Lucent Technologies
Bell Labs Innovations

DEFINITY®
Enterprise Communications Server
Release 8
Installation and Test for Multicarrier Cabinets

555-230-112
Comcode 108596958
Issue 7
December 1999

Notice

Your Responsibility for Your System's Security

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

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

Lucent Technologies Fraud Intervention

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

Federal Communications Commission Statement

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

Part 68: Network Registration Number. This equipment is registered with the FCC in accordance with Part 68 of the FCC Rules. It is identified by FCC registration number AS593M-13283-MF-E.

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

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

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

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

Canadian Department of Communications (DOC) Interference Information

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

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

Trademarks

See the preface of this document.

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2855 N. Franklin Road
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Order: Document No. 555-230-112
Comcode 108596958
Issue 7, December 1999

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

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

European Union Declaration of Conformity

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

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

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

Comments

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

Acknowledgment

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

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About This Book

This book provides procedures and information for installing and initially testing the DEFINITY® Enterprise Communications Server Multicarrier Cabinets.

This document covers information related to DEFINITY ECS Release 8. For details about changes for Release 8, refer to *DEFINITY Enterprise Communications Server Release 7.1, Change Description*.

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

- The word *system*, is a general term and includes references to the DEFINITY Enterprise Communications Server
- DEFINITY Systems are called: Release 5, Release 5r, Release 6, Release 6r, Release 8, and Release 8r
- All occurrences of Release 5r and Release 6r are called Release 6r unless a specific configuration is required to differentiate between product offerings
- Information in this book is applicable for Release 8 unless otherwise specified
- DEFINITY Enterprise Communications Server is abbreviated DEFINITY ECS

This book describes installation and wiring including:

1. Placing and interconnecting the various cabinets and adjuncts.
2. Wiring from the telephone network interface to and including the 25-pair cables that connect directly to the system.
3. The main equipment room main distribution frame and the associated cabling to the system and/or 8-pin information outlets (modular wall jacks).
4. Testing of the completed installation.

This issue replaces all previous issues of *DEFINITY Communications System Generic 1 and Generic 3 Installation and Test,* 555-204-104.

NOTE:
This book is being modified for international translation. This means some illustrations contain numbers instead of descriptive text. In the future, all illustrations will contain numbers.

Organization

This book contains the following chapters:

Chapter 1, ''Install and Connect Cabinets'' — How to install the cabinets, connect power, and connect the cabinets together.

Chapter 2, ''Install Telecommunications Cabling'' — How to install cabling between the system and the Main Distribution Frame.

Chapter 3, ''Install Management Terminal and Activate System'' — How to install the management terminal and how to activate and initialize the system.

Chapter 4, ''Test the System'' — How to initially test the system.

Chapter 5, ''Install and Wire Telephones and Other Equipment''— How to install and wire telephones and other equipment to the system.

Chapter 6, ''Test Telephones and Other Equipment'' — How to test the equipment installed in Chapter 5.

How to Comment on This Book

Lucent Technologies welcomes your feedback. Please fill out the reader comment card at the front of this book 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 6 Installation and Test for Multicarrier Cabinets,* 555-230-112.

Related Books

The following books are useful for system-related information:

- *DEFINITY Enterprise Communications Server Release 8 Administration for Network Connectivity,* 555-233-501
- *DEFINITY Enterprise Communications Server Release 8 System Description Pocket Reference*, 555-230-211
- *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8r,* 555-230-126
- *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si,* 555-230-127
- *AT&T Network and Data Connectivity Reference*, 555-025-201
- *BCS Products Security Handbook*, 555-025-600
- *DEFINITY Wireless Business System Users Guide*, 555-232-105
- *DEFINITY Wireless Business System Installation and Test Guide,* 555-232-102
- *DEFINITY Wireless Business Systems System Interface*, 555-232-108
- *DEFINITY Enterprise Communications Server Release 8 Installation and Test for Single-Carrier Cabinets,* 555-230-894
- DEFINITY Enterprise Communications Server Release 8 *Administrator's Guide,* 555-230-522
- *DEFINITY Enterprise Communications Server Release 8 Upgrades and Additions for R8si,* 555-230-120
- *DEFINITY Enterprise Communications Server Release 8 Upgrades and Additions for R8r,* 555-230-121
- *Switch Administration for DEFINITY AUDIX*, 585-300-509

Conventions Used in This Book

This book uses the following conventions:

- Keyboard keys are shown as: Enter.
- Information you type is shown as: **save announcements.** To submit the command you typed, press the Enter key in the numbers section of the keyboard, not the Enter/Return key in the letters section.
- Information displayed on the screen is shown as: `login:`
- Circuit pack codes (for example, TN772 or TN754B) are shown with the *minimum acceptable* alphabetic suffix (like the "B" in the code "TN754B").

Generally, an alphabetic suffix higher than the 1 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 8 system.

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

- The word *system*, is a general term encompassing Release 8 and includes references to the DEFINITY Enterprise Communications Server
- Systems in this book are called: G3V4, Release 5, Release 6, Release 7, and Release 8
- Older DEFINITY Communications Systems Generic 3vs, Generic 3s, and Generic 3i are referred to as G3vs, G3s, and G3i
- All occurrences of G3s, G3i, G3siV4, G3siV4+m, Release 5si, Release 5si + memory, and Release 6si are called Release 6si unless a specific configuration is required to differentiate between product offerings
- Information in this book is applicable for G3V4 through Release 8, unless otherwise specified
- DEFINITY Enterprise Communications Server is abbreviated as DEFINITY ECS

How to Order Books

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

This book and any other DEFINITY books can be ordered directly from the Lucent Technologies Business Communications System Publications Fulfillment Center at 1-317-322-6791 or toll free at 1-800-457-1235.

Trademarks

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

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

The following products are trademarked by their appropriate vendor:

- Audichron® is a registered trademark of Audichron Company
- Music Mate® is a registered trademark of Harris Corporation
- PagePac® is a registered trademark of Harris Corporation, Dracon Division
- SHOCKWATCH® is a registered trademark of Media Recovery, Incorporated
- Styrofoam® is a registered trademark of Styrofoam Corporation
- TILTWATCH® is a registered trademark of Media Recovery, Incorporated
- VELCRO® is a registered trademark of VELCRO U.S.A. Incorporated
- Zone Mate® is a registered trademark of Harris Corporation

Standards Compliance

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

- ITU-T (Formerly CCITT)
- ECMA
- ETSI
- IPNS
- DPNSS
- National ISDN-1
- National ISDN-2
- ISO-9000
- ANSI
- FCC Part 15 and Part 68
- EN55022
- EN50081
- EN50082
- CISPR22
- Australia AS3548 (AS/NZ3548)
- Australia TS 001 (AS/NZS3260)
- IEC 825
- IEC 950
- UL 1459
- UL 1950
- CSA C22.2 Number 225

Contact your Lucent Technologies representative for more information.

LASER Product

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

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

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

Contact your Lucent Technologies representative for more information.

Electromagnetic Compatibility Standards

This product complies with and conforms to the following:

- Limits and Methods of Measurements of Radio Interference Characteristics of Information Technology Equipment, EN55022 (CISPR22), 1993
- EN50082-1, European Generic Immunity Standard
- FCC Part 15
- 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 book bearing the Conformité Europeénne (CE) mark conforms to the European Union Electromagnetic Compatibility Directives.

The CE 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 8 products:

- Global AC powered Multicarrier 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
- Compact Modular Cabinet (CMC) with 25 Hz ring generator

Where to Call for Technical Support

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

	Telephone Number
DEFINITY Helpline (feature administration and system applications)	1-800-225-7585
Lucent Technologies Toll Fraud Intervention	1-800-643-2353
Lucent Technologies National Customer Care Center	1-800-242-2121
Lucent Technologies Corporate Security	1-800-822-9009
Streamlined Implementation (for missing equipment)	1-800-772-5409
USA/Canada Technical Service Center	1-800-248-1234
ITAC	1-303-804-3777
Lucent Technologies Centers of Excellence	
Asia/Pacific Regional Support Center	65-872-8686
Western Europe/Middle East/South Africa	44-1252-77-4800
Central/Eastern Europe	361-345-4334
Central/Latin America Caribbean	1-303-804-3778
Australia	61-2-9352-9090
North America (INADS Database Administration)	1-800-248-1111

Anti-Static Protection

⚠ **CAUTION:**

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

Remove/Install Circuit Packs

⚠ **CAUTION:**

The control circuit packs with white labels cannot be removed or installed when the power is on. The port circuit packs with gray labels (older version circuit packs had purple labels) can be removed or installed when the power is on.

Security Issues

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

Login security is an attribute of the DEFINITY ECS software. Existing passwords expire 24 hours after installation.

Federal Communications Commission Statement

Part 68: Statement

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

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

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

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

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

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

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

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

Means of Connection

Connection of this equipment to the telephone network is shown in the following table (U.S. only).

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

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

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

If trouble is experienced with this equipment, for repair or warranty information, please contact the Technical Service Center at 1-800-242-2121. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

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

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

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

Install and Connect Cabinets

1

This chapter discusses installation of Multicarrier Cabinets only. For information on Single-Carrier Cabinets, refer to *DEFINITY Enterprise Communications Server Release 8 Installation and Test for Single-Carrier Cabinets*.

Floor plans and equipment layouts for typical system installations are provided in *DEFINITY Enterprise Communications Server Release 8 System Description*.

Unpack and Inspect Cabinets

Perform these steps for all cabinets.

⚠ **DANGER:**

A cabinet may weigh as much as 800 lb (363 kg) and may be top heavy. Use extreme caution.

1. Check the status of the SHOCKWATCH and/or TILTWATCH indicators on the container. If the container has been shaken or tilted beyond specifications, the indicators are red, indicating potential damage. Report any damage according to local shipping instructions.

⚠ **DANGER:**

Take care to avoid injury while cutting and removing the 2 metal bands.

2. Unpack the cabinet and remove all packing material.
3. Move the cabinets into their proper positions.
4. Do not adjust the leveling ft at this time.

Unpack and Inspect Auxiliary Cabinet

The Auxiliary cabinet is normally positioned adjacent to the PPN cabinet or the EPN cabinet, if provided.

1. Unpack the cabinets as outlined on the previous page.
2. Remove the lower rear panel from the Auxiliary cabinet. Install the lower rear panel when the installation is completed.

Unpack and Inspect Stratum 3 Clock Cabinet

1. Check the status of the SHOCKWATCH and/or TILTWATCH indicators on the cardboard container. If the container has been jarred or tilted beyond specifications, the indicators are red, indicating possible damage.
2. Remove all packing material.
3. Remove front door and rear screw-on panels from the cabinet.
4. Inspect the cabinet for damage. Report any damage per local instructions.

Check Customer's Order

1. Check the customer's order and the shipping packing lists to confirm all equipment is present. If any equipment is missing, report the information to your Lucent Technologies representative.
2. Ensure all circuit packs are fully inserted into the proper slots according to the Customer Service Document (CSD). Report any discrepancies in circuit pack type or quantity to your Lucent Technologies representative.
3. Check the system adjuncts for damage and report all damage according to local shipping instructions.

Correcting Shipping Errors

1. Red-tag all defective equipment and over-shipped equipment and return per the nearest Material Stocking Location (MSL) instructions. For international customers, contact your order service agent.
2. Direct all short-shipped reports to the nearest MSL. Contact the appropriate location for specific instructions. For Streamlined Implementation in the United States, call 1-800-772-5409.

Install System Cabinets

Check the location of the AC power receptacles in the equipment room. The receptacles must be on a separately fused circuit not controlled by a wall switch. They must be located within 10 ft (3 m) of the cabinet and outside the Main Distribution Frame (MDF) area.

Position the PPN Cabinet

1. If the system is supplied with cable ductwork, space the cabinets on 32 in. (81.3 cm) centers +-1/8 in. (0.3 cm), they must be level, and must be square with respect to each other.
2. If the system is supplied with cable slack managers, place the cabinets far enough from the connection field to lay down the 32 in. (81.3 cm) slack managers and to provide a little extra room for the cables to access the cable slack managers.
3. If earthquake protection is required, skip to "Earthquake Protection Installation" on page 1-35.
4. If earthquake protection is not required, level the cabinets and adjust and lock the cabinet stabilizing bolts to keep the cabinet from moving.
5. At the bottom of the cabinet, install hole plugs (provided with cabinet) in the holes previously occupied by the 4 carriage bolts.

Position the EPN Cabinets

Each EPN cabinet is normally positioned adjacent to the PPN cabinet but may be located remotely in a different room or a different building.

1. The procedure for installing an EPN cabinet is the same as for the PPN cabinet.
2. If earthquake protection is required, skip to "Earthquake Protection Installation" on page 1-35.
3. If earthquake protection is not required, level the cabinets and adjust and lock the cabinet stabilizing bolts to keep the cabinets from moving.

> **NOTE:**
> To install a new EPN cabinet to an *existing* system, refer to *DEFINTY Enterprise Communications Server Release 8 Upgrades and Additions for R8r*.

Position the Auxiliary Cabinet (Optional)

1. Position the Auxiliary cabinet next to the PPN cabinet (or EPN cabinet, if installed). The location of equipment inside the Auxiliary cabinet is specified in the Customer Service Document (CSD).
2. If earthquake protection is required, skip to "Earthquake Protection Installation" on page 1-35. Return to this section when finished.
3. If earthquake protection is not required, level the cabinets and adjust and lock the cabinet stabilizing bolts to keep the cabinet from moving.

Install Auxiliary Cabinet Equipment

The Auxiliary cabinet allows for carrier, 23-in. (58.4 cm) rack, or panel mounting of hardware. The following equipment is furnished with the cabinet.

- Fuse panel — Distributes -48 VDC power to fused cabinet circuits
- Power receptacle strip — Provides switched and unswitched 120 VAC receptacles
- DC connector block — Required when Auxiliary cabinet is powered by an external DC source
- AC to DC power supply — Converts AC power provided by the AC power strip switched outlet to the required DC voltage

1. Install equipment inside the cabinet as specified in the CSD. The following optional equipment can be installed:
   - Audichron H9040 Wake-Up Announcement System
   - 909A/B Universal Coupler
   - 7400 Series Data Modules
   - Z77A Multiple Data Mounting
   - Fan Assembly — Requires 120 volt AC power
   - COMSPHERE 3000-series modems
   - External Channel Service Unit (CSU) — 1 is required for each T1 carrier link
   - PagePac Paging System — 3 models are available. All PagePac models require 120 VAC power.
   - Model 15A Announcement System — See Table 1-1 for PEC codes.

Table 1-1. Model 15A Announcement Equipment

PEC Code	Description
PEC 63240	1 chassis and 1 BLD1 circuit pack
PEC 63241	1 BLD1 circuit pack
PEC 63242	1 chassis and 1 BLD2 circuit pack
PEC 63243	1 BLD2 circuit pack
PEC 63246	1 remote record module

The BLD1 circuit pack provides 8 channels with up to 20 seconds of recording time on each channel. The BLD2 circuit pack provides 8 channels with up to 40 seconds of recording time on each channel. Each chassis can be populated with any combination of 2 BLD circuit packs.

The Model 15A Announcement System is FCC registered and does not require a voice coupler.

2. If earthquake protection is required, skip to "Earthquake Protection Installation" on page 1-35.

Install and Position Stratum 3 Clock Cabinet

Check the location of the AC power receptacle. The receptacle must be on a separately fused circuit that is not controlled by a wall switch. It must be located within 10 ft (3 m) of the cabinet and should be located outside the MDF area.

1. Position the clock cabinet in the designated location.
2. If earthquake protection is required, skip to "Earthquake Protection Installation" on page 1-35.
3. If earthquake protection is not required, level the cabinets and adjust and lock the cabinet stabilizing bolts to keep the cabinet from moving.

Connect AC Power and Ground

Power Requirements

Table 1-2 shows the power requirements.

Table 1-2. DEFINITY System Power Requirements

Maximum DEFINITY UL Rating Label Power Capacity

Vac In	Iac In	Max W In	BTU/Hr
208	24	3245	11071.26
240	21	3276	11177.71
120	40	3120	10645.44

J58890CE-1, J58890CE-2, and J58890CH-1

The following procedures apply to the AC-powered PPN and EPN cabinets. Either of the following power sources can supply 60 Hz power to the AC load in Release 5 and later systems:

- Single-phase, 4-wire, 120/240 VAC supplying 240 VAC. This source has 2 hot wires, 1 ground wire, and 1 neutral wire (J58890CE).
- Single-phase, 4-wire, 120/208 VAC supplying 208 VAC. This source has 2 hot wires, 1 ground wire, and 1 neutral wire (J58890CE).
- Single-phase, 3-wire, 208 or 240 VAC. This source has 2 hot wires and 1 ground wire (J58890CH).

Either of the following power sources can supply 50 Hz power to the AC load in Release 5 and later systems:

- Non-United States 5-wire, Y, 220/380 VAC. This source has 3 hot wires, 1 neutral wire, and 1 ground wire.
- Non-United States Delta, 4-wire, 220 or 240 VAC. This source has 3 hot wires and 1 ground wire.

Table 1-3 describes the power sources and required AC input power.

Table 1-3. AC Power Sources and Plug Type

Power Distribution Unit	Power Sources	Power Input
AC power distribution (J58890CE-1 and J58890CE-2) Multicarrier Cabinet	Single phase 120 VAC with neutral Single phase 240 VAC with neutral, or single phase of 3-phase, 208 VAC with neutral	120 VAC, 60 Hz NEMA 5-50R 208/240 VAC, 60 Hz NEMA L14-30R
AC power distribution (J58890CH-1) Multicarrier Cabinet	Single Phase 176-264 VAC	200-240 Volts, 50-60 Hz NEMA L6-30R. Installations outside the United States require a receptacle suitable for use in the country of installation.

NOTE:
The type of power required is shown on the cabinet’s rear door.

CAUTION:
The equipment room AC power and ground wiring must be performed by a qualified electrician. Refer to DEFINITY Enterprise Communications Server Release 8 System Description Pocket Reference, for site requirement information.

CAUTION:
The power circuit must be dedicated to the system and must not be shared with other equipment and must not be controlled by a wall switch. The AC receptacle should not be located under the MDF.

CAUTION:
System grounding must comply with the general rules for grounding contained in Article 250 of the National Electrical Code (NEC), National Fire Protection Agency (NFPA) 70, or the applicable electric code in the country containing the equipment. For more information, refer to “Approved Grounds” on page 1-23.

Connect Ground to AC-Powered System (J58890CE)

Grounding is relatively simple for an AC-powered system. Basically, the cabinets connect to the single-point ground terminal block located at either the AC load center or to a separate single-point ground block wired to the AC load center (or optional AC protector cabinet).

- The approved ground wire must be a green (or green with yellow stripe), 6 AWG (#40) (16 mm^2), copper, stranded wire.
- Bond all approved grounds at the single-point ground to form a single grounding electrode system.

AC Load Center is 50 ft (15.2 m) or Less from Cabinet

1. At the bottom rear of the PPN cabinet, connect a 6 AWG (#40) (16 mm^2) CABINET GROUND wire to the cabinet ground terminal block. See Figure 1-1.
2. Route the CABINET GROUND wire to the single-point ground block at the AC load center and connect.
3. At the bottom rear of the first EPN cabinet (if provided), connect a 6 AWG (#40) (16 mm^2) CABINET GROUND wire to the cabinet ground terminal block.
4. Route the CABINET GROUND wire to the single-point ground block at the AC load center and connect.

NOTE:
If the EPN cabinet is located remote from the PPN cabinet (in a separate room or building), connect the CABINET GROUND wire to an approved ground.

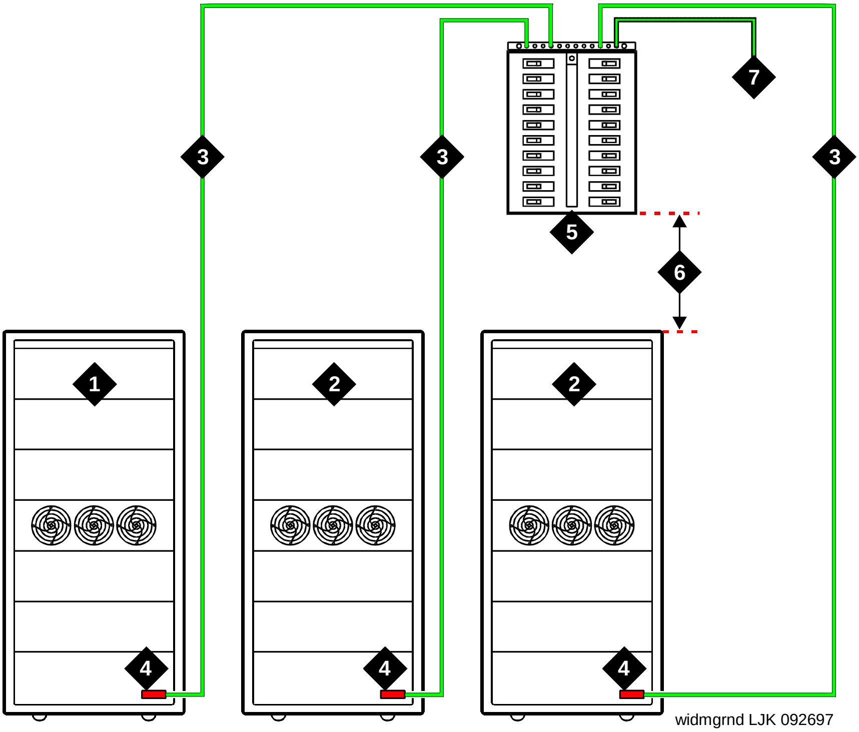

Figure Notes

1. PPN Cabinet
2. EPN Cabinet (if Installed)
3. 6 AWG (#40) (16 mm^2) CABINET GROUND Wire
4. Cabinet Ground Terminal Block
5. AC Load Center Single-Point Ground
6. Less than 50 Wire ft (15.2 m)
7. 10 AWG (#25) (6 mm^2) Ground Wire to CBC

Figure 1-1. Typical Cabinet Ground Location

5. Repeat connecting each EPN cabinet to the single-point ground block.
6. At the AC load center, connect a 10 AWG (#25) (6 mm^2) wire to the single-point ground block. This ground wire will later be tie-wrapped to the trunk cables and connected to the Coupled Bonding Conductor (CBC) ground block at the MDF.

AC Load Center is More Than 50 ft (15.2 m) from Cabinet

1. Mount the single-point ground block to any surface between the MCC cabinets and the AC load center single-point ground. The single-point ground block must be mounted to a non-metallic surface.
2. At the bottom rear of the PPN cabinet, connect a 6 AWG (#40) (16 mm^2) CABINET GROUND wire to the cabinet ground block. See Figure 1-2.
3. Route the wire to the single-point ground block and connect.
4. At the first EPN cabinet (if provided), connect a 6 AWG (#40) (16 mm^2) CABINET GROUND wire to the cabinet ground terminal block.
5. Route the CABINET GROUND wire to the single-point ground block and connect.

