on steadily, and the agent then enters aux-work mode.

B

bandwidth
The difference, expressed in Hertz, between the defined highest and lowest frequencies in a frequency range.

barrier code
A security code used with the Remote Access feature to prevent unauthorized access to the system.

baud
In telecommunications applications, a unit of transmission speed equal to the number of signal events per second. See also **bit rate** and **bits per second**.

BCC
The Bearer Capability Class (BCC) identifies the type of a call, for example, voice and different types of data. Determination of BCC is based on the call originator'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
- 6: Wideband Call, 128 to 1984 kbps synchronous data

bit (binary digit)
One unit of information in binary notation having two possible states or 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**.

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.

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 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)
An integrated digital data terminal used for business applications. A BCT can function via a digital terminal data module (DTDM) or a processor data module (PDM) as a special-purpose terminal for services provided by an applications processor (AP) or, as a terminal for data entry and retrieval.

BX.25
An AT&T 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 International Standards Organization (ISO) reference model.

bypass tie trunks
A one-way, outgoing tie trunk from a tandem switch to a main switch in an electronic tandem network (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

cabinet
Housing for racks, shelves, or carriers that hold electronic equipment.

cable
The physical connection between two pieces of equipment (em for example, cable from a data terminal to a modem (em or between a piece of equipment and a termination field (em for example, circuit pack I/O cables.

cable connector
A cable connector is either 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.

call appearance, attendant console
Six buttons, labeled ‘‘a’’ through ‘‘f,’’ and used to originate, receive, and hold calls. Each button has two lights to show the status of the call appearance.

call appearance, voice terminal
A button labeled with an extension number 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 or the status of the call.

call control capabilities
Call control capabilities are all the 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
A switch feature that utilizes software and hardware to record call data (same as CDRU).

call detail recording utility (CDRU)
Applications software that collects, stores, optionally filters, and outputs call detail records for direct or polled output to peripheral devices.

call management system (CMS)
An application, running on an adjunct processor, that collects information from an Automatic Call Distribution (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 vector directory numbers (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 serves to associate a related sequence of messages. In ASAI, the 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 is automatically returned 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~second (in the United States). A call-waiting ringback tone notifies the attendant that the Attendant Call Waiting feature has been activated and that the called user is aware of the waiting call. Tones in international countries may sound different.

call work code
A number, up to 16 digits, entered by Automatic Call Distribution (ACD) agents to record the occurrence of customer-defined events (such as account codes, social security numbers, or phone numbers) on ACD calls.

carrier
An enclosed shelf containing vertical slots that hold circuit packs.

carried load
The amount of traffic actually served by traffic-sensitive facilities during a given interval.

CCS or hundred call seconds
A unit of traffic measure that is used to determine usage. In order to determine usage for a facility, it is scanned every 100 seconds. If the facility is found busy, then 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 as 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 capability is a either a request or indication of an operation. For example, a *Third Party Make Call* is a request for setting-up a call and an *Event Report* is an indication that an event has occurred.

capability groups
Capability groups are sets of capabilities, provisioned through switch administration, that can be requested by an application. Each capability group may contain capabilities from several capability groups. Capability groups are also referred to, in other documentation, as administration groups or Application Service Elements (ASEs). Capability groups denote association types. For example, *Call Control* is a type of association which allows certain functions (the ones in the capability group) to be performed over this type of association.

cause value
A Cause Value is returned in responses to requests or in event reports when a denial occurs or an unexpected condition is encountered. 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, and, 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. For example, CS0/100 is coding standard 0, cause value 100.

CCITT
CCITT (Comitte Consultatif International Telephonique et Telegraphique) is now called *International Telecommunications Union* (ITU). See this name for information.

center stage switch (CSS)
The central interface between the processor port network (PPN) and expansion port networks (EPNs) 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 USA. CO codes are numbered from 200 through 999.

central office (CO) trunk
A telecommunications channel that provides access from the system to the public network through the local CO.

channel
The term channel is nonspecific and must be taken in context. Channel can refer to a circuit-switched call or a communications path for transmitting voice and/or data.

In wideband, a channel refers to all of the time slots necessary to support a call. For example, an H0-channel uses six 64 kbps time slots. This definition of channel is the same whether the time slots necessary to support the call are contiguous or noncontiguous.