   NOTE:
   If the EPN cabinet is located remote from the PPN cabinet (in a separate room or building), route the EPN CABINET GROUND wire to an approved ground.

6. Repeat connecting each EPN cabinet to the single-point ground block.
7. Connect a 6 AWG (#40) (16 mm^2) ground wire to an unused terminal on the single-point ground block.
8. Route the ground wire to the AC load center ground and connect.

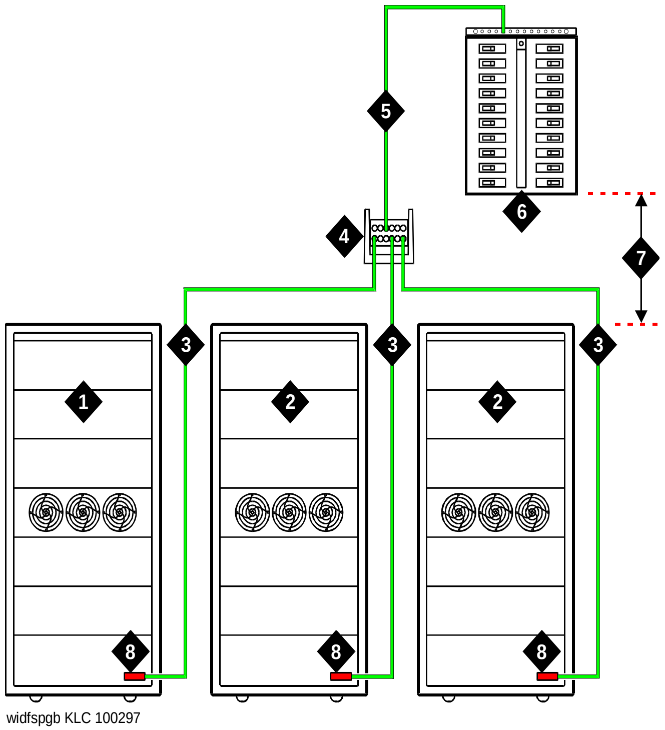

Figure Notes

1. PPN Cabinet
2. EPN Cabinet (if Installed)
3. 6 AWG (#40) (16 mm^2) CABINET GROUND Wire
4. Single-Point Ground Block
5. 6 AWG (#40) (16 mm^2) Ground Wire
6. AC Load Center Single-Point Ground
7. Over 50 ft (15.2 m)
8. Cabinet Ground Terminal Block

Figure 1-2. Typical Cabinet Grounding Wiring Diagram

Connect Battery Leads (J58890CH-1)

Figure 1-3 shows a typical optional small battery holdover assembly. These assemblies may ship with the battery leads disconnected to prevent the batteries from discharging.

1. Plug the battery connector into the -48 VDC Batteries connector on the rear of the J58890CH-1 Power Distribution Unit.

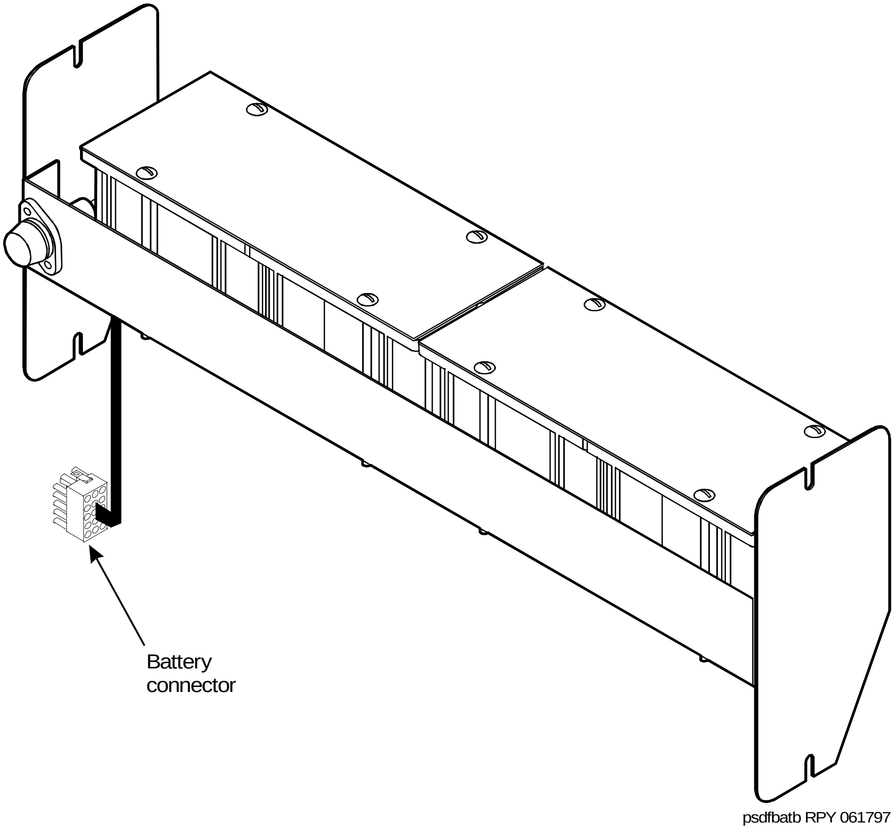

Figure 1-3. Typical Small Battery Assembly

⚠ CAUTION:

Power is present in the cabinet even if the AC power cable is unplugged. When procedures require ALL Power to be removed from the cabinet and to prevent unnecessary discharging of the battery, always power down the cabinet using the main circuit breaker located on the front of the power distribution unit.

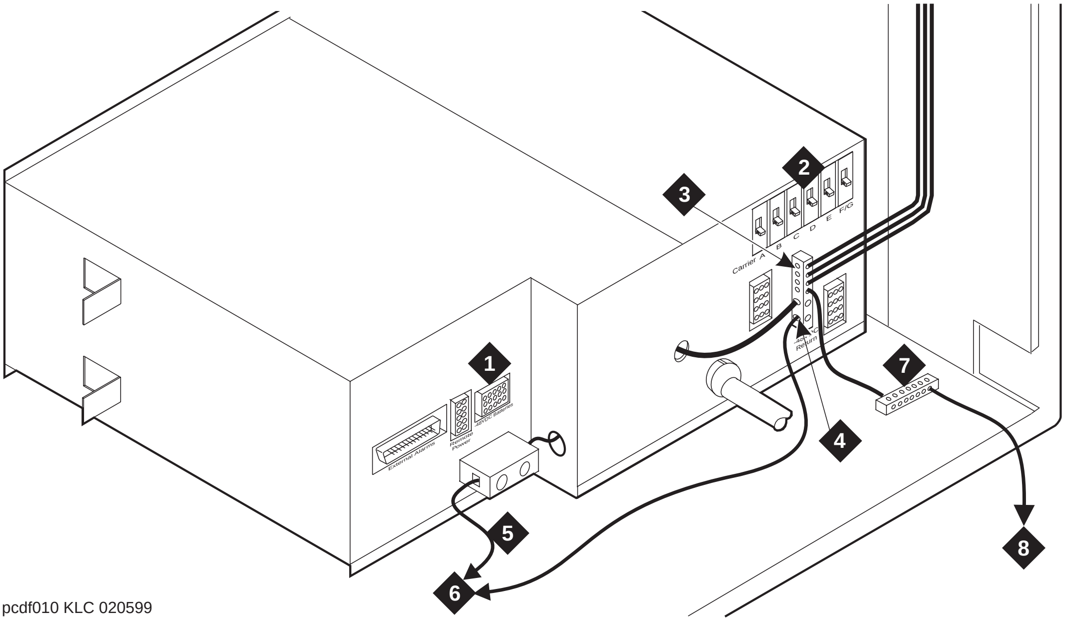

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Figure Notes

1. Connect small battery holdover cable (or temperature sensor cable from large battery cabinet) to J20
2. Carrier Circuit Breakers
3. Ground Terminal Block
4. Connect -48 VDC Return - 1 AWG (50 mm^2) red cable here.
5. Connect -48 VDC - 1 AWG (50 mm^2) black cable
6. 1 AWG (50 mm^2) 50 ft (15.2 m) cable to large battery cabinet. For cables greater than 50 ft (15.2 m), contact your Lucent Technologies representative.
7. Ground Terminal Block
8. To AC load center or approved single-point ground block

Figure 1-4. Power Distribution Unit (J58890CH)

2. Be sure the main power to the power distribution unit is OFF.
3. At the power distribution unit, set all carrier circuit breakers OFF.

Small Battery Holdover

1. Connect the small battery holdover cable to J20. See Figure 1-4.

Large Battery Holdover

When using large battery holdover, 1 battery cabinet is required for every system cabinet requiring holdover. The 24-cell battery cabinet must have a float voltage of 54.2 VDC.

1. Connect the -48 VDC cable to the large battery connector. See Figure 1-4.
2. Connect the -48 VDC RETURN cable to the ground terminal block.
3. Connect the temperature sensor cable, from the battery cabinet, to J20.

> **NOTE:**
> An adapter cable may be required when connecting the temperature sensor cable to the J58890CH unit. See Table 1-4.

Table 1-4. Temperature Sensor Cable Adapter Cables

H600-476 Adapter Cable	Usage
Group 1 (G1)	24-cell customer-provided battery
Group 3 (G3) (included with battery cabinet)	24-cell Lucent Technologies battery

Connect Shorting Cable to J58890CE-2

CAUTION:
For a cabinet with a battery charger, read the caution label on the 397C battery charger before disconnecting batteries.

Some cabinets contain a J58890CE-2 AC Power Distribution Unit without an optional battery charger. Install the shorting cable only when a battery charger is *not* installed. If you do not install the shorting cable or a battery charger, then an alarm appears.

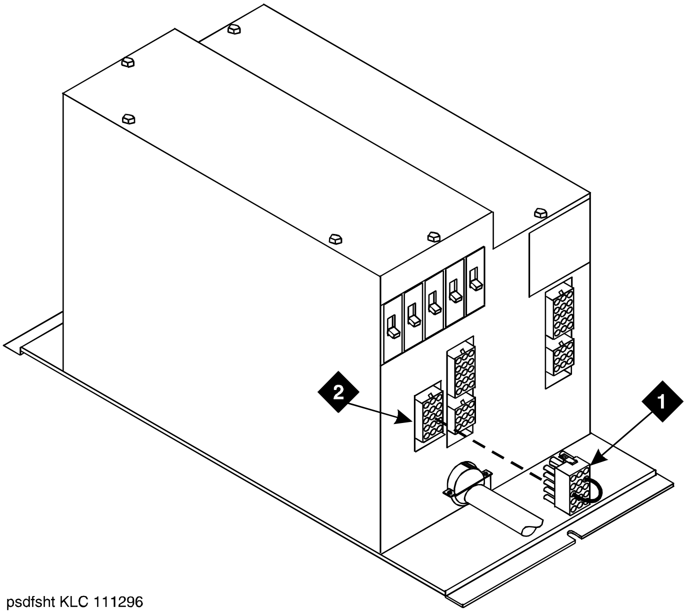

Figure Notes

1. Shorting Cable (H600-442-G1) (If Battery Charger is Not Installed)
2. J11

Figure 1-5. Shorting Cable Installation

1. Set the circuit breakers on the power distribution unit OFF. See Figure 1-5.
2. At the rear of the cabinet, insert the shorting cable (H600-442-G1) into J11. The cable is keyed so it can fit only 1 way.

Connect AC Power

1. Set the main circuit breakers on the power distribution unit OFF.
2. Connect cabinet AC line cords to the AC power receptacles.
3. Do not power up the system at this time.

Connect DC Power and Ground

Power Distribution Unit (J58890CH-1 Only)

Rectifier Modules and Battery Interface Unit

Each rectifier module operates as an integral part of a complete power system with battery backup. The modules operate in a redundant, high reliability mode to provide -48 VDC at 850 Watts to a common power bus.

The Battery Interface Unit (BIU) controls the rectifier modules, manages the batteries, and reports the status of system power. The BIU provides the Remote Power Off (RPO) option and battery alarm interfaces for internal and external alarms.

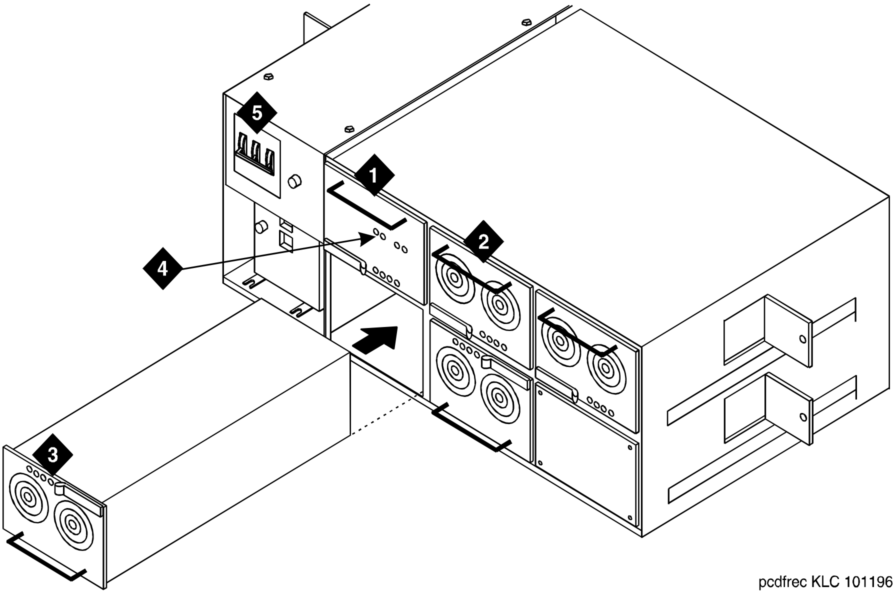

Figure Notes

1. Install Battery Interface Unit into Slot 1
2. Install Rectifier Modules into Slots 2-5
3. Rectifier Module 3 (in Slot 4)
4. Test Points
5. Main Circuit Breakers

Figure 1-6. Rectifier Module Installation

1. Install the BU3200A Battery Interface Unit (comcode 107781502) in the first slot of the power distribution unit. See Figure 1-6.

   NOTE:
   The BIU and the rectifier modules are keyed and can only install 1 way.

2. Install the first 2 RM0850HA100 Rectifier Modules (comcode 107793796) into the second and third slots of the power distribution unit.
3. If 2 to 3 carriers are installed in the system, install a third rectifier module (N+1).
4. If 4 to 5 carriers are installed in the system, install a fourth rectifier module.
5. The fifth rectifier module slot is reserved for future system growth.

Connect Power

1. Have a qualified electrician connect and route wires from the AC load center to the dedicated electrical outlet for the power distribution unit.

Connect PPN Cabinet Ground

1. Connect 1 end of a 6 AWG (#40) (16 mm^2) wire to the ground terminal block on the rear of the cabinet. See Figure 1-4.
2. Route the CABINET GROUND wire to the AC load center single-point ground block and connect.

Connect EPN Cabinet Ground(s)

1. Connect 1 end of a 6 AWG (#40) (16 mm^2) CABINET GROUND wire to the ground terminal block at the bottom rear of the EPN cabinet. See Figure 1-2.
2. Route the CABINET GROUND wire to the AC load center single-point ground and connect.
3. Connect each remaining EPN cabinet to the AC load center single-point ground.

DC Power and Ground (J58890CF Only)

Figure 1-7 shows a typical power and ground layout for a DC-powered cabinet. The size of the wire required for the -48 volt DC and -48 volt return must ensure the voltage supplied by the battery plant is maintained between -42.5 and -54.2 volts DC at all times for proper operation and to prevent hardware damage. The wire must be sized for a maximum voltage drop of 0.5 VDC in each leg of the DC distribution. This procedure applies to both PPN and EPN cabinets.

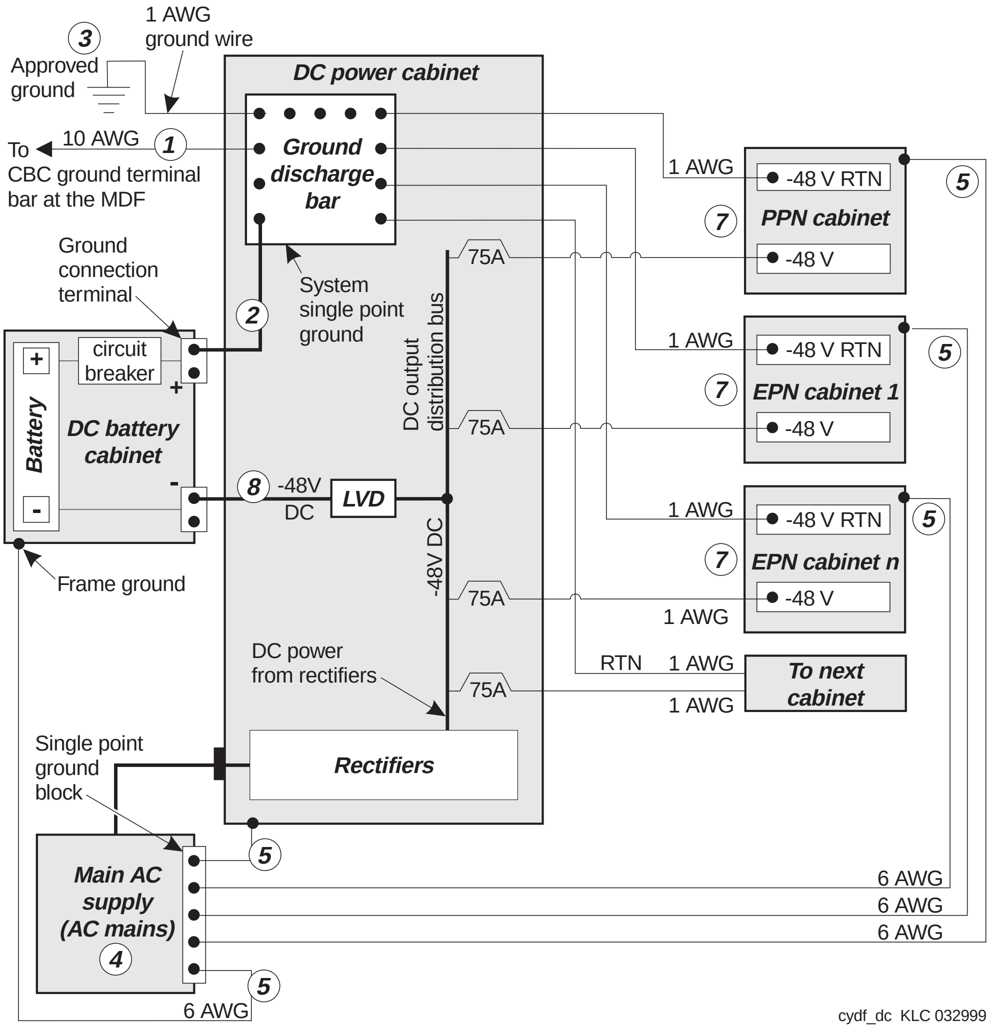

Figure 1-7. Typical Power and Ground for a DC-Powered Cabinet

Connect DC Power and Ground

The grounding methods for the DC-powered system are more complex than that of an AC-powered system. The following installation procedures refer to Figure 1-7. The numbers 1-8 in Figure 1-7 match the following subsections 1-8. Other figures may be referenced as required.

⚠ **CAUTION:**

Grounding of the system shall comply with the general rules for grounding contained in Article 250 of the National Electrical Code, NFPA 70. For more information, refer to "Approved Grounds" on page 1-23.

1. Install Coupled Bonding Conductor Wires

This is a conductor that connects to the single-point ground block and run adjacent to pairs in an associated cable. The mutual coupling between the CBC and the pairs reduces potential differences in terminating equipment. The conductor consists of a 10 AWG (#25) (6 mm^2) wire terminated at the CBC ground terminal bar at the Main Distribution Frame (MDF).

1. At the DC Power Cabinet, connect a 10 AWG (#25) (6 mm^2) ground wire to the Ground Discharge Bar. See Figure 1-7.
2. Route the 10 AWG (#25) (6 mm^2) ground wire to the CBC ground terminal bar at the MDF. Be sure a minimum of 12 in. (30.5 cm) spacing is maintained between the CBC and other power and ground leads.
3. Tie wrap the ground wire to the inside wiring cable.

NOTE:

The ground wires are connected to the CBC as instructed in Chapter 2, "Install Telecommunications Cabling".

2. Connect DC Battery and Power Cabinet Grounds

NOTE:

The wire in the next step must be sized for a maximum voltage drop of 0.5 VDC in each leg of the DC distribution. In this example 1 AWG is used.

1. Measure and cut a minimum of a 1 AWG (#70) (44 mm^2) wire long enough to reach between the ground connection terminal in the DC Battery Cabinet and the Ground Discharge Bar in the DC Power Cabinet. See Figure 1-7.
2. Crimp terminal lugs on each end of the wire. Terminal lugs are furnished as part of D-181895, Kit of Parts (comcode 105434559).

3. At the DC Power Cabinet, connect the wire to the Ground Discharge Bar.
4. Route the wire through 1 of the holes in the side of the cabinets and terminate it on the Ground Connection Terminal in the DC Battery Cabinet.

3. DC Power Cabinet Approved Ground

NOTE:
The wire must be at least as large as the largest distribution wire in the system (required by UL). In this example 1 AWG is used.

1. At the DC Power Cabinet, connect a 1 AWG (#70) (44 mm^2) ground wire to the Ground Discharge Bar. See Figure 1-7.
2. Route the ground wire out of the cabinet and terminate it on the approved ground. The approved ground must be identified with a grounding tag (FORM 15657NR or equivalent). See "Approved Grounds" on page 1-23.

4. Connect Main AC Supply to DC Power Cabinet

1. Ensure the associated circuit breakers at the AC power panel are OFF.
2. Have a qualified electrician connect AC power leads to the rectifiers in the DC Power Cabinet. Each rectifier should have its own branch circuit. Terminate the leads on the AC INPUT terminal block of each rectifier.

5. Connect Ground Wires for DC-Powered Systems

CAUTION:
Do not connect any ground wires from an EPN cabinet to another EPN cabinet or to a PPN cabinet. All ground wires must be terminated at the single-point ground block at the main AC supply (AC mains).

1. Connect a 6 AWG (#40) (16 mm^2) wire to the PPN cabinet ground terminal block.
2. Route the wire to the AC mains single-point ground block and connect.
3. Connect a 6 AWG (#40) (16 mm^2) wire to each EPN's cabinet ground terminal block.
4. Route the wire(s) to the AC mains single-point ground block and connect.
5. Connect a 6 AWG (#40) wire to the DC battery cabinet and DC power cabinet.
6. Route wires to the AC mains single point ground block and connect them.

6. Turn Circuit Breakers Off

The main circuit breaker on a DC-powered PPN/EPN cabinet is located on the front of the power distribution unit. The circuit breakers on the rear of the power distribution unit control the individual carriers. See Figure 1-4 for the location of the carrier breakers.

1. Set the main circuit breaker to OFF.
2. Set the carrier circuit breakers to OFF.

7. Connect DC Power to PPN and EPN Cabinets

1. Be sure the main circuit breaker is OFF.
2. Measure and cut 2 pieces of 1 AWG (#70) (44 mm^2) wire long enough to reach from the DC Power Cabinet to the PPN cabinet.
3. At the DC Power Cabinet, connect the -48 volt DC wire to the DC OUTPUT circuit breaker. See Figure 1-7. Connect the -48 volt RTN (return) wire to the ground discharge bar.
4. Route the wires out of the cabinet, through the hole in the lower rear cover, and to the PPN cabinet.
5. Connect the -48 volt DC wire to the -48VDC terminal on the J58890CF Power Distribution Unit.
6. Connect the -48 volt RTN wire to the -48RTN terminal on the J58890CF Power Distribution Unit terminal block.
7. Repeat Steps 2 through 6 for each EPN and Auxiliary cabinet in the system.

8. Connect DC Battery Cabinet to DC Power Cabinet

NOTE:
The wire in the next step must be sized for a maximum voltage drop of 0.5 VDC in each leg of the DC distribution. In this example 1 AWG is used.

1. Turn off the main circuit breaker on the DC Battery Cabinet.
2. Turn off the main circuit breaker on the DC Power Cabinet.
3. Measure and cut a 6 AWG (#40) (16 mm^2) wire long enough to reach from the DC Battery Cabinet’s -48 Volt DC terminal to a DC OUTPUT distribution bus on the DC Power Cabinet.
4. At the DC Battery Cabinet, connect the -48 volt DC wire to the -48 VDC connector.
5. Route the wire out of the cabinet through the hole in the lower rear cover and to the DC Power Cabinet.
6. At the DC Power Cabinet, terminate the -48 volt DC wire on a DC OUTPUT distribution bus.

Mixed AC/DC Power and Ground

Figure 1-8 shows a power and ground layout for a mixed AC/DC-powered cabinet configuration in the same equipment room with the PPN being DC powered and the EPN being AC powered. If a second EPN is part of the system, use the same basic connections shown in Figure 1-8.

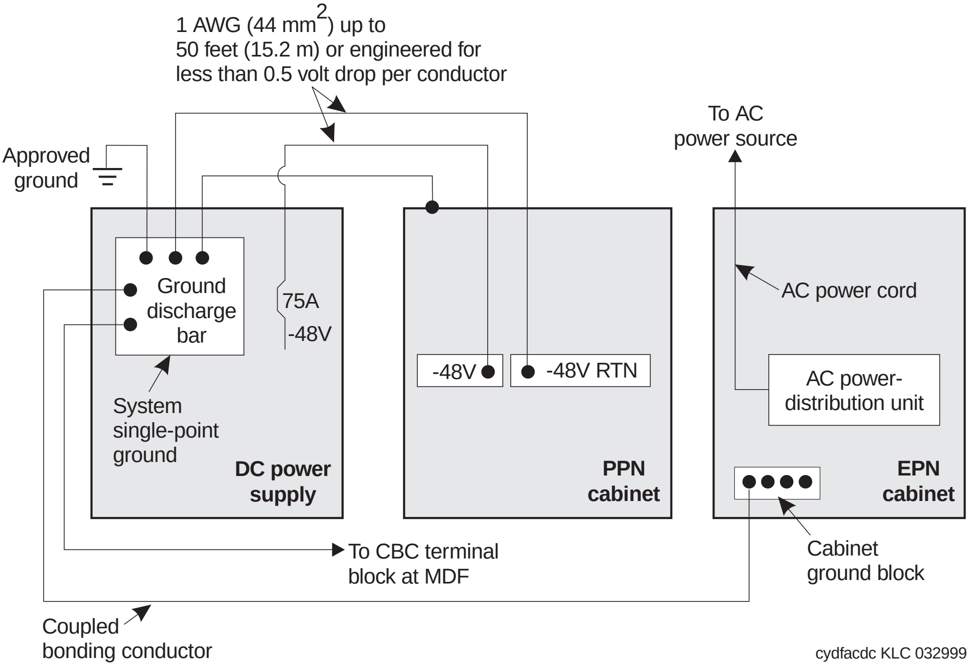

Figure 1-8. Typical Power and Ground for a Mixed AC/DC-Powered Cabinet

Approved Grounds

An approved ground is the closest acceptable medium for grounding the building entrance protector, entrance cable shield, or single-point ground of electronic telephony equipment. If more than 1 type of approved ground is available on the premises, the grounds must be bonded together as required in Section 250-81 of the National Electrical Code.

Grounded Building Steel — The metal frame of the building where it is effectively grounded by 1 of the following grounds: acceptable metallic water pipe, concrete encased ground, or a ground ring.

Acceptable Water Pipe — A metal underground water pipe, at least 1/2-in. (1.3 cm) in diameter, in direct contact with the earth for at least 10 ft (3 m). The pipe must be electrically continuous (or made electrically continuous by bonding around insulated joints, plastic pipe, or plastic water meters) to the point where the protector ground wire connects. A metallic underground water pipe must be supplemented by the metal frame of the building, a concrete encased ground, or a ground ring. If these grounds are not available, the water pipe ground can be supplemented by 1 of the following types of grounds:

- Other local metal underground systems or structures — Local underground structures such as tanks and piping systems
- Rod and pipe electrodes — A 5/8-in. (1.6 cm) solid rod or 3/4-in. (2 cm) conduit or pipe electrode driven to a minimum depth of 8 ft (2.4 m).
- Plate electrodes — Must have a minimum of 2 square ft (0.185 square m) of metallic surface exposed to the exterior soil

Concrete Encased Ground — An electrode encased by at least 2 in. (5.1 cm) of concrete and located within and near the bottom of a concrete foundation or footing in direct contact with the earth. The electrode must be at least 20 ft (6.1 m) of 1 or more steel reinforcing bars or rods 1/2-in. (1.3 cm) in diameter, or at least 20 ft (6.1 m) of bare, solid copper, 4 AWG (26 mm^2) wire.

Ground Ring — A buried ground that encircles a building or structure at a depth of at least 2.5 ft (0.76 m) below the earth’s surface. The ground ring must be at least 20 ft (6.1 m) of 2 AWG (35 mm^2), bare, copper wire.

Approved Floor Grounds

Approved floor grounds are those grounds on each floor of a high-rise building suitable for connection to the ground terminal in the riser closet and to the cabinet equipment single-point ground terminal. Approved floor grounds may include the following:

- Building steel
- The grounding conductor for the secondary side of the power transformer feeding the floor
- Metallic water pipes
- Power feed metallic conduit supplying panel boards on the floor
- A grounding point specifically provided in the building for the purpose

⚠ **WARNING:**

If the approved ground or approved floor ground can only be accessed inside a dedicated power equipment room, then connections to this ground should be made by a licensed electrician.

Connect Remote Power Off Cable and External Alarm Cable

Figure 1-9 shows the location of the Remote Power Off (RPO) cable. The opposite end of the cable connects to the Emergency Power Off (EPO) switch located outside of the equipment room.

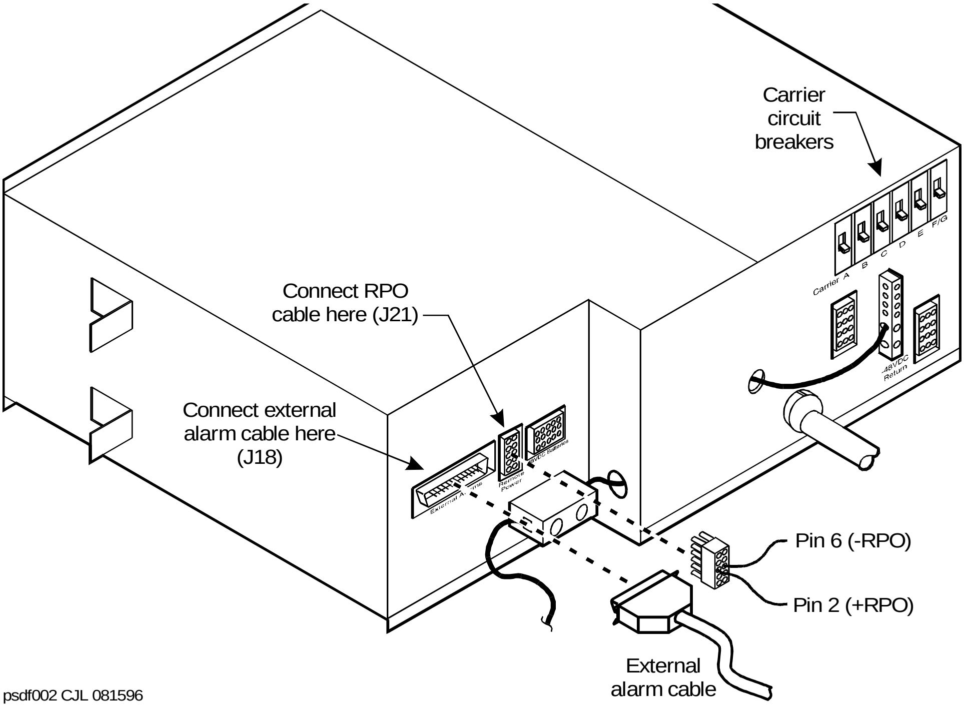

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Figure 1-9. Remote Power Off Cable Connections — Part 1

Even though the equipment room EPO switch disconnects main AC power to the equipment room, it cannot disconnect the battery power from the J58890CH. An auxiliary set of contacts inside the EPO are used for this function.

1. Plug the RPO cable into the connector shown in Figure 1-9.
2. Route the opposite end of the wires to the EPO switch. The opposite end of the RPO cable connects to the internal relay.

NOTE:
The EPO switch and the auxiliary contacts (inside the EPO switch assembly) are customer-provided.

CAUTION:
*The auxiliary contacts inside the EPO switch assembly must **close** when the switch is pressed. This contact closure energizes the relay inside the power distribution unit, causing the connection to the battery holdover assembly to open.*

Figure 1-10 shows the cabling from the auxiliary contacts inside the EPO switch assembly and how they connect to the internal relay.

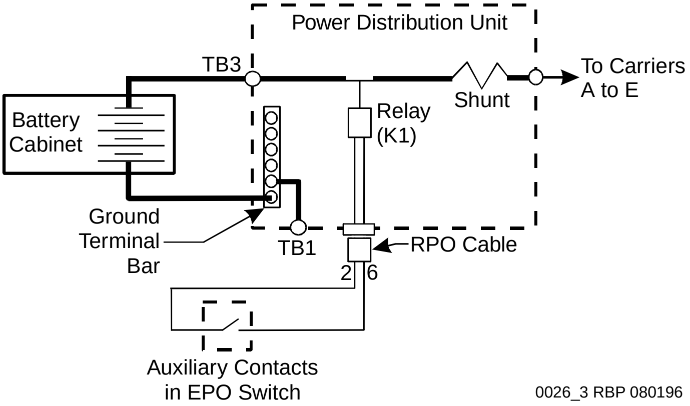


Figure 1-10. Remote Power Off Cable Connections — Part 2

1. Connect the RPO wires to the auxiliary contacts on the EPO switch. See Figure 1-10.

NOTE:
The EPO switch and the auxiliary contacts for the RPO connection are customer-supplied.

Connect External Alarm Cable

1. Plug the external alarm cable into the connector shown in Figure 1-9.
2. Route the opposite end of the cable to the MDF. The alarm cable is connected to the MDF in Chapter 5, ''Install and Wire Telephones and Other Equipment''.

Connect AC Power to Stratum 3 Clock Cabinet

The clock cabinet requires a 120 VAC, 15 Amp receptacle. The green wire ground provided by the receptacle is sufficient. The clock cabinet does not require a ground connection back to the single-point ground.

Check Commercial Power and Connect AC Power

Before powering up the system, check the AC power using a KS-20599 digital voltmeter (DVM) (or equivalent).

1. Set the DVM to the 250 volt range.
2. Carefully measure the voltage between the hot and neutral side of the receptacle. The neutral wire is white, the hot wire is black.
3. Verify the meter reads 106 to 128 VAC. If not, have a qualified electrician correct the problem.
4. Measure the voltage between the neutral and ground side of the receptacle. The ground wire is green.
5. Verify the meter reads 0 VAC. If not, have a qualified electrician correct the problem.
6. Set all cabinet power modules OFF. Plug the AC power cable into the receptacle.

Connect DC Power and Ground to Stratum 3 Clock Cabinet

1. Provide power for the clock cabinet from the same DC power plant as the DEFINITY System.
2. Ground the clock cabinet to the DC power plant.

Connect Clock Cabinet Grounding

1. Measure and cut a 6 AWG (#40) (16 mm^2) wire long enough to reach from the clock cabinet to the ground discharge bar in the DC power plant.
2. Insert 1 end of the wire into the ground lug on the clock cabinet and tighten the screw.
3. Attach the lug to the receptacle cover. Be sure the lug and cabinet ground wires are connected to separate screws on the receptacle cover.
4. Route the ground wire to the DC power plant and connect to DISCH GRD inside the cabinet.

Connect Stratum 3 Clock DC Power

1. Set the clock cabinet circuit breaker at the DC power plant OFF.
2. At the clock cabinet, connect a 6 AWG (#40) (16 mm^2) ground wire to the -48V terminal on the terminal strip.
3. At the clock cabinet, connect a 6 AWG (#40) (16 mm^2) wire to the -48VRTN terminal on the terminal strip.
4. Route the wires out of the cabinet and to the DC power plant.
5. At the DC power plant, connect the -48V wire to the DC OUTPUT circuit breaker.
6. At the DC power plant, connect the -48VRTN wire to the DISCH GRD bar.

Fiber Optic Duplication Interface Cabling (R8si only)

If not already installed, interconnect the A and B port networks (TN792) with the short fiber optic cable (comcode 848204434—see Figure 1-11).

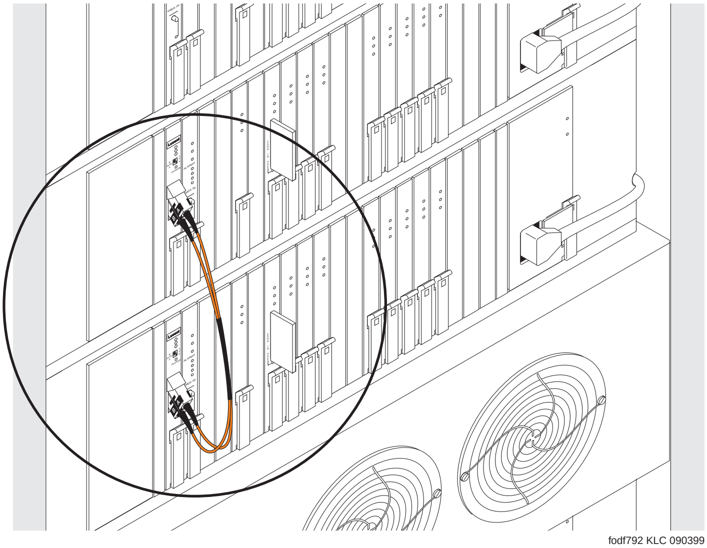


Figure 1-11. Fiber optic cable connecting the two duplication interface circuit packs.

Fiber Optic Interconnect Cabling

Signals between the cabinets are carried by fiber optic cables. Lightwave transceivers provide the required fiber optic interface.

The fiber optic cables from the DEFINITY System route to a Lightguide Interconnect Unit (LIU) or fiber optic shelf. Refer to Appendix A, ‘‘Connecting Fiber Optic Cables’’. Refer to this information for fiber optic equipment comcode numbers, connecting to LIUs or shelves, and routing through lightguide equipment.

Use multi-mode fiber transceivers and multi-mode fiber optic cables between cabinets unless single-mode fiber is required (distance restrictions). Use metallic cables between carriers.

⚠ CAUTION:

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:

- Maximum Power Output: -5 dBm
- Wavelength: 1310 nm
- Mode Field Diameter: 8.8 microns

CLASS 1 LASER PRODUCT
IEC 825 1993

⚠ CAUTION:

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

Contact your Lucent Technologies representative for more information.

Connect Fiber Optic Cables

NOTE:
Always use the Cable Running List that accompanies the system when installing fiber optic cables. The following procedure is a *typical* example of how to cable a system.

If the cabinets are close together, the signal may go through a single, directly-connected fiber optic cable. If the cabinets are far apart, it may be easier to connect the cabinets through an LIU or fiber shelf.

For each fiber indicated in the fiber optic Cable Running List:

1. Install a lightwave transceiver on the cabinet connector at the position in the FROM column in the running list.
2. Select a cable indicated by the CABLE CODE and LENGTH in the running list. Connect 1 of the fibers to each connector on the lightwave transceivers just installed. The fiber is numbered 1 or 2. The connector on the transceiver is labeled TX or RX. Keep track of which fiber connects to which transceiver connector. Label both ends of these cables.
3. Route the fiber optic cables from the transceiver out of the cabinet. Secure the cables to the cable-tie rack. Keep the fiber optic cables clear of the heavier I/O cables.
4. If the cabinet in the TO column in the running list is located remotely from the FROM cabinet, connect to the TO cabinet by way of the LIU.
5. Install a lightwave transceiver on the cabinet connector at the position in the TO column in the running list.
6. Route the cables from the FROM cabinet down into the cable trays of each EPN cabinet. Connect the cables to the lightwave transceiver just installed on the TO cabinet.
7. Connect the fiber that comes from the TX connector of the FROM transceiver to the RX connector of the TO transceiver and vice versa.
8. Route the cables through the cabinet and through cable organizers as provided. Secure the cables to the cable-tie rack.

CSS-Connected System with 1 Switch Node

Standard-Reliability

Figure 1-12 shows typical fiber optic cabling between cabinets. The cable between the EI and SNI on the PPN is a pre-installed metallic cable (H600-278).

1. If no running list is available, use the outer slots first in alternating order. Connect the first 2 SNI slots to 3 and 20 (the leftmost and rightmost of the unused slots). Next, use 4 and 19, and so forth.
2. Add links to the EPNs in alternating order (20, 3, 19, 4, 18, 5, and so forth).

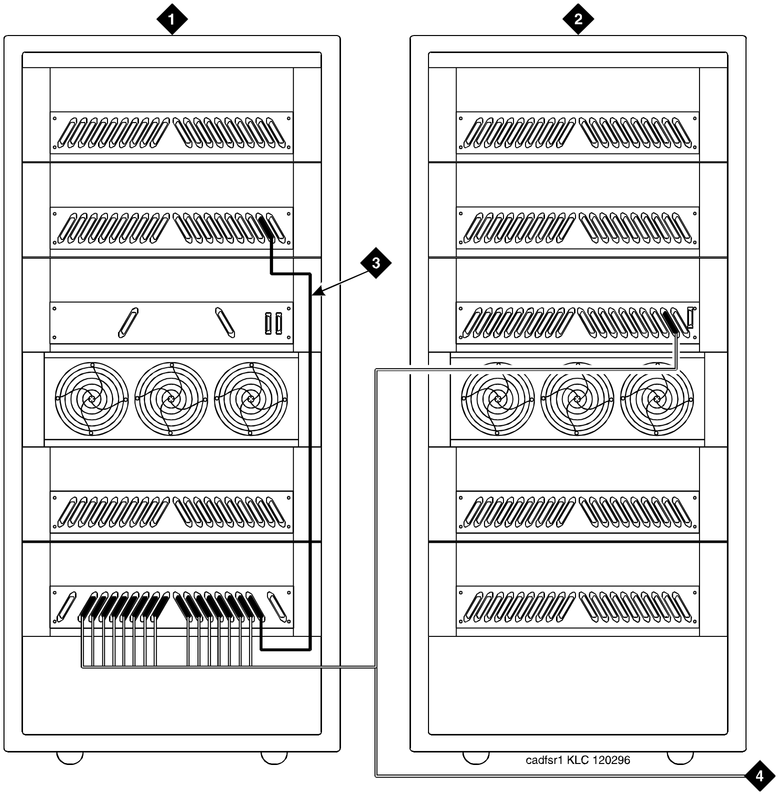


Figure Notes

1. Cabinet 1 (PPN with 1 Switch Node)
2. Cabinet 2 through 16 (EPN)
3. H600-278 Metallic Cable
4. To other EPNs

Figure 1-12. Standard Reliability CSS-Connected Release 8r with 1 Switch Node

High-Reliability

Figure 1-13 shows typical fiber optic cabling between cabinets. The cable between the EI and SNI on the PPN cabinet is a pre-installed metallic cable (H600-278).

1. Connect the cables between the PPN cabinet and each EPN cabinet in an alternating port slot order: 3, 19; 4, 18; 5, 17; and so forth. Cabinet 1 is a Release 8r PPN with 1 Switch Node.

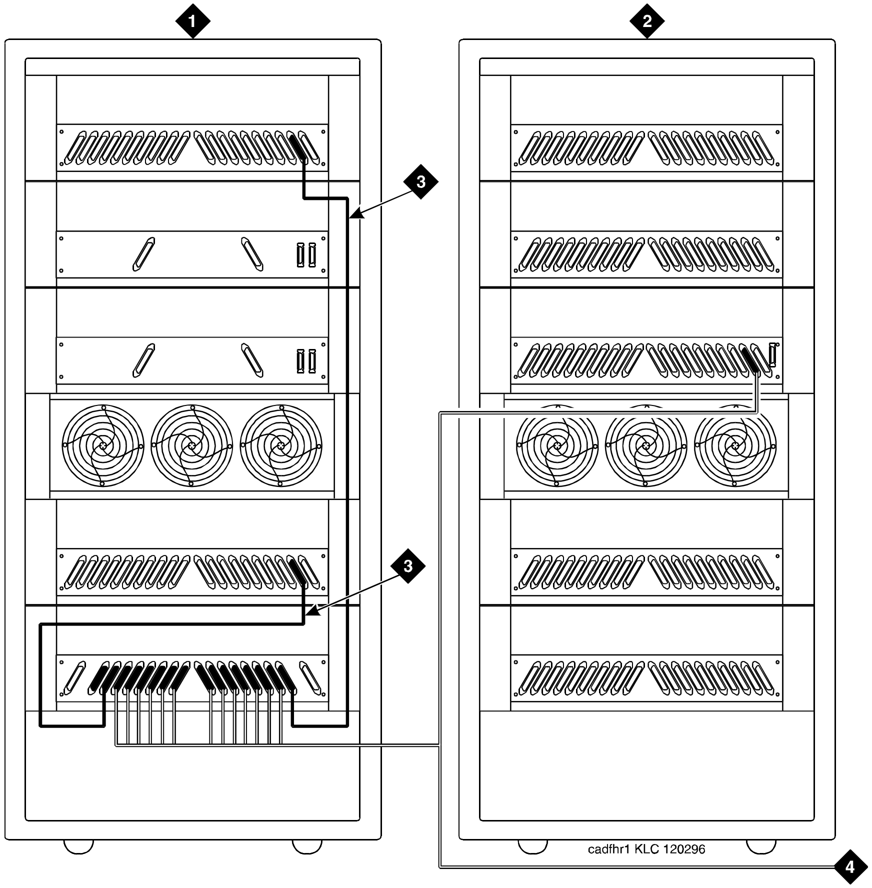


Figure Notes

1. Cabinet 1 (PPN with 1 Switch Node)
2. Cabinet 2 through 15 (EPN)
3. H600-278 Metallic Cable
4. To other EPNs

Figure 1-13. High-Reliability CSS-Connected with 1 Switch Node

Critical Reliability

Figure 1-14 shows typical fiber optic cabling between cabinets. The cable between port slots 1 and 2 on each switch node is a metallic cable (H600-278).