Channel can also refer to a DS0 on a T1 or E1 facility not specifically associated with a logical circuit-switched call. In this context, a channel is analogous to a single trunk.

channel negotiation
Channel negotiation is 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 receiving the SETUP message and ultimately to the switch that sent the SETUP. Negotiation will only be attempted if the CIIE is encoded as *Preferred*. Channel negotiation will not be attempted for wideband calls.

circuit
(1) An arrangement of electrical elements through which electric current flows, providing one or more specific functions. (2) A channel or transmission path between two or more points.

circuit pack
A card on which electrical circuits are printed, and integrated circuit (IC) chips and electrical components are installed. A circuit pack is installed in a switch carrier.

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 (0 through 15) to specify if voice terminal users can activate the Automatic Callback, Call Forwarding—All Calls, Data Privacy, or Priority Calling features.

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/or keyboard characters and makes the proper interconnections 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 actual connections. A communications system provides voice and/or 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 a feature activation, deactivation, or cancellation has been accepted.

connectivity
The connection of disparate devices within a single system.

console
See **attendant console**.

contiguous
Contiguous, which is a wideband term, refers to adjacent DS0s within one T1 or E1 facility or adjacent TDM or fiber time slots. Note that 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 Multi-Carrier Cabinet that contains the switch processing element (SPE) circuit packs and, unlike a G3r control carrier, port circuit packs. Also called ''control cabinet'' in a single-carrier cabinet. See also **switch processing element**.

controlled station
A station that is being monitored and controlled via a domain-control association.

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 number 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, vector directory number (VDN), or Automatic Call Distribution (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.

critical reliability system
A system that has the following duplicated items: control carriers, tone-clock circuit packs, expansion interface (EI) circuit packs, and cabling between port networks (PNs) and center stage switch (CSS) in a CSS-connected system. See also **duplicated common control**, **duplicate processor-only system**, and **duplication**.

D

data channel
A communications path between two points used to transmit digital signals.

data communications equipment (DCE)
The equipment (em usually a modem, data module, or packet assembler/disassembler (em on the network side of a communications link that provides the functions to make 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 basic rate interface (BRI) or digital communications protocol (DCP) interface of the switch and data terminal equipment (DTE) or data communications equipment (DCE).

data path
The end-to-end connection used for a data-communications link. A data path is the combination of all the elements of an interprocessor communication in a distributed communications system (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 designed to transmit 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 an applications processor (AP).

data terminal equipment (DTE)
Equipment consisting of the endpoints in a connection over a data circuit. For example, in a connection between a data terminal and a host, the terminal, the host, and their associated modems or data modules make up the DTE. DTE usually consists of the following functional units: control logic, buffer store, and one or more input or output devices or computers. DTE can contain error control, synchronization, and telephone-identification capabilities.

D-channel backup
D-channel backup is used with Non-Facility Associated Signaling (NFAS). With D-channel backup, a primary D-channel provides signaling for an NFAS D-channel group (two or more PRIs facilities). A second (redundant) D-channel, located on a separate PRI facility of the NFAS D-channel group is designated as backup for the D-channel. The failure of the primary D-channel causes an automatic transfer of call-control signaling to the backup D-channel. When this happens, the backup becomes the primary D-channel, and when the previous primary is returned to service it becomes the backup D-channel.

delay-dial trunk
A trunk that allows dialing directly into a communications system (em that is, the digits are received as they are dialed.

denying a request
Denying a Request is the same as sending a negative acknowledgement (NAK), and is done by sending an Facility Information Element (FIE) with a *return error* component (a cause value is also provided). It should not be confused with the ‘‘denial’’ event report which applies to calls.

designated voice terminal
The specific voice terminal to which calls, originally directed to a certain extension number, are redirected. Commonly used to mean the ‘‘forwarded-to’’ terminal when Call Forwarding All Calls is active.

dial-repeating tie trunk
A tie trunk that transmits called-party addressing information between two communications systems.

digit conversion
A process used to convert specific dialed numbers into other dialed numbers.

digital communications protocol (DCP)
An AT&T 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 data endpoints
In G3iV2, digital data endpoints include 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 digital signal level-1 (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 micro-seconds.

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 processor data module (PDM) and modular processor data module (MPDM) in that it converts RS232C signals to DCP signals.

digital-to-analog converter
A device that converts data in digital form to the corresponding analog signals. See also **analog-to-digital converter**.

digital transmission
A mode of transmission in which the information to be transmitted is first converted to digital form and then transmitted as a serial stream of pulses.

digital trunk
A circuit in that carries digital voice and/or digital data in a telecommunications channel.

dial-repeating trunks
A PBX tie trunk that is capable of handling PBX station signaling information without attendant assistance.

direct agent
A switch feature accessed only via Adjunct Switch Applications Interface (ASAI) which allows a call to be placed in a split queue but routed only to a specific agent in that split. This allows a call to receive normal ACD call treatment (for example, announcements) and to be 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. DID calls to DID-restricted telephone lines are routed to an attendant or recorded announcement, depending on the option selected.

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.

domain
Available domains are VDNs, ACD splits, and stations. The VDN domain is only used for active-notification associations, the station domain is only used for the domain-control associations. The ACD-split domain is for active-notification associations and 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 active on a call which provides event reports over one or two domain-control associations.

duplicated common control
Two processors ensuring continuous operation of a communications system. While one processor is on-line, the other functions as a backup. The backup processor goes on-line periodically or when a problem condition 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:

1. Control carrier containing the Switch Processing Element (SPE)
2. Expansion interface (EI) circuit packs in carriers
3. Fiber optic cabling between Port Networks (PNs)
4. Center-Stage Switch (CSS) in a CSS-connected system

E

E1
A digital transmission standard that carries traffic at the rate of 2.048 Mbps. The E1 facility is divided into 32 channels (DS0s) of 64 kbps information numbered from 0~to 31. Channel 0 is reserved for framing and synchronization information. When a D-channel is present, it occupies channel 16.

ear and mouth (E & M) signaling
Trunk supervisory signaling, used between two communications systems, whereby signaling information is transferred through two-state voltage conditions (on the E and M leads) for analog applications and through a single bit for digital 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 at the time the call is placed. Each switch in the network is assigned a unique private network office code (RNX), and each voice terminal is assigned a unique extension number.

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, the automatic transfer within a communications system of a predefined set of CO lines to a group of answering telephones with at least one telephone 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."

end-to-end signaling
The transmission of touch-tone signals generated by dialing from a voice terminal user to remote computer equipment. A connection must first be established over an outgoing trunk from the calling party to the computer equipment. Then additional digits can be 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.

Erlang
A unit of traffic intensity, or load, used to express the amount of traffic it takes to keep one facility busy for one hour. One Erlang is equal to 36 CCS. See also **Hundred Call Seconds**.

expansion archangel (EAA)
A network-control microprocessor located on an expansion interface (EI) port circuit pack in an expansion port network (EPN). The EA provides an interface between the EPN and its controlling switch processing element (SPE).

expansion-archangel link (EAL)
A link-access function on the D-channel (LAPD) logical link that exists between a switch processing element (SPE) 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 (EPN).

expansion control cabinet
See **expansion control carrier**.

expansion control carrier
A carrier in a Multi-Carrier 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 (PN) that provides the interface between a PN's time-division multiplex (TDM) bus and 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 (EPN) communicates with the master maintenance circuit pack to provide the EPN's environmental and alarm status to the switch processing element (SPE).

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**.

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
Extension-Out (ExtOut) is the work state agents go into when they place (originate) a non-ACD call. If the agent is in Manual-In or Auto-In and places an extension-out call, it is recorded by CMS as an AUX-Out call.

external measurements
Refers to those ACD measurements that are made by the External CMS adjunct.

extension number
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. Extension numbers are primarily used for telephones and data terminals but can also be used with specific features.

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

facility
A general term used for a telecommunications transmission pathway and associated equipment.

facility associated signaling (FAS)
When a D-channel carries the signaling only for those channels on the same physical interface.

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.

fiber optics
A technology using materials that transmit ultrawideband electromagnetic light-frequency ranges for high-capacity carrier systems.

fixed
Fixed is 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
Flexible is a trunk allocation term. The flexible allocation scheme allows the time slots of a wideband call to occupy noncontiguous positions within a single T1 or E1 facility.

floating
Floating is a trunk allocation term. In the floating allocation scheme, the time slots necessary to support a wideband call are contiguous, but the position of the first time slot is not fixed.

foreign exchange (FX)
A central office (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 and must be dialed to call outside the local geographical area.