1. Connect the 2 groups of 1 to 15 cables between the PPN and each EPN in an alternating port slot order: 20, 3; 19, 4; 18, 5; and so forth.

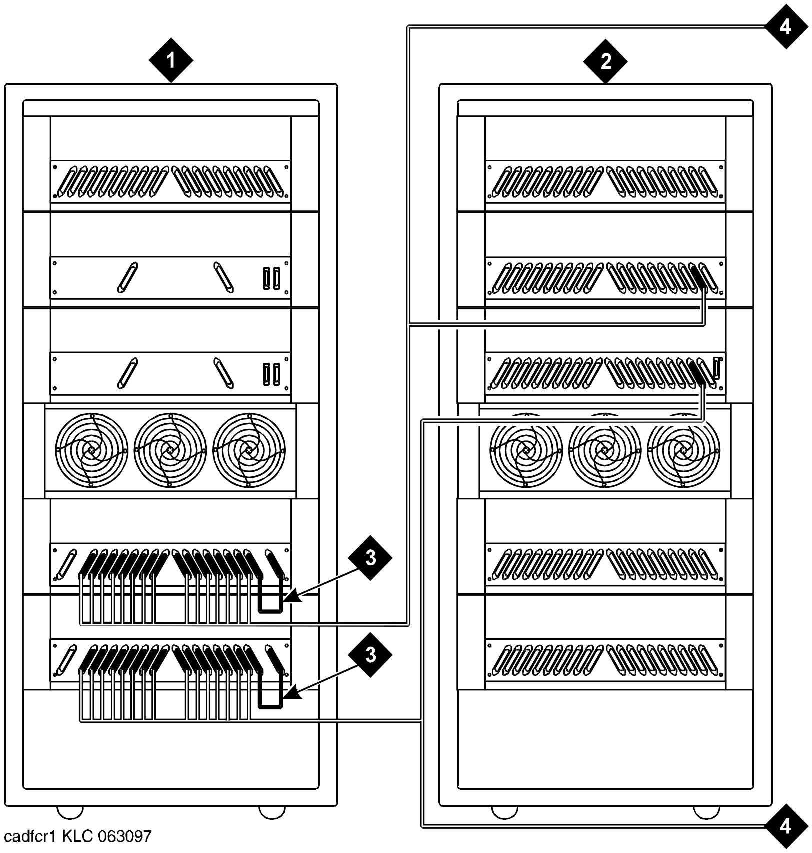


Figure Notes

1. Cabinet 1 (PPN with 1 Duplex Switch Node)
2. Cabinet 2 through 16 (EPN)
3. H600-278 Metallic Cable
4. To other EPNs

Figure 1-14. Critical-Reliability CSS-Connected with 1 Switch Node

2. Both connections from each EPN must go to the same slot number. For example: EPN cabinet 2, 2A1 to 1E3 and cabinet 2, 2B2 to 1D3.

Earthquake Protection Installation

Install Concrete Floor Mounting

1. Position the cabinet in the exact position it is to occupy when the installation is complete.
2. Insert a pencil or marker through the holes previously occupied by the carriage bolts (front and rear) in the bottom of the cabinet and mark the floor directly beneath each hole.
3. Roll the cabinet out of the way and drill four 1/2-in. (1.27 cm) diameter holes about 1.5 in. (3.8 cm) deep at the locations marked in Step 2.
4. Insert concrete floor anchors (STARR part number 3425) into the holes.
5. Roll the cabinet back into place and align the cabinet holes over the concrete floor anchors.
6. Adjust the leveling legs until the cabinet is level. See Figure 1-15.

   NOTE:
   If the system is supplied with cable ductwork, the cabinets must be level from front to rear and from side to side. They must be square with respect to each other to within ±1/8-in. (0.3 cm).

7. Secure the cabinet to the floor with the 4 supplied 3/8-16 x 4.5-in. (11.4 cm) bolts and four 3/8-in. flat washers.
8. Repeat this procedure for each cabinet to be installed.

Install Raised Computer Floor Mounting

1. Position the cabinet in the exact position it is to occupy when the installation is complete.
2. Insert a pencil or marker through the holes previously occupied by the carriage bolts (front and rear) in the bottom of the cabinets and mark the raised floor panels directly beneath each hole.
3. Roll the cabinet out of the way and drill 4 holes 5/8-in. (1.6 cm) in diameter through the raised floor panels marked in Step 2.

   CAUTION:
   Take care while drilling the holes through the raised floor that the drill bit does not penetrate any cables below the floor that could cause damage to the cable or injury to the installer.

4. Insert a long punch through the holes drilled in Step 3 and mark the concrete floor beneath the raised floor panels.

5. Remove the raised floor panels in which the holes were drilled.
6. Using 1/2-in. (1.3 cm) anchor bits, drill a hole at each of the locations marked in Step 4. Stop drilling when the mark on the side of the bit reaches the floor level.
7. Insert a concrete floor anchor (STARR part number 3425) into the hole until the mark on the bit reaches floor level again. Snap the top of the anchor bit off. Repeat for the remaining holes.

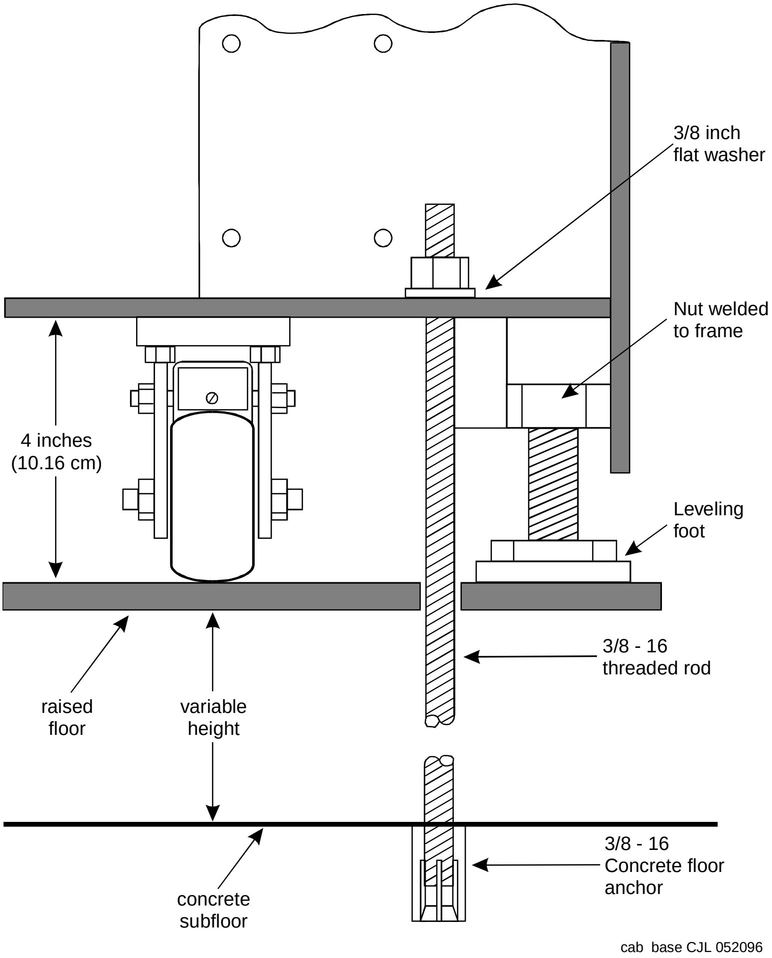


Figure 1-15. Earthquake Mounting — Raised Computer Floor

8. A 3/8-16 threaded rod (part number 845557073) is used to secure the cabinet to each concrete floor anchor. See Figure 1-15.

   Measure the distance from 1 of the anchors to the bottom of the cabinet. Add 1/2-in. (1.3 cm) to this measurement to allow the rod to be threaded into the floor anchor. Add an additional 1/2-in. (1.3 cm) to allow the rod to protrude up through the bottom of the cabinet. For example: if the distance from the floor anchor to the bottom of the cabinet is 10 in. (25 cm), cut the threaded rod 11 in. (27.9 cm) long.

9. When all 4 threaded rods are cut, replace the raised floor panels removed in Step 5.

10. Position the cabinet over the holes and adjust the leveling legs until the cabinet is level.

    NOTE:
    If the system is supplied with cable ductwork, the cabinets must be level from front to rear and from side to side. They must be square with respect to each other to within +-1/8-in. (0.3 cm).

11. Insert the threaded rods through the cabinet bottom and thread into the concrete floor anchors.

12. Place a 3/8-in. flat washer onto each rod. Thread a 3/8-16 hex nut onto each rod and tighten securely.

13. Repeat this procedure for each cabinet to be installed (including the Auxiliary Cabinet and the Stratum 3 Clock Cabinet).

Install Telecommunications Cabling

2

Equipment Room Hardware

SYSTIMAX 110-type hardware is used for the Main Distribution Frame (MDF). 110-type hardware is available in 2 basic types: the 110A and 110P. The 110A requires less wall space than the 110P. The 110P includes horizontal and vertical cable troughs for managing cross-connect cables. The system connects to the MDF with the supplied B25A 25-pair cables.

Refer to *DEFINITY Communications System Generic 1 and Generic 3 Main Distribution Field Design*, 555-230-630, for more information.

Figure 2-1 shows the cross-connections for common circuit packs. Refer to the figure when cross-connecting wire pairs to the MDF.

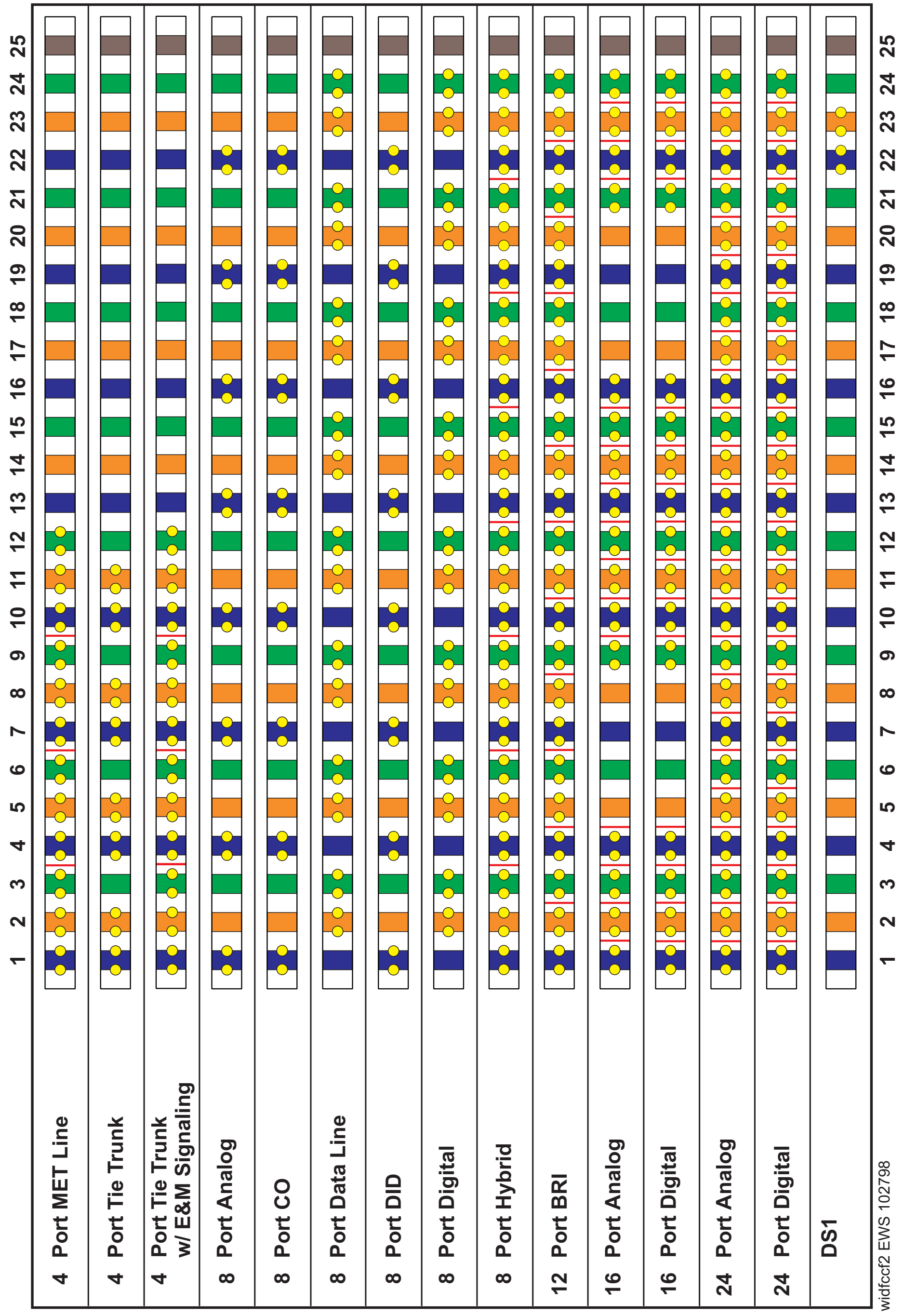


Figure 2-1. Example MDF Connections

Cross-Connect Fields

Each MDF contains a trunk/auxiliary field and a distribution field. The trunk/auxiliary field contains 3 cross-connect areas:

1. *The green field* terminates the network interface leads from the Central Office (CO) and provides the terminals to cross-connect the leads to the purple or yellow fields as required. A single row of the 110-type terminal block can terminate twenty-four 1-pair, eight 3-pair, or twelve 2-pair trunks.
2. *The purple field* terminates the trunk circuits from the system with WP-90929, List 1 or 3 concentrator cables. Also, 25-pair cables can be used to terminate trunk circuits from the system with each trunk circuit pack connecting to one 25-pair row of the 110-type terminal block. Each terminal block row can terminate twenty-four 1-pair, eight 3-pair, or twelve 2-pair trunks.
3. *The yellow field* provides cross-connect terminals for all miscellaneous leads from the system, such as alarm monitors, emergency transfer relay power, and attendant console power. This field is used for emergency transfer wiring, paging equipment, music sources, and so forth.

The distribution field contains 4 cross-connect areas:

1. *The purple field* (port field) terminates 25-pair cables from the system. Each line circuit pack connects to one 25-pair row of the 110-type terminal block. One 25-pair cable is required for each line circuit pack.

   NOTE:
   This is the case except for the 16 port analog circuit pack and the MET circuit pack. The 16-port analog line circuit pack requires an adapter cable to connect from 1 connector on the system to 2 25-pair connectors on a 110-type terminal block. Two MET circuit packs require a concentrator cable to connect from 2 connectors on the system to one 25-pair connector on a 110-type terminal block.

2. *The yellow field* (auxiliary field) terminates all 25-pair cables from the auxiliary cabinet and adjunct equipment cabinets. The yellow field is located in the lower right-hand corner of the distribution field.
3. *The white field* (station field) terminates the station wiring. The white field indicates 3-pair station circuits (8 circuits per 25-pair cable) routed through a satellite closet.
4. *The blue field* (station field) also terminates station wiring. The blue field indicates 3- and/or 4-pair station circuits (8 or 6 circuits, respectively, per 25-pair cable). The fourth pair, of the 4-pair station circuit provides adjunct power from the cross-connect field on an as-needed basis to terminals within 250 ft (76 m) (wire length) of the MDF.

Main Distribution Frame

The MDF is located directly behind the system cabinet. Figure 2-2 shows a typical installation using 900-pair 110P-type terminal blocks.

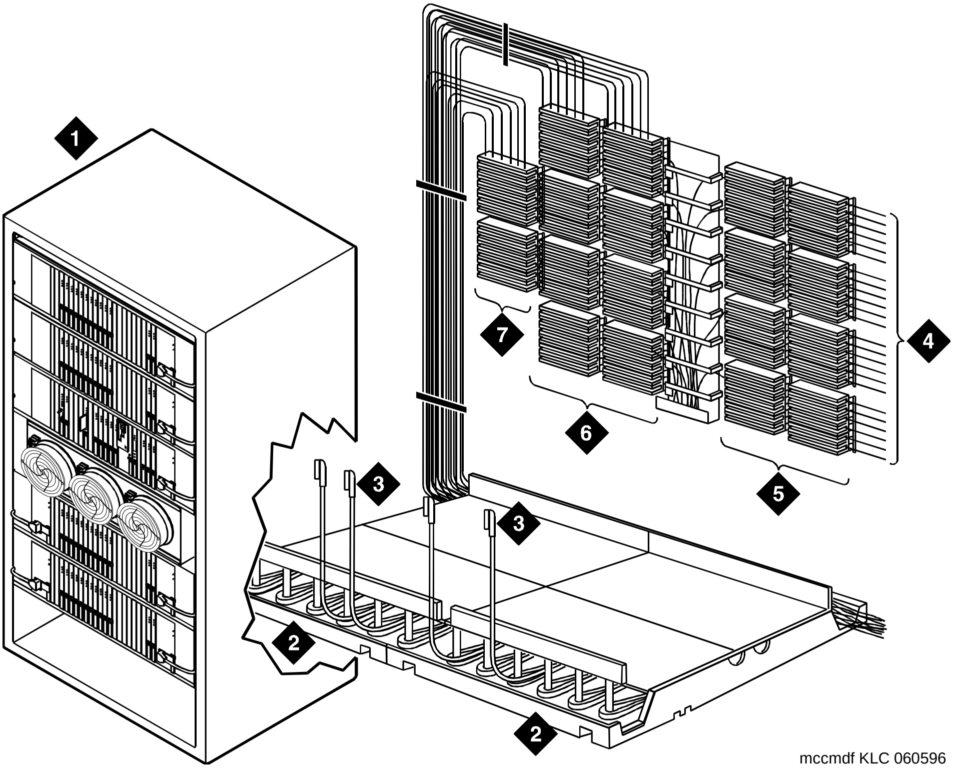


Figure Notes

1. Multicarrier Cabinet
2. Z113A Cable Slack Manager
3. 25-Pair Cable to System Cabinet
4. Station Cables
5. Station Distribution Field
6. Port Distribution Field
7. Trunk/Auxiliary Field

Figure 2-2. Typical 110A-Type Terminal Blocks

Installation Requirements

Sneak Fuse Panels and Emergency Transfer Units

Approximately 8 in. (20 cm) of horizontal wall space is required for each column of sneak fuse panels. Up to 25 connector pairs can be protected by each panel. Horizontal wall space must also be provided for emergency transfer units.

110-Type Hardware

The trunk/auxiliary field and the distribution field are mounted on the same wall. Each 110P-type terminal block is 8.5 in. (21.6 cm) wide. Vertical patch cord troughs are 5.31 in. (13.4 cm) wide and horizontal patch cord troughs are 23 in. (58.4 cm) wide.

Each 110A-type terminal block is 10.81 in. (27.4 cm) wide; however, no horizontal patch cord troughs are used and the blocks are shorter than 110P-type terminal blocks. This allows the 110A-type terminal blocks to be stacked. Therefore, the 110A-type hardware requires less space than the 110P-type hardware on a per-station basis.

Cable Slack Manager

A Cable Slack Manager is 32 in. (81.3 cm) wide. The quantity of which is determined by dividing the total length of the MDF in in. (cm) by 32 (81.3). A partial number of 0.4 or less should be rounded down, and a partial number of 0.5 or more should be rounded up (for example: 2.4 = 2 cable slack managers and 2.5 = 3 cable slack managers).

NOTE:
Cable clamps are required in installations with cable slack managers. At the rear of the cabinets, on each rear ground plate, install 2 cable clamps using the screws provided. These clamps hold the 25-pair input/output or MDF cables in place.

Install Equipment and Cables

Hardware Installation

The following procedures assume 1 system technician is performing the installation. Procedures are provided for installing the following:

- Main Distribution Frame (MDF)
- Cable Slack Managers
- Sneak Fuse Panels
- Labels for the Main Distribution Frame

Install the Main Distribution Frame

The preferred MDF location is directly behind the system cabinets.

Wall Mounting 110A-Type Terminal Blocks

The 110A-type hardware can be stacked in almost any arrangement at any height or location on the wall. One arrangement is shown in Figure 2-3. The distance between the mounting screw holes on the terminal blocks is 10.81 in. (27.4 cm). If a vertical patch cord trough is used, the distance between the mounting screw holes is 5.31 in. (13.3 cm).

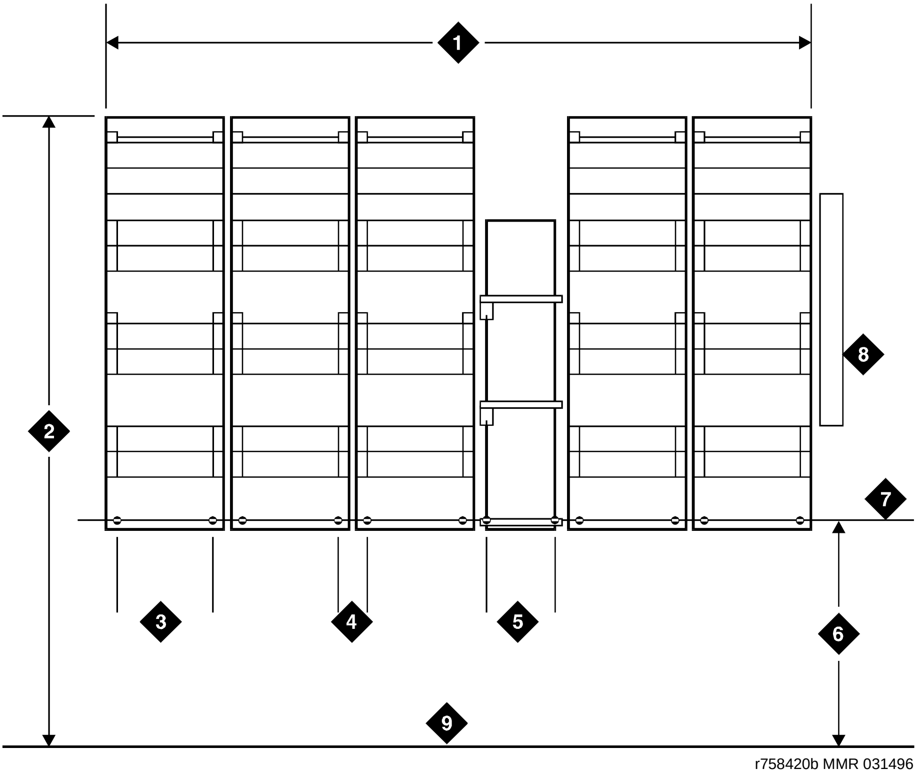


Figure Notes

1. 4 ft (1.22 m)
2. 6.6 ft (2 m)
3. 7.68 in. (19.5 cm)
4. 7/8-in. (2.22 cm)
5. 5.31 in. (13.5 cm)
6. 47.5 in. (120.6 cm)
7. Horizontal Line
8. AC Power Strip
9. Floor Line

Figure 2-3. 110A-Type Terminal Blocks (300-Pair)

Wall Mounting 110P-Type Terminal Blocks

The first terminal block of the trunk/auxiliary field is aligned with the left side of the system cabinet. See Figure 2-4. This arrangement allows for growth on the right side of the MDF.