G

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 two-way trunk by two communications systems, resulting in a standoff.

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.

H

handshaking logic
A format used to initiate a data connection between two data module devices.

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.

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 G3r 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**.

holding time
The total length of time in minutes and seconds that a facility is used during a call.

home numbering-plan area code
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 will reroute to an idle extension in the group.

I

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.

information exchange
The exchange of data between users of two different systems, such as the switch and a host computer, over a local area network (LAN).

information systems network (ISN)
A wide area network (WAN) and local area network (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.

inside call
A call placed from one telephone to another within the local communications system.

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** and **Integrated Services Digital Network Primary Rate Interface**.

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 Primary Rate Interface**.

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 Mbytes per second.

The most common arrangement of channels in ISDN-PRI is twenty three 64 kbps B-channels for transmitting voice and data and one 64 kbps D-channel for transmitting associated B-channel call control and out-of-band signaling information. Although with nonfacility-associated signaling (NFAS), ISDN-PRI can include 24 B-channels and no D-channel. See also **Integrated Services Digital Network**and **Integrated Services Digital Network Basic Rate Interface**.

intercept tone
A 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 Tele-communications 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 Integrated Services Digital Network (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
Allows calls to forward to other splits on the same PBX or a different PBX using the Call Forward All Calls switch feature.

intraflow
Allows calls to be redirected 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
Refers to those 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 is illuminated 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.

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 Integrated Services Digital Network primary rate interface (ISDN-PRI). Also called ''ISDN facility.''

ISDN-PRI Terminal Adapter
A terminal adapter acts as 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.

L

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, and 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 digital signal level-1 (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 port
The hardware that provides the access point to a communications system for each circuit associated with a telephone and/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 Integrated Services Digital Network basic rate interface (ISDN-BRI) and primary rate interface (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.

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 basic rate interface (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.

M

main distribution frame
This device mounts to the wall inside the system equipment room. The main distribution frame (MDF) provides a connection point from the 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 electronic tandem network (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 which has its own attendant positions and LDN.

maintenance
The 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
In this mode, agents automatically enter the ACW mode when they disconnect from an ACD call. However, in order to become available to receive another ACD call, they must then manually enter the Auto-In or Manual-In mode. *See* **Auto-In Work Mode** for a contrast.

memory
A device into which information can be copied and held, and from which the information can be obtained at a later time.

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.

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.

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 (RS232C, RS449, and V.35) to customer-provided data terminal equipment (DTE). See also **processor data module**.

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 (DTE).

modulator-demodulator
See **modem**.

multiappearance voice terminal
A terminal equipped with several call appearance buttons for the same extension number, allowing the user to handle more than one call, on that same extension number, at the same time.

Multi-Carrier Cabinet
A structure that holds one to five carriers. See also **Single-Carrier Cabinet**.

Multi-Frequency Compelled (MFC), release 2 (R2) signalling
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 and 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**.

multi-rate
Multi-rate refers to the new N x DS0 service (see N x DS0).

N

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.

narrowband
A circuit-switched call at a data rate up to and including 64 kbps. All nonwideband switch calls are considered narrowband.

Non-Facility Associated Signaling (NFAS)
A method that allows multiple T1 and/or E1 facilities to share a single D-channel to form an Integrated Services Digital Network primary rate interface (ISDN PRI). If D-Channel Backup is not used, one facility is configured with a D-channel, while 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), while the other facilities that share the D-channels are configured without D-channels.

On every facility, all DS0s that are not D-channels are available as B-channels. Therefore, a T1 facility without a D-channel has 24 B-channels, and an E1 facility without a D-channel has 31 B-channels.

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.

node
A switching or control point for a network. Nodes are either ‘‘tandem’’ (em they receive signals and pass them on (em or ‘‘terminal’’ (em they originate or terminate a transmission path.

O

offered load
The traffic that would be generated by all the requests for service occurring within a monitored interval, usually one hour.

othersplit
The Work State that indicates the agent is currently active on another split’s call, or in ACW for another split.