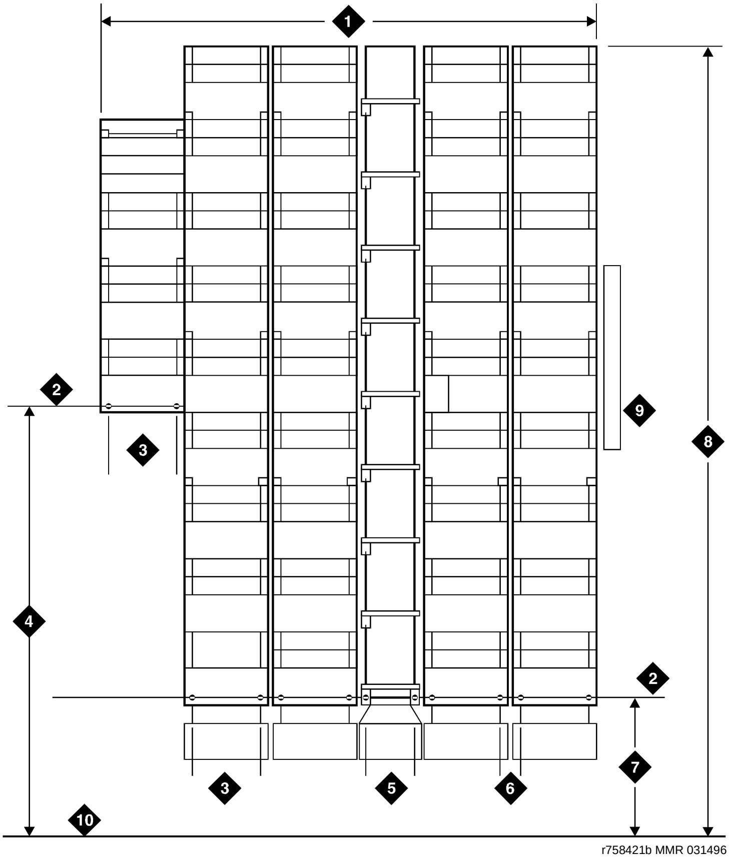


Figure Notes

1. 4 ft (1.22 m)	6. 7/8-in. (2.22 cm)
2. Horizontal Line	7. 23 in. (58.4 cm)
3. 7.68 in. (19.5 cm)	8. 8 ft (2.43 m)
4. 47.5 in. (120.6 cm)	9. AC Power Strip
5. 5.31 in. (13.5 cm)	10. Floor Line

Figure 2-4. 110P-Type Terminal Blocks (900-Pair)

1. If you are installing 300-pair terminal blocks, draw a level horizontal line on the wall 47.5 in. (1.2 m) above the floor. See Figure 2-3.

   If you are installing 900-pair terminal blocks, draw a level horizontal line on the wall 23 in. (58.4 cm) above the floor. See Figure 2-4.
2. To mount the first trunk/auxiliary field terminal block, partially install 2 3/4-in. #12 wood screws, 7-11/16 in. (19.5 cm) apart on the left side of the horizontal line on the wall.
3. Slide the bottom terminal block ft onto the mounting screws and mark the upper mounting screw locations.
4. Remove the terminal block and partially install the upper mounting screws.
5. Place the terminal block on the mounting screws and tighten the screws.
6. If installing a vertical patch cord trough, partially install the first screw for the patch cord trough, on the line, 7/8-in. (2.2 cm) to the right of the previous screw. Partially install the second mounting screw 5.31 in. (13.5 cm) to the right of the screw just installed. Repeat Steps 3, 4, and 5.
7. If another trunk/auxiliary field terminal block is to be installed, partially install the first screw for the terminal block, on the line, 7/8-in. (2.2 cm) to the right of the previous screw. Partially install the second mounting screw 7-11/16 in. (19.5 cm) to the right of the screw just installed. Repeat Steps 3, 4, and 5.
8. If a horizontal patch cord trough is to be installed, install it, on the line, between the trunk/auxiliary field and the distribution field.
9. To install the first distribution field terminal block, partially install 2 3/4-in., #12 wood screws, 7-11/16 in. (19.5 cm) apart on the line, to the right of the vertical patch cord trough. Repeat Steps 3, 4, and 5.
10. If installing another distribution field terminal block, partially install the first screw for the terminal block, on the line, 7/8-in. (2.2 cm) to the right of the previous screw. Partially install the second mounting screw 7-11/16 in. (19.5 cm) to right of the screw just installed. Repeat Steps 3, 4, and 5.
11. If installing a vertical patch cord trough in the distribution field, repeat Step 6.
12. Repeat Steps 10 and 11 until all the terminal blocks and vertical patch cord troughs in the distribution field are installed.

Frame Mounting 110P-Type Terminal Blocks

The 900-pair 110P-type terminal blocks and the associated patch cord troughs can also be mounted on a free-standing, floor-mounted 1110A2 Apparatus Mounting Frame. See Figure 2-5.

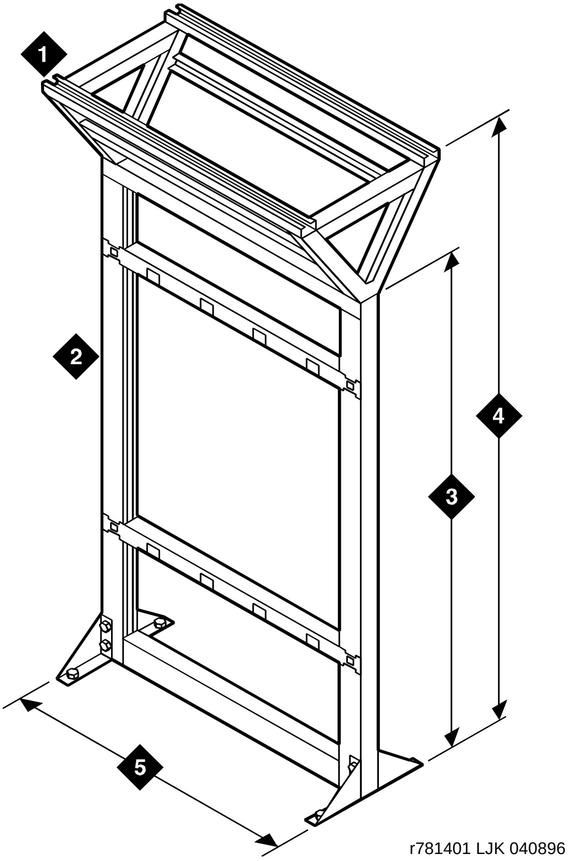


Figure Notes:

1. 1110C1 Apparatus Mounting
2. 1110A2 Apparatus Mounting
3. 76 in. (193 cm)
4. 88.5 in. (225 cm)
5. 43.5 in. (110.5 cm)

Figure 2-5. 1110A2 and 1110C1 Apparatus Mountings

Each 1110A2 provides the space to mount 5 terminal blocks/patch cord troughs on each side of the frame. A cable support structure, apparatus mounting 1110C1, mounts directly on top of the 1110A2 and provides support for all cables routed to and from the frame.

Apparatus Mounting Frame Ordering Information

Code Number	Description	Comcode
1110A2	Apparatus Mounting Frame	104032495
1110C1	Cable Support Assembly	104175120
1110A1	End Dress Panel	104176268
2110A1	Top Dress Panel	104176276
2110B1	Bottom Dress Panel	104176284

Install Cable Slack Managers

1. Place the Z113A Cable Slack Manager against the wall under the MDF. See Figure 2-6. Align the left side of the cable slack manager with the first terminal block of the trunk/auxiliary field.
2. Place the next cable slack manager beside the previously installed unit. Align the tabs and interlocks and snap the units together.
3. Repeat Step 2 until all cable slack managers are installed.

NOTE:
Nine 1/4-in. holes (0.63 cm) are provided in a cable slack manager base if earthquake mounting is required. If a base is mounted on an uneven floor, shims may be required for leveling and to assure proper fit of the covers.

Holes are provided in the sides of the base for bolting cable slack manager together. Bolts and shims must be obtained locally.

4. The system cables will route through the cable slack manager as shown. Complete cable routing is covered later in this chapter.

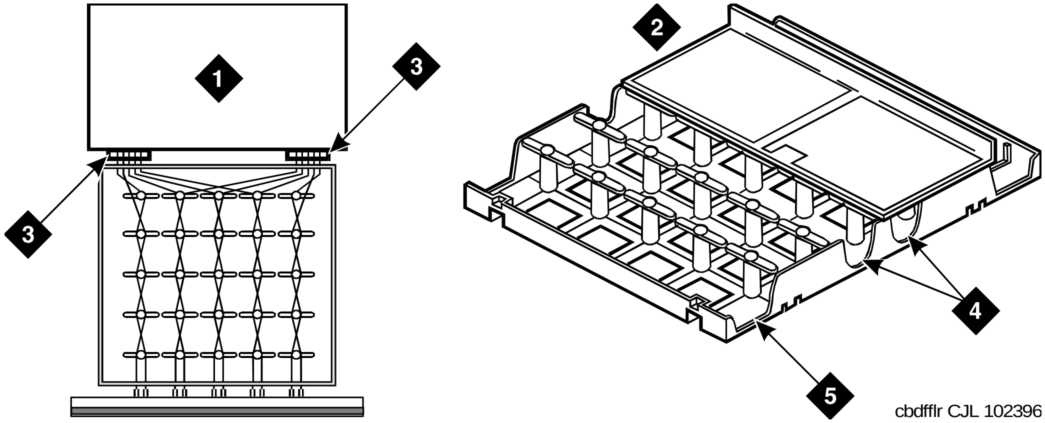


Figure Notes:

1. System Cabinet
2. Cable Slack Manager
3. Cable Clamp
4. Spare Center Troughs
5. Cabinet Trough for Port Cables

Figure 2-6. Cable Routing Through Cable Slack Manager

Cable clamps are required in installations with cable slack managers. At the rear of the cabinets, install 2 cable clamps using the screws provided. These clamps hold the 25-pair input/output or MDF cables in place. Figure 2-6 shows cable clamp placement and cable routing.

Off-Premises Circuit Protection

Protection from hazardous voltages and currents is required for all off-premises (out of building) trunks, lines, and terminal installations. Both over-voltage protection (lightning, power induction, and so forth), and sneak current protection are required. Sneak current protectors must be either UL listed/CSA certified, or must comply with local safety standards.

Sneak current protectors must have a maximum rating of 350 mA, and a minimum voltage rating of 600V, or as required by local regulations. The following devices protect the system from over-voltages:

- Analog trunks use the 507B sneak protector or equivalent. Over-voltage protection is normally provided by the local telephone company.
- Analog voice terminals use one of the following types of combined over-voltage and sneak current protection, or equivalent:
  - — Carbon block with heat coil for UL code 4B1C
  - — Gas tube with heat coil for UL code 4B1E-W
  - — Solid state with heat coil for UL code 4C1S
- DCP and ISDN-BRI terminals use the solid state 4C3S-75 with heat coil protector, or equivalent
- DS1/E1/T1 circuits require isolation from exposed facilities. This isolation may be provided by a CSU (T1), LIU (E1), or other equipment that provides equivalent protection

Install Sneak Fuse Panels

Sneak current protection is required between the incoming RJ21X or RJ2GX network interface and the system for both trunk and off-premise circuit packs.

The Model 507B sneak current fuse panel, or equivalent, is recommended for sneak current protection. See Figure 2-7. The panel contains two 25-pair connectors, fuse removal tool, and fifty 220029 Sneak Fuses (and 2 spares).

B25A connector cables connect the network interface to the sneak fuse panel. Also, 157B connecting blocks equipped with SCP-110 protectors can be used for sneak current protection.

Table 2-1. Sneak Fuse Panel Ordering Information

Description	Comcode
157B Connecting Block	403613003
SCP-110 Protector	406948976
507B Sneak Current Fuse Panel	107435091
220029 Sneak Current Fuse	407216316

NOTE:
Sneak current protectors with a rating of 350 mA at 600 Volts must be UL listed for domestic installation and CSA certified for Canadian installation.

The 507B includes 52 sneak fuses and 2 cables and can be ordered using PEC code 63210.

The SCP-110 protectors are used with 110-type hardware and on the 507B Sneak Fuse Panel. The SCP-110 Protectors can be ordered separately and installed on the 157B connecting block. Fifty protectors are required per block.

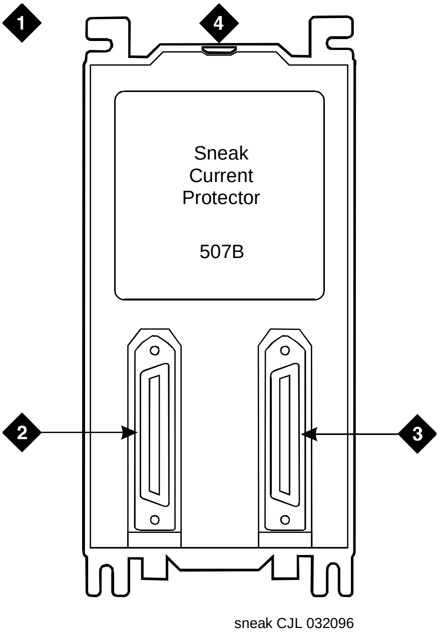


Figure Notes:

1. Sneak Fuse Panel
2. 25-Pair Male Connector (In)
3. 25-Pair Female Connector (Out)
4. 220029 Fuses (Inside Panel). Use Small Screwdriver to Pry Top Cover Off

Figure 2-7. Model 507B Sneak Fuse Panel

1. Locate the 507B near the network interface or the MDF.
2. Hold the panel against the mounting surface and mark the mounting screw locations. Drill pilot holes at the marked locations and partially install a locally obtained #12 x 3/4-in. screw into the 2 bottom mounting slots.
3. Slide the sneak fuse panel onto the mounting screws and tighten the screws securely.
4. Install a locally obtained #12 x 3/4-in. screw into the top 2 mounting slots and tighten securely.
5. Repeat the procedure for each sneak fuse panel.

Table 2-2 is a pinout of the cable wiring and associated fuse numbers.

Table 2-2. Sneak Fuse Connector Pinout

Connector Pin Numbers	Pair/Fuse Number
26/1	1
27/2	2
28/3	3
29/4	4
30/5	5
31/6	6
32/7	7
33/8	8
34/9	9
35/10	10
36/11	11
37/12	12
38/13	13
39/14	14
40/15	15
41/16	16
42/17	17
43/18	18
44/19	19
45/20	20
46/21	21
47/22	22
48/23	23
49/34	24
50/25	25

6. Secure the top of each B25A cable with the captive screw on the connector.
7. Secure the bottom of each cable with a supplied cable tie wrap.

Cable Installation

Labels

The purple port label shown in Figure 2-8 is installed on both ends of the 25-pair cables connecting to the trunk/auxiliary field and/or distribution field.

The top blue/yellow building and floor labels are for cables connecting from the equipment room to a site/satellite location on another floor or in another building. The yellow label is for auxiliary circuits connecting to the trunk/auxiliary field. The bottom blue/yellow label is for 25-pair cables connecting to site/satellite closets.

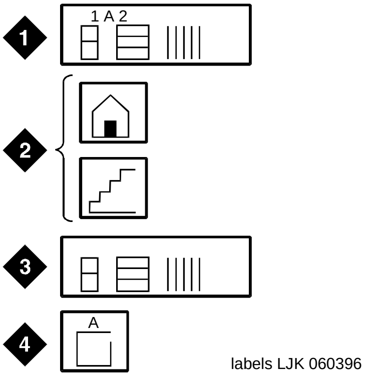


Figure Notes:

1. Purple Label (Port Cable)
2. Blue/Yellow Label (Building and Floor)
3. Yellow Label (Auxiliary)
4. Blue/Yellow Label (Site or Satellite)

Figure 2-8. Equipment Room Cabling Labels

Table 2-3 details the label name and range of each label.

Table 2-3. Equipment Room Labels

Label Name	Range
Port Cable	1A1-1A20, 1B1-1B20, 1C1-1C20, 1D1-1D20, 1E1-1E20
Building	Field Identified
Floor	Field Identified
Auxiliary Cable	Field Identified
Site or Satellite	A-F and/or Field Identified

Cable/Connector/Building Label Ordering Information

Description	Quantity	Comcode
201A Labels	34 Sheets	103969994

Figure 2-9 shows the proper way to install a label on a 25-pair cable connector. Install the label near the rear of the connector so it is not obscured by the cabinet connector retainers. It can also be installed on the skin of the cable near the connector.

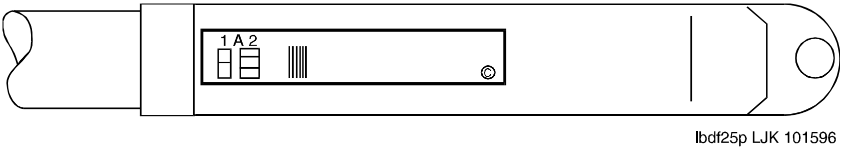


Figure 2-9. Self-Stick Label on 25-Pair Cable Connector

Cable Routing Guidelines

General

The following guidelines should be used when installing the equipment room cabling. Following these guidelines will maximize use of the cable slack managers and make future cabling additions and changes easier.

Figure 2-10 and Figure 2-11 show typical cable routing from the cabinet to the top and bottom of the MDF, respectively.

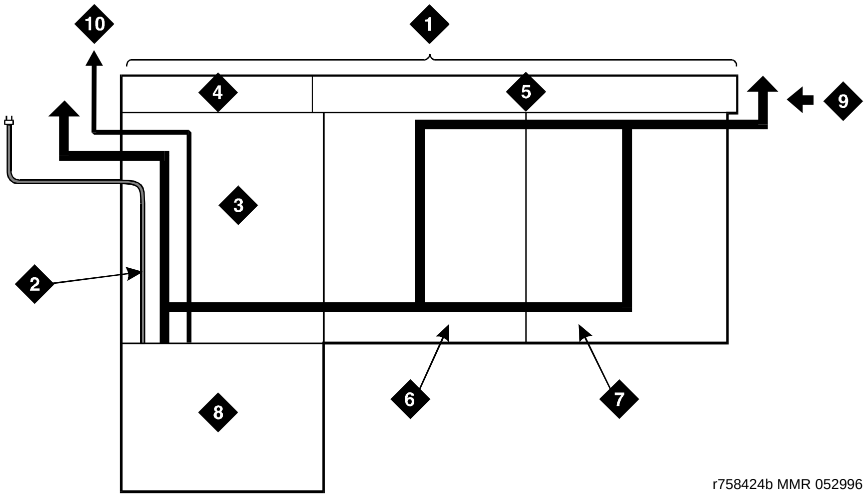


Figure Notes:

1. Main Distribution Frame
2. AC Power Cord (AC-Powered Cabinets Only)
3. Cable Slack Manager Number 1
4. Trunk/Auxiliary Field
5. Station Distribution Field
6. Cable Slack Manager Number 2
7. Cable Slack Manager Number 3
8. System Cabinet(s)
9. To Building Cables
10. 10 AWG (#25) (6 mm^2) Wire to Coupled Bonding Conductor

Figure 2-10. Cable Routing to Top Terminal Blocks

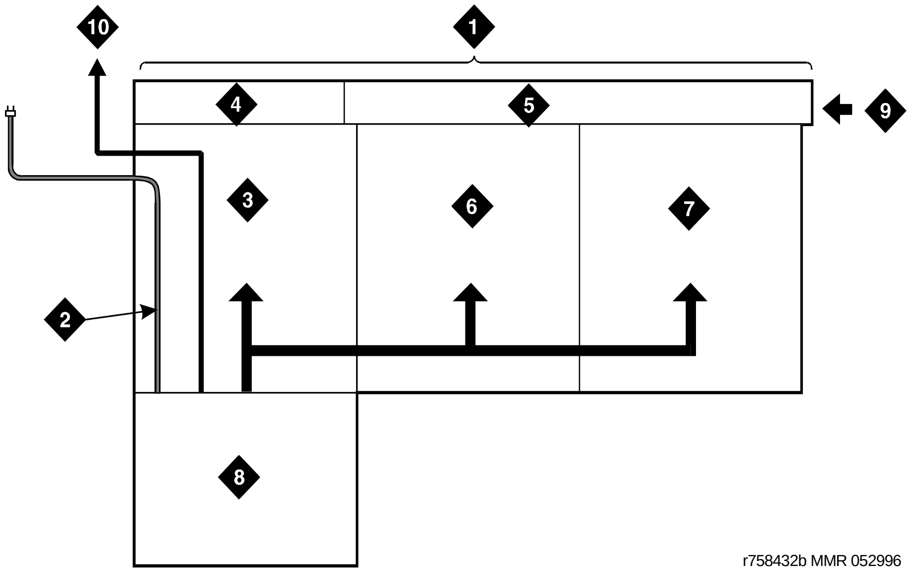


Figure Notes:

1. Main Distribution Frame
2. AC Power Cord (AC-Powered Cabinets Only)
3. Cable Slack Manager Number 1
4. Trunk/Auxiliary Field
5. Station Distribution Field
6. Cable Slack Manager Number 2
7. Cable Slack Manager Number 3
8. System Cabinet(s)
9. Building Cables (Through Cable Trough)
10. 10 AWG (#25) (6 mm^2) Wire to Coupled Bonding Conductor

Figure 2-11. Cable Routing to Bottom Terminal Blocks

Route Cables to Main Distribution Frame

The following guidelines should be followed when routing cables from the cabinet to the MDF.

- Each port cable is connected at the cabinet and then routed along the front trough of the cable slack manager to the connecting/terminal block where the cable is to be terminated.
- Enough slack must be left at the cabinet end of the cable to allow for proper dressing of the cables.

- Route the cable from the cabinet to the wall. Place the cable beside 1 of the rows of columns in the cable slack manager.

  NOTE:
  Retainers mounted on the columns keep the cable from protruding above the top of the base of the cable slack manager.

- Determine the length of the cable required to reach from the cable slack manager to the assigned connecting/terminal block.
- The cable must be supported on the wall using “D” rings.
- Cable slack is stored by coiling the cable around the columns in the cable slack manager. The first run should always go across the full length of the 5 columns in the cable slack manager.
- Connect the cable to the assigned connecting/terminal block.
- Avoid placing copper cables where they may bend or strain fiber optic cables.