P

packet
A group of bits (em including a message element, which is the data, and a control information element (IE), which is the header (em 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**.

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 it 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.

PCOL
Personal Central Office Line.

primary extension
The main extension associated with the physical station set.

principal
A station that has its primary extension bridged on one or more other stations.

personal computer (PC)
A personally controllable microcomputer.

pickup group
A group of individuals authorized to answer any call directed to an extension number within the group.

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 Multi-Carrier 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 G3. Each PN is controlled either locally or remotely by a switch processing element (SPE). See also **expansion port network** and **processor port network**.

port-network connectivity
The interconnection of port networks (PNs), regardless of whether the configuration uses direct or switched connectivity.

Primary Rate Interface (PRI)
A standard Integrated Services Digital Network (ISDN) frame format that specifies the protocol used between two or more communications systems. PRI runs at 1.544 Mbps in the United States and 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. Outside the United States, PRI runs at 2.048 Mbps and provide 30 B channels and 2 D channels (32 channels total).

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 number. Endpoint applications have call control capabilities over PRI endpoints.

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. These codes are numbered 220 through 999, excluding any codes that have a 0 or 1 as the second digit.

processor carrier
A phrase used for ''control carrier'' in G3rV2. See also **control carrier**.

processor data module (PDM)
A device that provides an RS232C data communications equipment (DCE) interface for connecting to data terminals, applications processors (APs), and host computers and provides a digital communications protocol (DCP) interface for connection to a communications system. See also **modular processor data module**.

processor port network (PPN)
A port network (PN) controlled by a switch processing element (SPE) that is directly connected to that PN's time-division multiplex (TDM) bus and local area network (LAN) bus. See also **port network**.

processor port network (PPN) control carrier
A carrier containing the maintenance circuit pack, tone/clock circuit pack, and switch processing element (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 use 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.

public network
The network that can be openly accessed by all customers for local or 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

quadrant
A quadrant is 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).

A quadrant is considered available or idle when all six contiguous DS0s are idle. Otherwise, the quadrant is considered contaminated or partially contaminated. This is a dynamic condition; quadrants become idle and contaminated as calls are placed and dropped. Note that a T1 facility containing the primary or backup D-channel (23B + D) has a maximum of three idle quadrants. The fourth quadrant (DS0s 19-24) never has six contiguous idle DS0s because one is always allocated to the D-channel. On an E1 facility, channel 0 is reserved for framing and synchronization, and channel 16 contains the D-channel when present, but five quadrants are potentially available.

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

random access memory (RAM)
A storage arrangement whereby information can be retrieved at a speed independent of the location of the stored information.

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
The 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 central office (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.

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 at the time the call was placed.

report scheduler
Software that is used in conjunction with the system printer for the purpose of scheduling the days of the week and time of day that the desired reports are to be printed.

RS232C
A physical interface specified by the EIA. RS232C transmits and receives asynchronous data at speeds of up to 19.2 kbps over cable distances of up to 50 feet.

ROSE
Remote Operations Service Element is a CCITT and ISO standard that defines a notation and services that support interactions between the various entities that make up a distributed application.

S

sanity and control interface (SAKI)
A custom, very-large-scale-integration (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.

simplex system
A system that has no redundant hardware.

simulated bridged appearance
The same as a **temporary bridged appearance**, allows the station user (usually the principal) the ability to bridge onto a call which had been answered by another party on its behalf.

single-carrier cabinet
A combined cabinet and carrier unit that contains one carrier. See also **Multi-Carrier Cabinet**.

single-line voice terminal
A voice terminal served by a single-line tip and ring circuit (models 500, 2500, 7101A, 7103A).

small computer system interface (SCSI)
An ANSI bus standard that provides a high-level command interface between host computers and peripheral devices.

software
A set of computer programs that perform one or more tasks.

split
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
Provides historical traffic information for internally measured splits.

split (agent) status report
Provides the real-time status and measurement data for internally measured agents and the split to which they are assigned.

staffed
Indicates an agent position is logged-in. A staffed agent will be functioning in one of four work modes: Auto-In, Manual-In, ACW, or AUX-work.