Install Control Carrier Outputs Cable

A connector on the rear of the Control Carrier is labeled **AUX**. A 25-pair cable connects the **AUX** connector to a 110-type terminal block in the yellow field of the trunk/auxiliary field. The **AUX** connector outputs include the following:

- Alarm monitoring for the processor interface
- 7 DC power (-48 VDC) sources for emergency transfer units
- 3 DC power (-48 VDC) sources for remotely powering a total of 3 attendant consoles or executive voice terminal adjuncts
- The remote maintenance internal modem connection location
- Access to a relay contact is available to actuate a light, bell, or similar type customer-supplied device. The relay can be administered to make contact when a major, minor, or warning alarm condition occurs in the system

Label Control Carrier Cable

Place the appropriate **AUX** connector label on the assigned 110-type terminal block row. On the control carrier cable, place a yellow auxiliary label on the connectors at each end of the cable. Write “AUX” on each label.

Connect Control Carrier Outputs Cable

Plug the connector cable in the **AUX** connector on the rear of the Control Carrier. Route the connector cable through the cable slack manager to the assigned 110-type terminal block in the yellow field of the trunk/auxiliary field.

Install Trunk Cables Among Network Interface, Sneak Fuse Panel, and Cabinet

The 1-pair of Central Office (CO) trunks are installed by the network provider in the green field. Up to 24 pairs may be terminated on each row of the 110-type terminal block. Tie trunks also appear in the green field with up to eight 3-pair trunks terminated on each row of the 110-type terminal block.

Select Concentrator Cables

WP-90929, List 1 and 3 concentrator cables can be used to connect the cabinet to the 110-type terminal blocks in the purple field. The 1-pair patch cords/jumper wires are then run from the purple terminal block rows to the green terminal block rows in order to establish the correct 3-pair modularity.

Connect Trunk Pairs Using Concentrator Cables

Figure 2-12 shows trunk pairs connected to the cabinet with concentrator cables. To install the cables:

1. Connect B25A cables between the network interface and sneak fuse panels.
2. Connect A25D cables from the sneak fuse panels to the 110-type terminal block connectors in the green field.
3. Connect patch cords/jumper wires from the terminal block in the green field to the associated terminal block in the purple field.
4. Connect the single-fingered end of the concentrator cables to the 110-type terminal block connectors in the purple field in Step 3.
5. Connect the other end (2/3-fingered end) of the concentrator cables to the appropriate carrier slots. Equipped carrier slots are identified on the CSD. Mark the nomenclature strips above the carriers to identify the slots.
6. Label connectors on each end of the cables that connect to the cabinet.
7. Route the cables down the sides of the cabinet and store the excess cable slack in the cable slack manager as previously described.

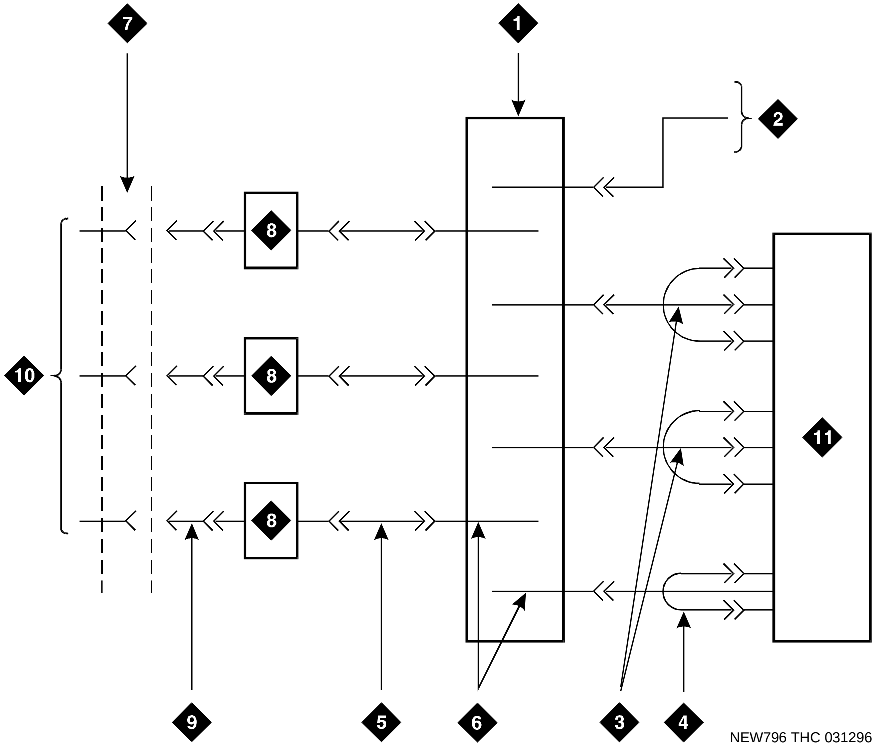


Figure Notes:

1. Trunk/Auxiliary Field
2. To Control Carrier AUX Connector
3. Concentrator Cable (WP90929, List 1)
4. Concentrator Cable (WP90929, List 3)
5. A25D (Male-to-Male) Cable
6. Alternate Block/Rows
7. RJ21X/RJ2GX Network Interface
8. Sneak Fuse Panel
9. B25A Cable
10. Central Office Trunks
11. System Cabinet

Figure 2-12. Connect Trunk Pairs Using Concentrator Cables

Connect Trunk Pairs to Cabinet Using Jumper Wires To Establish 3-Pair Modularity

Figure 2-13 on page 2-24 and Figure 2-14 on page 2-25 show trunk pairs connected to the cabinet with jumper wires to establish 3-pair modularity.

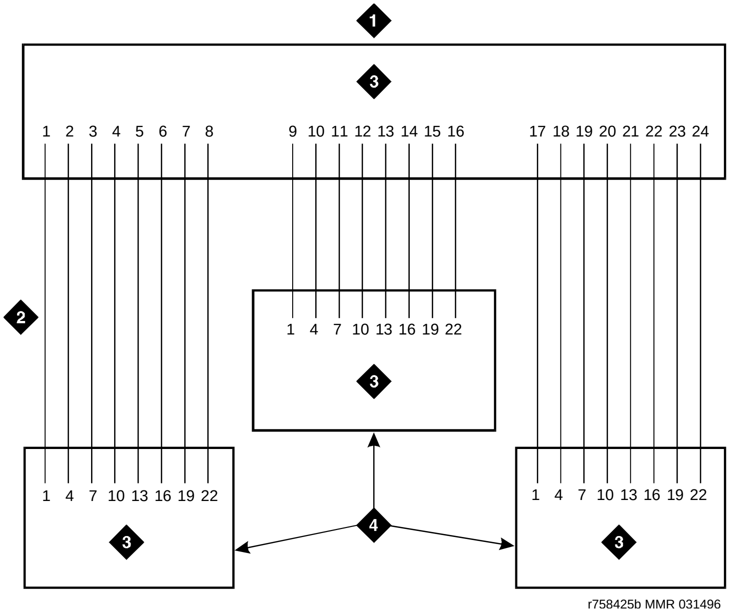


Figure Notes:

1. Green Field
2. 1-Pair Jumpers
3. Pairs
4. Purple Field

Figure 2-13. 3-Pair Modularity for Trunk Pairs for 1-Pair Trunks

To connect the trunk pairs to the purple field:

1. Connect B25A cables between the network interface and the sneak fuse panels. See Figure 2-13.
2. Connect A25D/B25A cables from the sneak fuse panels to the 110-type terminal block-type connecting block connectors in the green field.
3. Connect 1-pair patch cords/jumper wires from each 110-type terminal block row in the green field to the 110-type terminal block rows in the purple field for 1-pair Central Office (CO) trunks or in Figure 2-14 on page 2-25 for 3-pair tie trunks.

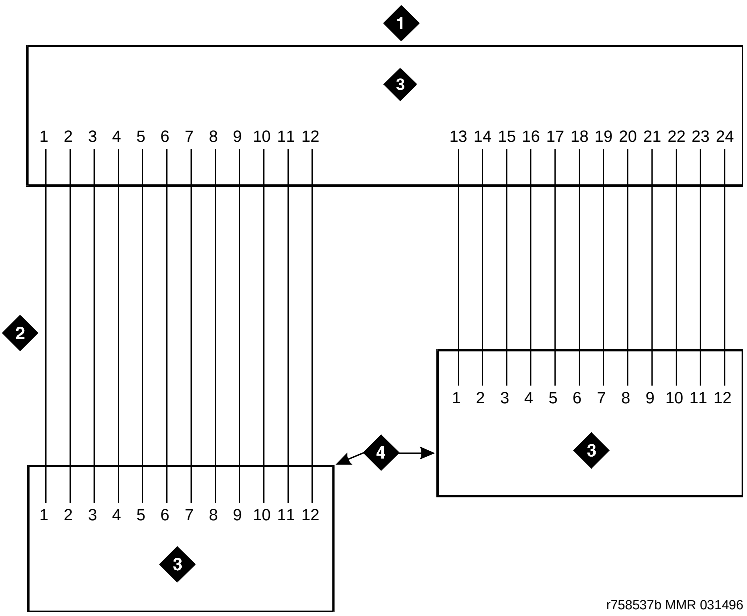


Figure Notes:

1. Green Field
2. 1-Pair Jumpers
3. Pairs
4. Purple Field

Figure 2-14. 3-Pair Modularity for Trunk Pairs for 3-Pair Tie Trunks

Install Cables Between Cabinet and MDF

1. Install “D” rings on the wall between the cable slack manager and the terminal/connecting blocks mounted on the MDF.
2. Install a self-adhesive port label on the back of each connector on the connector cable. Labels should be positioned so they are not covered by the cabinet connector retainers.
3. At the rear of the cabinet, connect 1 end of the connector cable to the assigned connector.
4. Route the cable down the rear of the cabinet, through the cable slack manager, and to the MDF.
5. At the MDF, connect the other end of the cable to the assigned terminal/ connecting block connector.
6. Store the cable slack in the cable slack manager.
7. Repeat Steps 2 through 6 until all cables are installed.

Install Connector Cables Between Auxiliary Cabinet and MDF

Auxiliary equipment that connects to the MDF can be mounted inside the Auxiliary cabinet. The equipment connects to an ED-1E1443-10 (Group 1) intraconnection panel mounted in the cabinet. This intraconnection panel consists of a 110-type 100-pair wiring block. Auxiliary equipment is connected to the 110-type wiring block. The wiring block is pre-wired to four 25-pair female connectors mounted on the outside rear of the cabinet.

1. Install “D” rings on the wall between the cable slack manager and the terminal/connecting blocks mounted on the MDF.
2. Install a self-sticking port label on the rear of each connector on the B25A connector cable. See Figure 2-9 on page 2-18.

   NOTE:
   Labels should be positioned so they will not be obscured by the cabinet connector retainers.

3. At the rear of the Auxiliary cabinet, connect 1 end of the connector cable to the assigned connector.
4. Route the cable down the rear of the cabinet and through the cable slack manager to the MDF.
5. At the MDF, connect the other end of the cable to the assigned terminal/connecting block connector.
6. Store the excess cable in the cable slack manager.
7. Repeat Steps 2 through 6 until all cables are installed.

Install Coupled Bonding Conductor

The Coupled Bonding Conductor (CBC) connects to the single-point ground block and runs adjacent to pairs in an associated telecommunications cable. See Figure 2-15. The mutual coupling between the CBC and the wire pairs reduces potential differences in terminating equipment.

The conductor consists of a 10 AWG (#25) (6 mm^2) wire tie-wrapped to the inside wiring cable and terminated at the CBC terminal bar at the MDF. Maintain a minimum of 12 in. (30.5 cm) spacing between the CBC and other power and ground leads.

The 10 AWG (#25) (6 mm^2) wire must be long enough to reach the telecommunications cables at the rear of the system cabinets, follow these cables to the MDF, and to terminate at the CBC.

1. Cut a 10 AWG (#25) (6 mm^2) wire long enough to reach from the system's single-point ground block or DC power cabinet ground discharge bar to the MDF CBC block.
2. Connect 1 end of the 10 AWG (#25) (6 mm^2) wire to the single-point ground block (or ground discharge bar).
3. Route the wire next to the 25-pair cables connecting to the trunk/auxiliary (purple) field.
4. Tie wrap the 10 AWG (#25) (6 mm^2) wire to the 25-pair cables.
5. Connect the 10 AWG (#25) (6 mm^2) wire to the MDF CBC ground block.
6. Repeat the above steps for each CBC ground wire.

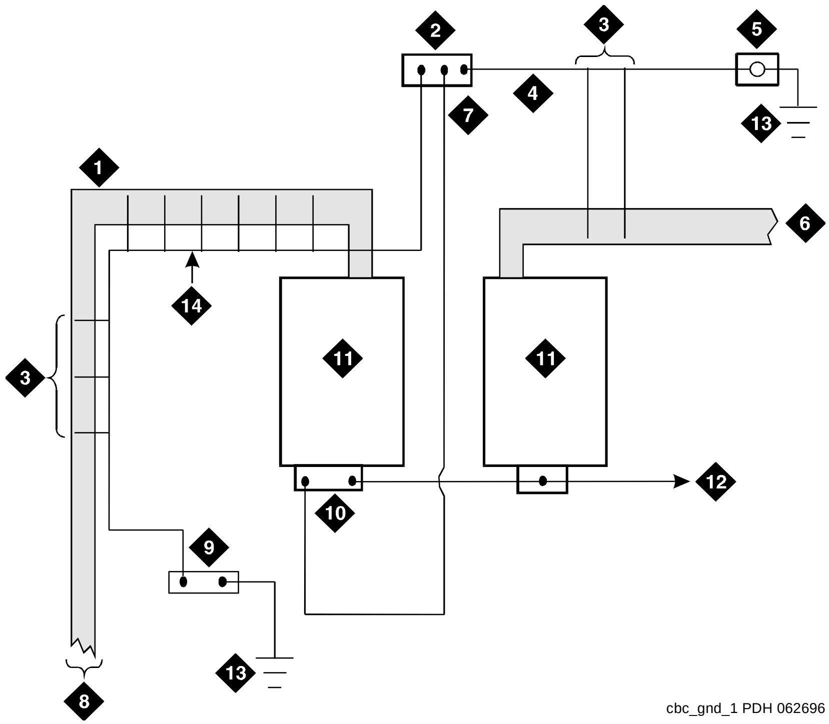


Figure Notes:

1. 25-Pair Tip & Ring Cables to Cabinets
2. Coupled Bonding Conductor (CBC) Terminal Block
3. Tie Wraps
4. Cable Shield or Six Spare Pairs
5. Ground on Carbon Block Protector or Equivalent
6. Trunk Cable to Network Interface
7. 10 AWG (#25) (6 mm^2) Wire
8. To Network Cabinets
9. Battery Plant Ground Discharge Bar or Single-Point Ground
10. Cross-Connect Ground Block
11. Main Distribution Frame (MDF)
12. To Other Cross-Connect Ground Blocks
13. Approved Ground
14. Coupled Bonding Conductor (CBC)

Figure 2-15. Coupled Bonding Conductor

Station Wiring Design

The following hardware and cabling is used:

- Information outlets (modular wall jacks)
- Station Cables
- Closets
  - Site locations
  - Satellite locations
- Adapters
- Labels

A brief description of each of the above listed items follows. Ordering information is not provided for station cables and information outlets.

Information Outlets

Information outlets are 8-pin modular wall jacks. Most of the outlets are wired with push-on connections. Information outlets are also available that connect to a double modular plug-ended 4-pair station cable routed from the MDF, a site/satellite location, or an adapter.

Station Cables

For clarity, a station cable is either a 25-pair cable, multiple 25-pair cable, or 4-pair D-inside wire (DIW) run from the equipment room, site/satellite location, or adapter to the information outlets. The following station cables are available. See Figure 2-16.

25-pair station cable — Use between the equipment room and site/ satellite locations or adapters. Use an A25D cable (male to male) between the equipment room and satellite closet. Use a B25A cable between the equipment room and site closet or adapter.

Multiple 25-pair station cable — Use between the equipment room and site/satellite locations or adapters. This cable consists of individually sheathed 25-pair cables with a factory-installed 25-pair connector on each end. Use a male to female cable to connect between the equipment room and site location or adapter. Use a male to male cable to connect between the equipment room and satellite location. Staggered-finger cables are recommended for all multiple 25-pair station cables and are available in both double-ended and single-ended types.

Single modular plug-ended 4-pair station cable — Use this cable between adapters and information outlets that require push-on connections. It can also be used when 4-pair station cables are field- terminated on the 110-type terminal blocks in the equipment room or satellite closet and modularly connected to information outlets. The station cables are available in the following lengths:

- 10 ft (3.05 m)
- 25 ft (7.62 m)
- 50 ft (15.24 m)
- 75 ft (22.86 m)
- 100 ft (30.5 m)
- 150 ft (45.72 m)
- 200 ft (61 m)

NOTE:

If more than 200 ft (61 m) of 4-pair station cable is required, a 451A in-line adapter (double-ended modular female connector) is attached to the cable and a second 4-pair cable of the required length is plugged into the adapter. See Figure 2-16.

Double modular plug-ended 4-pair station cable — Use this cable to provide nonstandard length runs between adapters and information outlets with push-on connections. It can also be used between adapters and modularly connected information outlets. It is available in the same lengths as the single modular plug-ended cable.

Bulk Cable — Same as the 25-pair cable or multiple 25-pair cable; however, the bulk cable is not equipped with connectors. Use this cable between the equipment room and satellite closets when both are equipped with punch-down type terminal/connecting blocks.

4-pair station cable — Use this cable when 4-pair station cables are to be field-terminated on the 110-type terminal blocks in the equipment room or satellite closet and the information outlets require push-on connections.

451A Adapter Ordering Information

Color	Comcode
Gray	103942272
Ivory	103786240

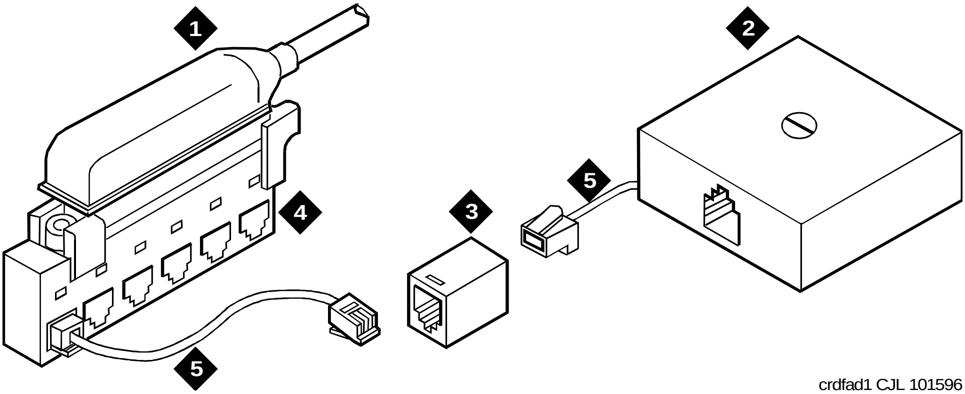


Figure Notes:

1. Station Cable
2. Information Outlet
3. 451A In-Line Adapter
4. 258A Adapter
5. 4-Pair Station Cable

Figure 2-16. Example of Extending 4-Pair Station Cables

Closets

Site Locations

Site locations are closets that provide a point in the station wiring for the administration of remote powering. Adapters are used at site locations to terminate the 25-pair station cables and provide connection points (modular jacks) for power adapters and 4-pair station cables.

The 258A and BR2580A adapters plug into a 25-pair female cable connector. These adapters divide the 25-pair cable into six 4-pair (modular jack) circuits. See Figure 2-17.

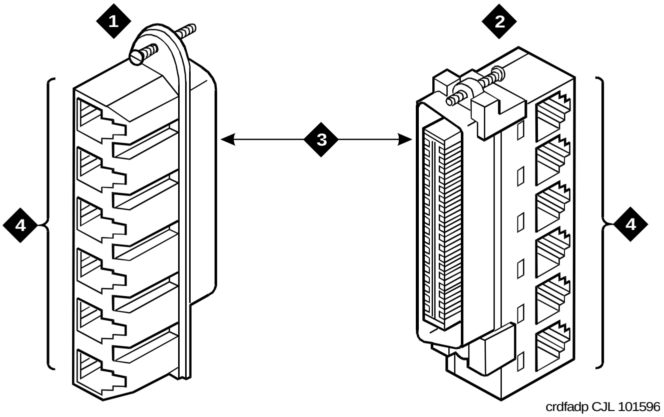


Figure Notes:

1. BR2580A Adapter
2. 258A Adapter
3. 25-Pair Male Ribbon Connector
4. 4-Pair Modular Jacks (8 Pins)

Figure 2-17. 258A and BR2580A Adapters

The 356A adapter plugs into a 25-pair female cable connector. See Figure 2-18. The 356A adapter divides the 25-pair cable into eight 3-pair circuits. Although the circuits are 3-pair, the adapters modular jacks will accept the 8-wide modular plug used on the 4-pair station cable.

CAUTION:

Adapters wired similarly to the 356A should not be used. Their jacks do not accept 4-pair plugs.

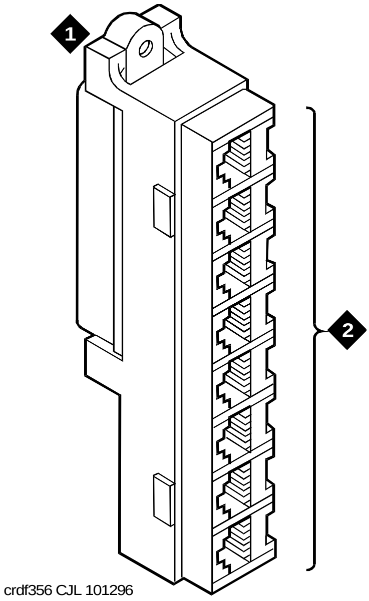


Figure Notes:

1. 356A Adapter
2. 4-Pair Modular Jacks (6 pins each, connected to 25-pair ribbon connector)

Figure 2-18. 356A Adapter

Use the ZD8AJ adapter to connect a Multi-button Electronic Telephone (MET) line cord to an information outlet. The adapter interchanges pairs 3 and 4 to correspond with the pair assignments for the telephone. The line cord plugs into the adapter, and then the adapter plugs into an information outlet.

Adapter Ordering Information

Description	Comcode
258A Adapter	102605136
BR2580A Adapter	403384720
356A Adapter	104158829
400B Adapter	103848859
400B2 Adapter	104152558
ZD8AJ Adapter	103881421

Satellite Locations

Satellite locations are closets that provide an administration point (using cross-connect equipment) for station cables and where adjunct power may be applied. The station cable circuits from the equipment room MDF are 3-pair. At the satellite location, 4-pair circuits run to the information outlets. The hardware used is 110-type terminal blocks.

Satellite Locations Using 110-Type Hardware

Each terminal block has a 3-pair (white field) and a 4-pair (blue field) located on the same terminal block.

The 110A-type terminal block that can be used is the 110AE1-75FT. It must be field-terminated to both the white and blue fields.

The 300-pair 110P-type terminal blocks that can be used are:

- 110PE1-300CT/FT — 25-pair connector on the white field and field-terminated on the blue field
- 110PE1-300FT — Field-terminated on both the white and blue fields

The 900-pair 110P-type terminal blocks that can be used are:

- 110PE1-900CT/FT — 25-pair connector on the white field and field-terminated on the blue field
- 110PE1-900FT — Field-terminated on both the white and blue fields

Station Circuit Distribution from Equipment Room

This section explains the station circuit distribution from the equipment room to the information outlets for new wiring installations. Example connection diagrams are provided to show the options for running and connecting the station cables.

If most of the telephones/voice terminals that require remote powering are within 250 ft (76.2 m) of the equipment room, 4-pair station circuits are run from the equipment room to the information outlets. If this is not the case, or if the customer requires 2-point administration, 3-pair station circuits are run from the equipment room to satellite locations. Then, the 4-pair station circuits are run from the satellite locations to the information outlets.

A list of voice and data terminals that can be connected to the system is provided in Table 2-4 on page 2-42. A list of administration terminals that can be connected to the system is provided in Table 2-5 on page 2-45.

4-Pair Station Circuits

Four-pair circuits can be run directly from an equipment room MDF to a 258A or BR2580A adapter as shown in Figure 2-19. The 4-pair station cables connect the adapter to the information outlets.

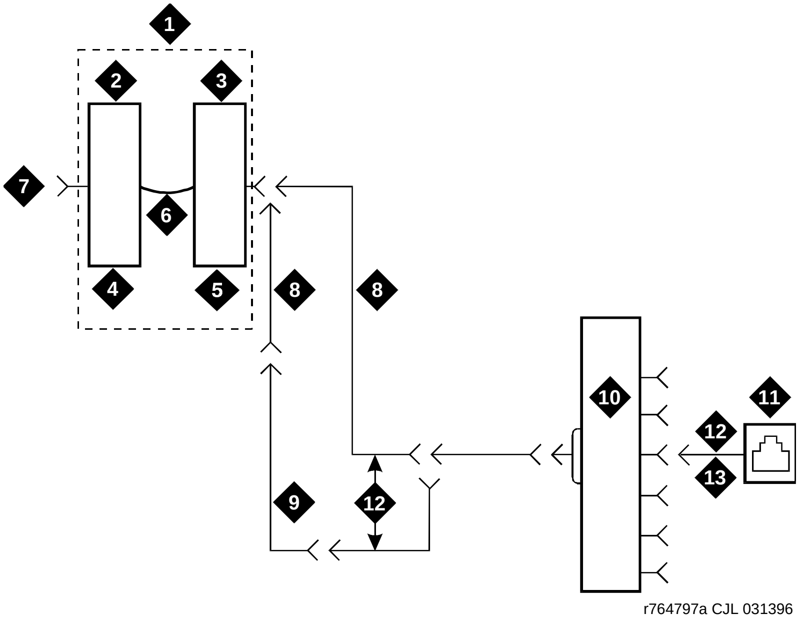


Figure Notes:

1. Part of Main Distribution Frame (MDF)
2. 3-Pair Connecting Blocks
3. 4-Pair Connecting Blocks
4. Purple Field
5. Blue Field
6. Patch Cord or Cross-Connect Jumpers
7. To System Cabinet (Three-Pair Modularity)
8. B25A Cable
9. Connectorized (Staggered Finger) Multiple 25-Pair Cable
10. 258A or BR2580A Adapter
11. Information Outlet
12. 4-Pair Circuit
13. DIW Station Cable (D-Inside Wire)

Figure 2-19. 4-Pair Circuit Distribution and Connectivity

The 4-pair station cables can be run directly from the equipment room to the information outlets if 4-pair terminal blocks are used in the distribution field. See Figure 2-20. The station cables must be field-terminated on the 110-type terminal blocks.

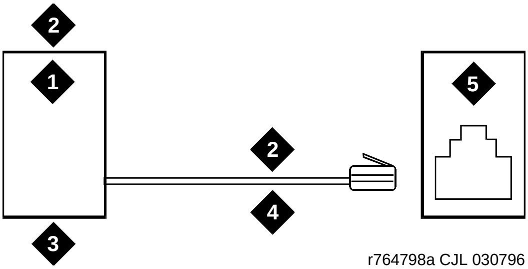


Figure Notes:

1. Station Side of MDF or Satellite Location
2. 4-Pair Circuit
3. Blue Field
4. DIW Station Cable (D-Inside Wire)
5. Information Outlet

Figure 2-20. 4-Pair Run to Equipment Room or Satellite Location

If 110-type terminal blocks are used with a modular plug-ended station cable, an adapter can be connected directly to the 110-type terminal block connectors. See Figure 2-21.

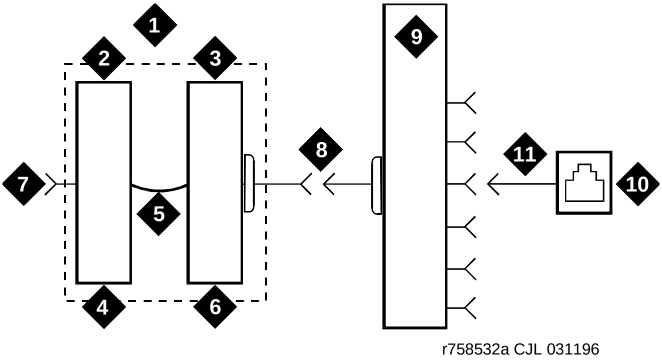


Figure Notes:

1. Part of MDF
2. 3-Pair Connecting Blocks
3. 4-Pair Connecting Blocks
4. Purple Field
5. Patch Cord or Cross-Connect Jumpers
6. Blue Field
7. To System Cabinet (3 pair modularity)
8. A25D Cable
9. 258A or BR2580A Adapter
10. Information Outlet
11. 4-Pair Circuit (DIW station cable (D-Inside Wire))

Figure 2-21. 4-Pair Run to Equipment Room or Satellite Location

3-Pair to 4-Pair Station Circuit Distribution

Figure 2-22 shows the 3-pair circuit distribution from an equipment room MDF to a satellite location using 110-type hardware. Four-pair circuits are distributed from the satellite location to the information outlets.

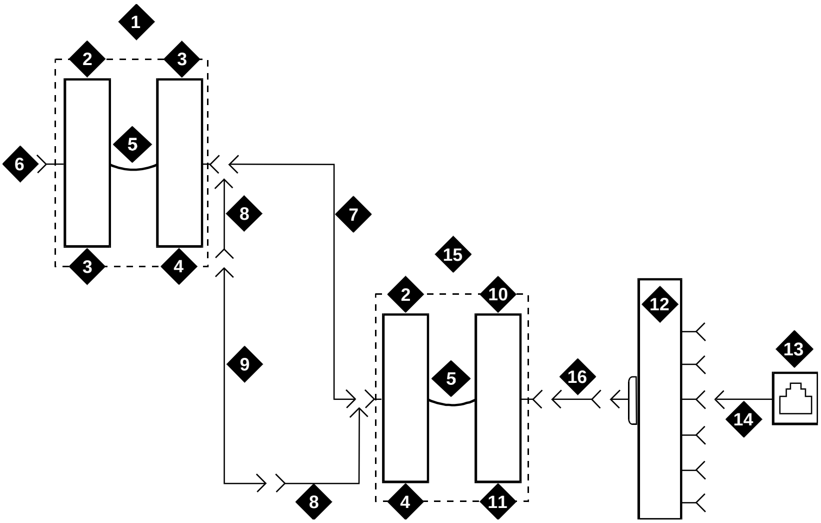
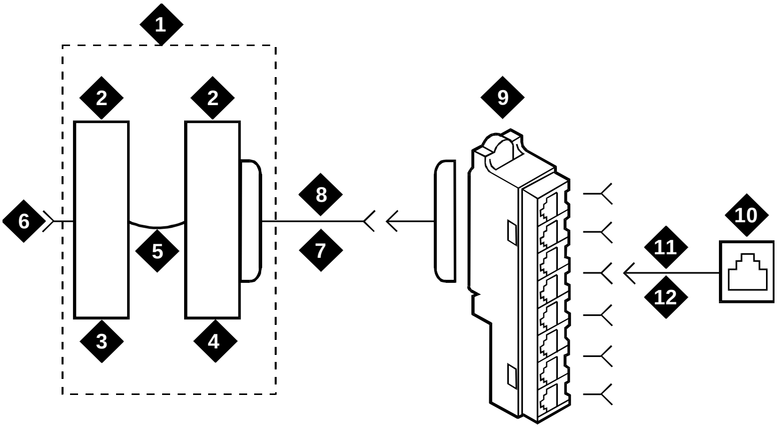


Figure Notes:

1. Part of MDF
2. 3-Pair Connecting Blocks
3. Purple Field
4. White Field
5. Patch Cord or Cross-Connect Jumpers
6. To System Cabinet (3 Pair Modularity)
7. A25D Cable (3-Pair Circuits)
8. B25A Cable
9. Connectorized (staggered finger) Multiple 25-Pair Cable
10. 4-Pair Connecting Blocks
11. Blue Field
12. 258A or BR2580A Adapter
13. Information Outlet
14. 4-Pair Circuit [DIW Station Cable (D-Inside Wire)]
15. Part of Satellite Location
16. 4-Pair Circuits (B25A Cable)

Figure 2-22. 3-Pair to 4-Pair Satellite Location Connectivity

Three-pair circuits can also be run directly from the equipment room MDF to a 356A adapter as shown in Figure 2-23. Four-pair station cables connect the adapter to the information outlets. Four-pair station cables can be run directly from a satellite location to the information outlets as previously described.



r758533a CJL 031196

Figure Notes:

1. Part of Main Distribution Frame (MDF)	7. B25A Cable
2. 3-Pair Connecting Blocks	8. 3-Pair Circuits
3. Purple Field	9. 356A Adapter
4. Blue Field	10. Information Outlet
5. Patch Cord or Cross-Connect Jumpers	11. 3-Pair Circuit in 4-Pair Wire
6. To System Cabinet (3-Pair Modularity)	12. DIW Station Cable (D-Inside Wire)

Figure 2-23. 3-Pair to 4-Pair Circuit Distribution and Connectivity

NOTE:
Bridged taps are not allowed on any part of the station wiring.

Layout

Locate Information Outlets

The customer or marketing representative must provide floor plans showing the information outlet locations and types (flush- or surface-mounted) required. The floor plans must also show a complete overview of all conduit and cabling facilities in the building.

Locate Satellites and Sites

Use the following information when determining site, satellite, or adapter locations.

a. Keep the number of locations to a minimum.

b. To minimize the station wiring distances, centrally locate the sites/satellites, or adapters among the information outlets.

c. Site/satellite locations must be easily accessible and contain AC-powered receptacles.

Adapter Requirements

One 258A/BR2580A adapter is required for each 25-pair station cable containing 4-pair station circuits. One 356A adapter is required for each 25-pair station cable containing 3-pair station circuits.

Hardware Requirements

Hardware requirements are the same as for the equipment room.

Sizing 4-Pair Station Cables

Use the scale of the floor plan to determine the approximate length of the station cables required per the standard SYSTIMAX wiring concepts.

Sizing 25-Pair and Multiple 25-Pair Station Cables

Use the scale of the floor plan to determine the approximate length of each 25-pair station cable. The cables must be selected and properly sized to make maximum use of the hardware at the equipment room or satellite location.

Use 25-pair B25A cables to connect adapters directly to the MDF or satellite location. Staggered-finger cables, equipped with factory-installed 25-pair connectors at both ends, should be used when multiple 25-pair cables are used between the equipment room or satellite location and the adapters. B25A cables are required at the equipment room or satellite location to connect the staggered-finger cables to the 110-type terminal blocks.

Use the following information to determine the cable size (cable pairs) required for either 3-pair or 4-pair circuits. Note the length and size on the floor plan to aid in the ordering and installation of the station cables.

3-Pair Station Cable Circuits

To determine the size of station cables containing 3-pair circuits, multiply the number of 3-pair circuits required at the satellite location by 3.5. Then, using the minimum size cable requirement, round up the cable size requirement to the next highest available cable bundle size. This will provide additional pairs for growth and compensate for every twenty-fifth pair in a cable that is not used.

4-Pair Station Cable Circuits

To determine the size of station cables containing 4-pair circuits, find out how many information outlets are served by the equipment room MDF or satellite location MDF. Multiply the number of information outlets by 4. Then, using the minimum size cable requirement, round up the cable size requirement to the next highest available cable bundle size.

NOTE:
This formula may not compensate for the unused twenty-fifth pair in all cases. If not, it must be allowed for.

Voice and Data Terminals

The system can connect to all DTE terminals and have RS-232 (or EIA-232) or DCP interfaces. Table 2-4 lists some of the terminals that can connect to the system. Contact your Lucent Technologies representative for more information.

Table 2-4. Voice and Data Terminals

Station Type	Type
Analog sets: 500, 2500, 7101A, 7103A, 7104A, 8110, DS1SA, and DS1FD	Analog voice
Other Analog Ports[1], Wired Spare Ports, and Non-wired Spare Ports	Analog voice
10MET set — 10 buttons 20MET set — 20 buttons 30MET set — 30 buttons	Voice
Terminal — 510 BCT Terminal — 515 BCT	Data
602A1 Callmaster I 603A1 Callmaster II 603D1 Callmaster III 603E1 Callmaster III 606A1 Callmaster IV	Data and voice
Digital set — 6402 Digital set — 6408 Digital set — 6408D Digital set — 6408D+ Digital set — 6416D+ Digital set — 6416D+w/XM24B expansion module Digital set — 6424D+ Digital set — 6424D+w/XM24B expansion module	Digital voice
Voice/data — 6538	Data and voice
Hybrid set — 7303S Hybrid set — 7305S Hybrid set — 7309H Hybrid set — 7313H Hybrid set — 7314H Hybrid set — 7315H Hybrid set — 7316H Hybrid set — 7317H	Hybrid voice

Continued on next page

Table 2-4. Voice and Data Terminals — *Continued*

Station Type	Type
Digital set — 7401D/7401+ Digital set — 7403D Digital set — 7404D Digital set — 7404D w/display Digital set — 7405D Digital set — 7405D w/display Digital set — 7405D w/cov Digital set — 7406D Digital set — 7406D w/display Digital set — 7406+ Digital set — 7406+ w/display Digital set — 7407D Digital set — 7407+ Digital set — 7410D Digital set — 7410+ Digital set — 7434D Digital set — 7434D w/display Digital set — 7434D w/call coverage module Digital set — 7444D	Digital voice
Digital set — 8403B Digital set — 8405B/B+ Digital set — 8405D/D+ Digital set — 8410B Digital set — 8410D Digital set — 8411B Digital set — 8411D Digital set — 8434 D Digital set — 8434 with XM24B Expansion Module Digital set — 9403B Digital set — 9410D Digital set — 9434D	Digital voice
Basic attendant console (302A, 302B) Enhanced attendant console (302C) Attendant selector console (26B1)	Data and voice
ISDN-BRI — 7505D — 7506D — 7507D — 8503D — 8510T w/display — 8520T w/display	BRI voice
Wireless 9601A[2]	Voice

Continued on next page

Table 2-4. Voice and Data Terminals — *Continued*

Station Type	Type
ADJLK[3] ADX8D ADX16A ADX16D ASAI CP9530 DIG800 K2500 MDC9000 MDW9000 PC	Voice
VMI[4] VMIFD[4] VMISA[4] VRU[5] VRUFD VRUSA WCBRI 105TL	Voice

---

1. Includes music-on-hold, recorded announcement, and loudspeaker paging.
2. The radio controller supports 24 simultaneous calls and 2 wireless fixed bases.
3. Needs ASAI interface and ASAI prop adjunct links turned on in “system-parameters customer options.”
4. Turn on mode code in ”system-parameters customer options.”
5. Needs DTMF turned on in “system-parameters customer options.”

The following notes apply to the button and data module records in Table 2-4:

- Any DCP station (except 8400-series) can add a 7400B, requiring 1 data module record.
- A data module can be added to a 7403D or 7405D, requiring 1 data module record.
- A data module (ADM-T) can be added to a 7505D, 7506D, or 7507D, requiring 1 data module record.
- An ISDN-BRI endpoint record is required for each distinct ISDN-BRI endpoint. Thus each voice-only, data-only, or voice-data endpoint uses 1 of these records.

Administration Terminals

Table 2-5 lists the administration terminals that can be connected to the system.

Table 2-5. Administration Terminals

Administration Terminal	Application
510D	Remote administration
610D, 513, 610, 615, 715[1] BCT, 4410, 4425, and VT220	Management Terminal: administration and general purpose
515 Business Communications Terminal (BCT)	Remote administration, general purpose
615 Management Terminal	Management Terminal system administration and maintenance terminal
715 BCS, 2900/715 BCS, and 715 BCS-2 Management Terminal	Management Terminal system administration and maintenance terminal

---

[1] The keyboards and terminals are interchangeable when an adapter cable is used.

NOTE:
The 715 BCS (406803148 and 406803155), has a 6-pin mini-DIN keyboard connector. The 2900/715 BCS (4073113881 and 407313899), has a 6-pin RJ-11 keyboard jack located on the side of the terminal.

Label the Main Distribution Frame

Figure 2-24 shows the graphic symbols used on labels for the system, cross-connections, information outlets, and cables. The labels are color-coded to identify system wiring:

- Green — To Central Office (CO)
- Purple — To system ports
- Yellow — To auxiliary equipment and miscellaneous system leads
- Blue — To information outlets
- White — From Main Distribution Frame to satellite locations (3-pair)

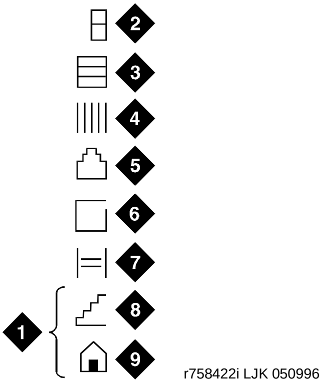


Figure Notes:

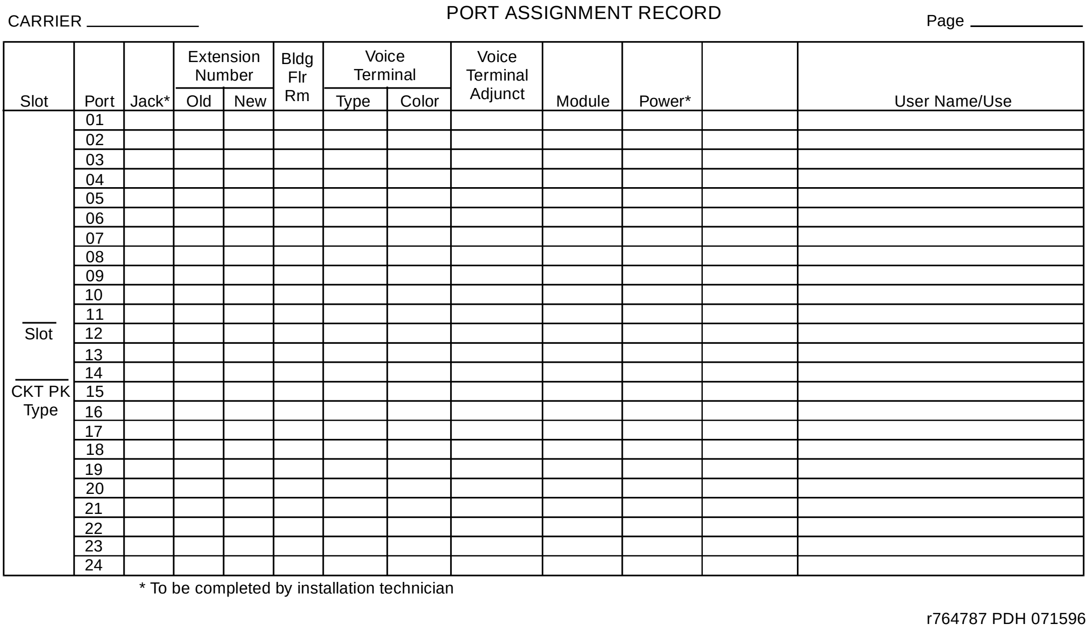
1. Write Floor or Building Identification on Label
2. Cabinet
3. Carrier
4. Slot
5. Information Outlet
6. Site/Satellite Closet
7. Tie Circuit
8. Floor
9. Building

Figure 2-24. Label Graphic Symbols and Nomenclature

Each 110-type label identifies 2 rows on the 110-type terminal block. The upper half identifies the row above it and the lower half identifies the row below it. The labels are inserted into the clear plastic designation strips furnished with the 110-type terminal blocks. The strip is snapped in place between the terminal block rows. Label code number 220A (comcode 103970000) contains all of the 110-type labels.

Patch Cord/Jumper Installation and Administration

Before starting the patch cord installation, obtain a copy of the Port Assignment Record forms from the customer or marketing representative. See Figure 2-25. These forms contain the port assignments and identify the extension numbers (**Terminal No.**) of the telephones/voice terminals. Enter the jack assignments at the equipment room and indicate if adjunct power is required and where it is provided (MDF, site/satellite closet, or information outlet).



CARRIER ____________ PORT ASSIGNMENT RECORD Page ____________

Slot	Port	Jack*	Extension Number		Bldg Flr Rm	Voice Terminal		Voice Terminal Adjunct	Module	Power*		User Name/Use
			Old	New		Type	Color					
	01											
	02											
	03											
	04											
	05											
	06											
	07											
	08											
	09											
	10											
	11											
___ Slot	12											
	13											
	14											
___ CKT PK Type	15											
	16											
	17											
	18											
	19											
	20											
	21											
	22											
	23											
	24											

* To be completed by installation technician

r764787 PDH 071596

Figure 2-25. Port Assignment Record Form

When satellite locations are provided, enter the satellite letter designation (“A” through “F”) and the jack appearance in the equipment room on the form. Also, enter the floor designation and/or building designation if appropriate. For 1-point administration, this entry is all that is required.

Labeling

The white label identifying the terminal block row associated with circuits 17 to 24 connects to an identically labeled terminal block row at the satellite closet. See Figure 2-26. This is always the case for either 1-point or 2-point administration.