Station Message Detail Recording (SMDR)
An obsolete term now called "CDR" (see call detail recording), which is a switch feature that utilizes software and hardware to record call data.

standard serial interface (SSI)
A communications protocol developed by AT&T Teletype Corporation for use with the 500 business communications terminals (BCTs) and the 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 Automatic Call Distribution (ACD) agents to record up to nine customer-defined events per call when the Call Management System (CMS) is active.

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 digital signal level-1 (DS1) converter circuit packs. An SN carrier is located in a center stage switch (CSS).

switch node (SN) clock
The circuit pack in a switch node (SN) carrier that provides clock and maintenance alarm functions and environmental monitors for an SN.

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 switch node interface (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, digital signal level-1 (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 (em processor, memory, disk controller, and bus-interface cards (em mounted in a processor-port-network (PPN) control carrier. The SPE serves as the control element for that PPN and, optionally, for one or more expansion port networks (EPNs).

synchronous data transmission
A method of sending data in which discrete signal elements are sent at a fixed and continuous rate and specified times.

system administrator
The person who maintains overall customer responsibility for system administration. Generally, all administration functions are performed from the G3 Management Terminal (G3-MT). The switch requires a special login, referred to as the system administrator login, in order to gain access to the system administration capabilities.

system printer
An optional printer that may be used to print scheduled reports via the report scheduler.

system report
Provides historical traffic information for all internally measured splits.

system status report
Provide 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 digital signal level-1 (DS1) rate of 1.544 Mbps. A T1 facility is divided into 24 channels (DS0s) of 64 kbps information numbered from 1 to 24. 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.

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
A private network that interconnects several customer switching systems by dial-

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 report(s).

time slice
See **time interval**.

time slot
A time slot refers to 64 kbps of digital information structured as eight bits every 125 micro-seconds. 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
Time slot sequence integrity means that 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
To control means that an application can invoke Third Party Call Control capabilities using either an adjunct-control or a domain-control association.

to monitor
To monitor means that an application can receive *Event_Reports* on either an active-notification, adjunct-control, or a domain-control association.

tone ringer
A device with a speaker, used in electronic voice terminals to alert the user.

trunk
A dedicated telecommunications channel between two communications systems or central offices (COs).

trunk allocation
The manner in which trunks are selected to form wideband channels.

trunk data module
A device that provides the interface for connection between off-premises private-line trunk facilities and a G3V2 switch. The trunk data module provides conversion between the RS232C and the Digital Communications Protocol (DCP), and can connect to direct distance dialing (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 central offices (COs).

U

uniform dial plan
A feature that allows a unique 4- or 5-digit number assignment for each terminal in a multiswitch configuration such as a distributed communications system (DCS) or main-satellite-tributary system.

V

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 split is only possible by dialing a VDN extension. Vector-Controlled Splits cannot be Active Notification Domains.

voice terminal
A single-line or multiappearance telephone.

W

wide area tele-communications service (WATS)
A service in the USA that allows calls to a certain area or 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 all wideband.

wideband access endpoint
The wideband switching capability extends Access Endpoints 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 number. 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 modes (or ACD work modes)
A work mode is one of four states (Auto-In, Manual-In, ACW, AUX-work) that an ACD agent enters after logging in. Immediately upon logging in, an agent enters the AUX-work mode. To become available to receive ACD calls, the agent enters either the Auto-In or Manual-In work modes. To do work associated with an ACD call, at the conclusion of the call, an agent would enter the ACW mode.

If an agent changes work modes while handling a call, the change becomes effective when the agent finishes the call. The system does not recognize the change until the call is completed.

In order to answer an ACD call, the ACD agent must specify a Work Mode. Generally, two methods are available for indicating Work Modes: (1) by pressing the appropriate button on their voice terminal, and (2) by dialing an access code. The four work modes associated with ACD call handling are Auto-In, Manual-In, ACW, and AUX-work. An agent can change work modes while handling a call, but the system will not recognize the change until the call is completed. It is important that the ACD agents always accurately indicate their correct work mode, otherwise the BCMS measurements will not be accurate.

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 that it is a member of. 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 (for example, whenever a call is answered, abandoned, the agent changes work modes, etc.). The BCMS feature monitors the work states and uses this information to provide the BCMS reports.

write operation

The process of putting information onto a storage medium, such as a hard disk.

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