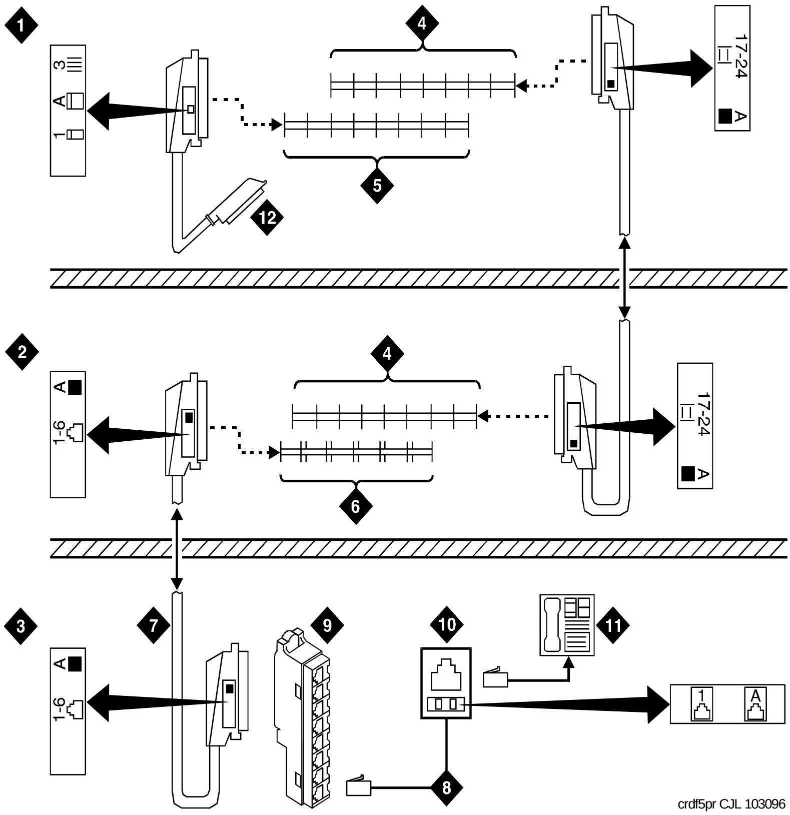


Figure Notes:

1. Equipment Room
2. Satellite Location
3. Work Location
4. White Row on 110 Terminal Block
5. Purple Row on 110 Terminal Block
6. Blue Row on 110 Terminal Block
7. Central Location for Terminals 1 through 6
8. D-Inside Wire Cut Down to Connecting Block
9. 258A Adapter
10. Information Outlet
11. Voice Terminal
12. To Port Connector on Cabinet (Cabinet 1, Carrier A, Slot 03)

Figure 2-26. Example 3-Pair Labeling to Information Outlet

The satellite symbol must be installed at all connection points between the blue field and the information outlet. It must also be installed at the information outlet itself.

Figure 2-27 shows an example labeling scheme for 4-pair circuits from the equipment room to the information outlets. The labeling scheme for 3-pair circuits from the MDF to a satellite location.

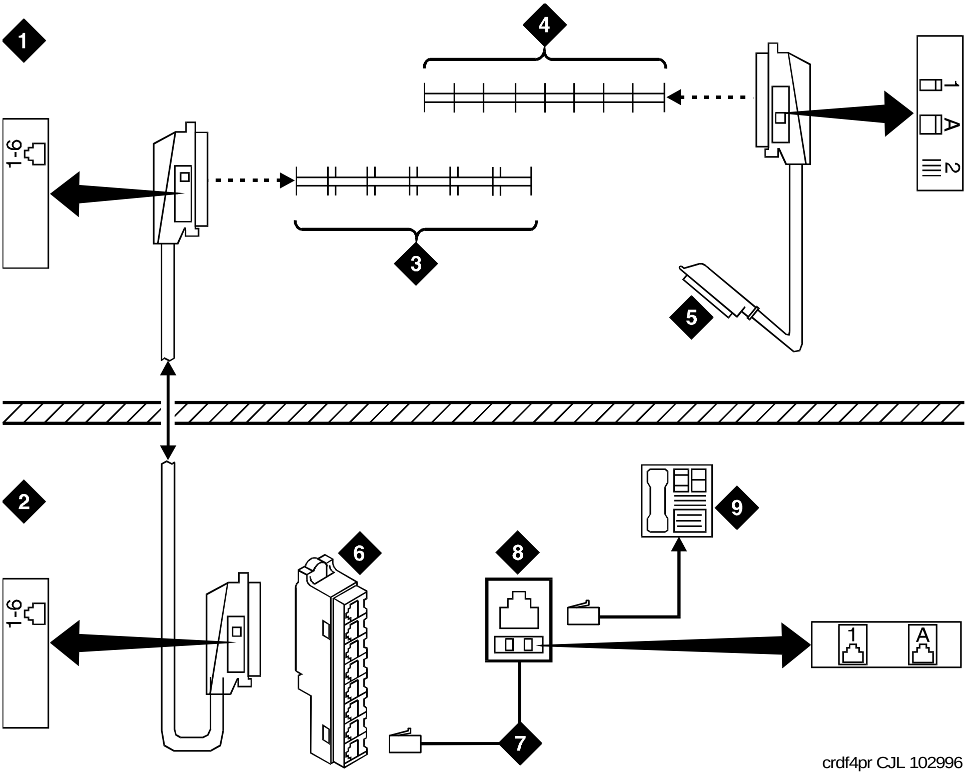


Figure Notes:

1. Equipment Room
2. To Central Location for Terminals 1 through 6
3. Blue Row on 110 Terminal Block
4. Purple Row on 110 Terminal Block
5. To Port Connector on Cabinet (Cabinet 1, Carrier A, Slot 03)
6. 258A Adapter
7. D-Inside Wire Cut Down to Connecting Block
8. Information Outlet
9. Voice Terminal

Figure 2-27. Example 4-Pair Labeling to Information Outlet

Create a Provisioning Plan

Determine an appropriate available port circuit on the system for each telephone, trunk, and peripheral connection needed, and, in addition, plan for auxiliary power for Basic Rate Interface (BRI) and certain display sets.

Create a Port Assignment Record to include the following. See Figure 2-25.

- Station or trunk type or feature/service
- Building location (floor/room/desk/information outlet)
- Extension number or trunk group and member number
- Port circuit location on the system for each endpoint (cabinet/carrier/slot/circuit)
- Route from equipment room through equipment closets to each endpoint
- Auxiliary power supply, if required

Install Management Terminal and Activate System

3

This chapter contains procedures for installing the management terminal and bringing the system up to a “no red LEDs” state. This chapter details how to:

- Install Management Terminal
- Activate the System
- Power Up the System
- Screens and Commands
- System Administration
- Set Country Options
- Change Craft Password
- Set Date and Time
- Administer System Configurations (Release 8r)
- Administer Fiber Links (Release 8r Only)
- Set System Maintenance Parameters
- Save Translations
- Initiate DEFINITY AUDIX Power Procedures
- Register the System

⚠ **CAUTION:**

To prevent unnecessary trouble tickets, do not enable the system alarms (Alarm Origination feature) before completing all installation and administration procedures. This chapter describes basic system start-up procedures only and is not intended to identify all system alarms or error conditions.

Install Management Terminal

Locate the management terminal within 50 ft (15.2 m) of the system. It may be necessary to reduce the maximum distance limitation if higher gauge wire is used or if the capacitive load on the line is increased. In general, connect the terminal directly to the system with the shortest possible cable. For maintenance purposes, locate the terminal in the same equipment room as the system or in sight of the system.

NOTE:
The management terminal in Figure 3-1 is shown for illustration purposes only and does not represent a specific terminal type.

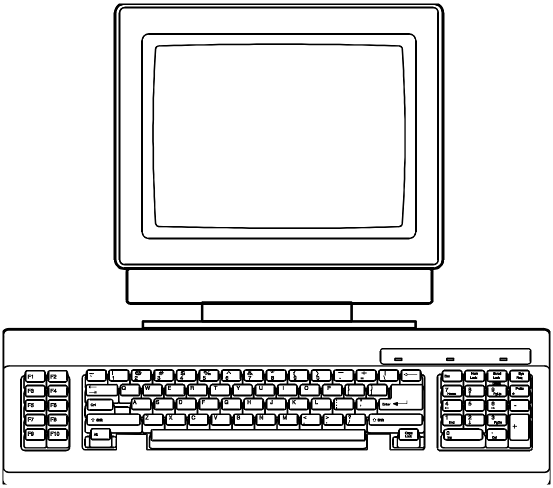


Figure 3-1. Typical Management Terminal

The following types of terminals can connect to a system:

- 715 BCS
- 2900/715 BCS
- 715 BCS-2

The following notes apply:

- This chapter emphasizes terminal installation in Release 8 and later systems.
- If the terminal supports a DC-powered system, install a 116A Isolator (comcode 106005242).
- Connect an optional printer using a locally obtained EIA cord. See Appendix B, “Option Switch Settings” for printer option switch settings.

Unpack and Inspect

1. Unpack the terminal and inspect for damage. Report all damage according to local requirements.
2. Remove and retain the installation and usage instructions from the carton. These instructions are needed to set up the terminal after it is installed.
3. Set the terminal, keyboard, and all cables onto the equipment room table.

Install a 715 BCS Terminal

1. Plug the keyboard cable into the 6-pin mini-DIN jack on the rear of the terminal. See Callout 2 in Figure 3-2 on page 3-4.
2. Plug the supplied 25-pin Data Terminal Equipment (DTE) cable into the P2 port (center connector) on the rear of the terminal.

Install a 2900/715 BCS Terminal

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 mini DIN jack to an RJ-11 jack to allow a 715 BCS keyboard to be used (comcode 847489895 or 847489903).
2. Plug the supplied 25-pin Data Terminal Equipment (DTE) cable into the P2 port (right side connector). See Callout 4 in Figure 3-2 on page 3-4.

Install a 715 BCS-2 Terminal

1. Plug the keyboard cable into the modular keyboard jack on the rear of the terminal. See Callout 5 in Figure 3-2. This is a unique cable and must be connected to the 715 BCS-2 only.
2. Plug the supplied 25-pin Data Terminal Equipment (DTE) cable (H600-426) into the COM1 port (right side connector).

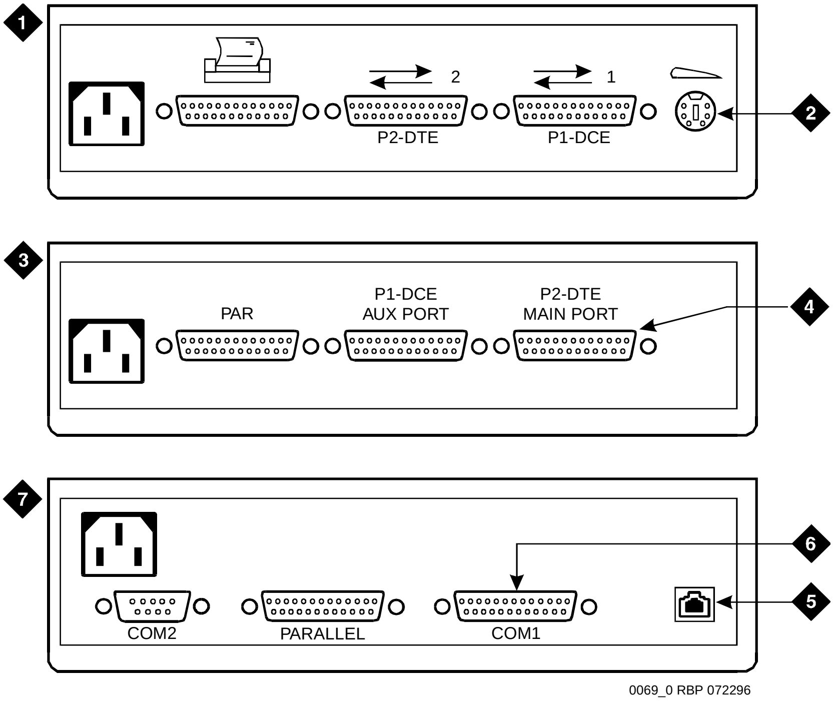


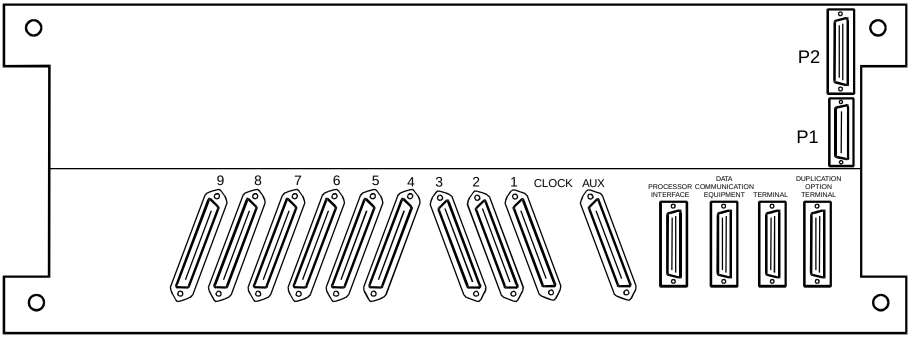
Figure Notes

1. Rear Panel of 715 BCS Terminal
2. 6-Pin Mini DIN Connector
3. Rear Panel of 2900/715 BCS Terminal
4. P2-DTE Port
5. Modular Keyboard Jack
6. COM 1 Port
7. Rear Panel of 715 BCS-2 Terminal

Figure 3-2. Rear Panels on Management Terminals

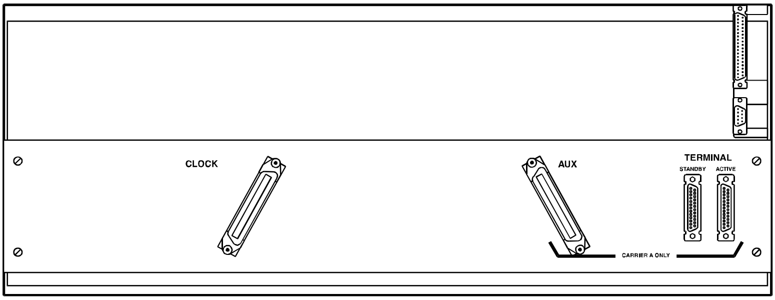
Connect to the System

1. Route the 25-pin DTE cable from the terminal to the rear of the system.
2. For Release 8si, connect the cable to the TERM connector. See Figure 3-3. For Release 8r, connect the cable to the Terminal Active connector. See Figure 3-4.
3. Plug the AC power cord into the AC receptacle on the terminal. Plug the opposite end of the power cord to the AC receptacle located at the bottom rear of the cabinet, or into the selected AC receptacle.
4. Set the terminal power switch ON.



0063_0 RBP 071096

Figure 3-3. Management Terminal Connections for Release 8si



cndfpc KLC 101596

Figure 3-4. Management Terminal Connections for Release 8r

5. For a DC-powered system, install an EIA 116A Isolator (comcode 106005242) in series between the DTE cable and the TERM or Terminal Active connector.

Remotely Connect Terminal

A management terminal can be installed at some distance from the system. Typical remote connections are shown in Figure 3-5.

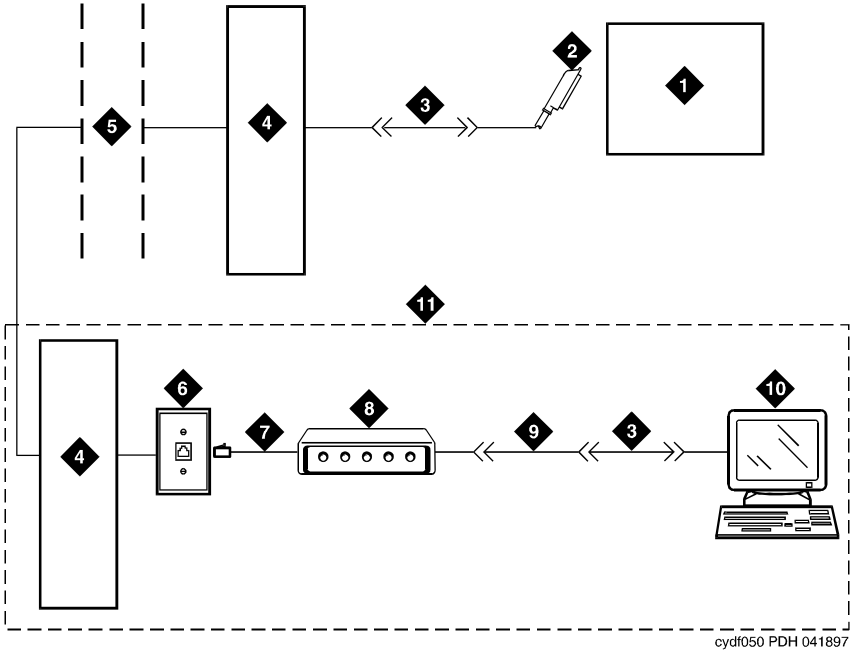


Figure Notes

1. Compact Modular Cabinet (Slot 1)
2. DCE Connector (RS-232)
3. M25B (25-Pin-to-RS-232) Cable
4. Main Distribution Frame (MDF)
5. Public Switched Telephone Network (PSTN)
6. 103A or Modular Wall Jack
7. Line Cord
8. Remote Modem
9. DB9 to DB25 Converter (ED3-1-70, G115) (optional) to connect to PC
10. Remote Management Terminal or PC
11. Remote Location

Figure 3-5. Typical Connections to Remote Devices

1. Use Z3A2 Asynchronous Data Units (ADUs) and M25A cables on CDRU/CAS+, PMS, SAT PC, BCMS terminal, and Remote SAT.
2. Use Z3A1 ADUs and M25B cables on System/Journal printers.
3. A TN556 ISDN BRI circuit pack is used with the 7500 Data Module.

Set Up Management Terminal

Each management terminal requires a different setup procedure. Refer to the installation and usage instructions packed with the management terminal.

Install Management Applications

The PC-based Management Applications are installed according to the complete installation instructions provided in *Management Applications Operations*, 585-229-202.

Activate the System

Instructions are provided to activate Release 8 and later systems. To activate a G3V4 and earlier system, refer to *DEFINITY Communications System Generic 3 Installation and Test*, 555-230-104.

NOTE:
To prevent unnecessary trouble tickets, do not enable the system alarms (Alarm Origination feature) until all installation and administration procedures are completed.

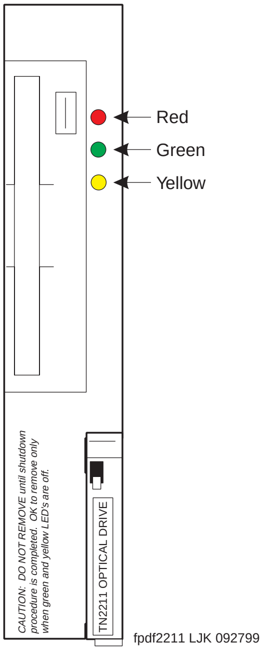
CAUTION:
It may be necessary to reseat circuit packs. To prevent damage from static electricity, always wear an Electromagnetic Compatibility (EMC) wrist strap (comcode 900698226) when handling all system components.

Install Translation Card (Release 8si in MCC Cabinet)

1. Insert the translation card into the TN794 Network Control circuit pack in the direction indicated by the arrow on the label.

Install Removable Media (Release 8r in MCC Cabinet)

2. Insert the formatted removable media, label facing left, into the optical drive (see Figure 3-6).


Red
Green
Yellow
CAUTION: DO NOT REMOVE until shutdown procedure is completed. OK to remove only when green and yellow LED's are off.
TN2211 OPTICAL DRIVE

fpdf2211 LJK 092799

Figure 3-6. TN2211 Optical Drive

NOTE:
Make sure the formatted removable media is not write-protected (see Figure 3-7) before placing it into the optical drive.

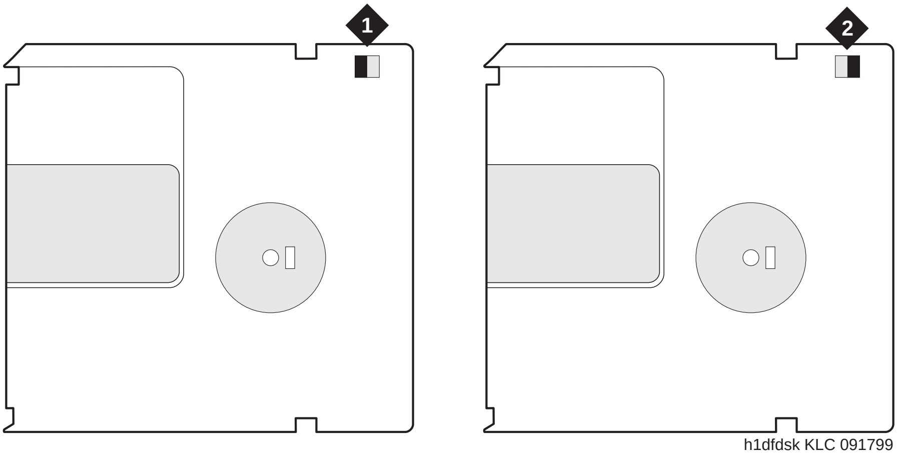


Figure Notes

1. Write protected
2. Not write protected

Figure 3-7. Make sure the disk is not write protected

Power Up the System

AC-Powered System

1. Set the circuit breakers on the AC power panel to ON. If the system is high or critical reliability, power-up the EPN cabinet first, then the PPN cabinet. *Always* power up the PPN cabinet *last*.
2. Set the cabinet circuit breakers to ON. This starts the system initialization and test. All red LEDs on the circuit packs go on and then off.
3. Skip to ''Verify Messages on Terminal''.

DC-Powered System

1. At the DC Battery Cabinet (if installed), set the circuit breaker to ON.
2. At the DC Power Cabinet, set the circuit breaker(s) on the rectifiers ON. This starts the system initialization and test. Some red LEDs may be on but are turned off by other procedures in this chapter.
3. If the system is high or critical reliability, power-up the EPN cabinet first, then the PPN cabinet. *Always* power up the PPN cabinet *last*.

Verify Messages on Terminal

1. After several minutes, verify all tests pass. Screen 3-1 displays the screen contents of a typical Release 8r system with 3 memory circuit packs. The Release 8si system screen is similar.

NOTE:
If any of the terminal messages indicate a test has failed or if the message “`spe down mode`” is displayed, refer to *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8r*, or *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*, to clear the trouble.

```
INTERNAL REGISTER TEST                    PASSED
LOOP DATA TEST                            PASSED
DUART TEST                                PASSED
ROM CHECKSUM TEST                         PASSED
CONTROL STATUS TEST                       PASSED
DCACHE TEST                               PASSED
ICACHE TEST                               PASSED
WRITE BUFFER TEST                         PASSED
                                          PASSED
BTO TEST                                  PASSED
MEM CONFIG TEST                           PASSED
MEMORY FUNCTIONAL TEST                    PASSED
MEMORY MODULE A STUCK BIT TEST            PASSED
MEMORY MODULE A PARITY TEST               PASSED
MEMORY MODULE A BURST TEST                PASSED
MEMORY MODULE B STUCK BIT TEST            PASSED
MEMORY MODULE B PARITY TEST               PASSED
MEMORY MODULE B BURST TEST                PASSED
MEMORY MODULE C STUCK BIT TEST            PASSED
MEMORY MODULE C PARITY TEST               PASSED
MEMORY MODULE C BURST TEST                PASSED
VIRTUAL MEMORY TEST                       PASSED
EXCEPTION TEST                            PASSED
TIMER TEST                                PASSED
MTP TEST                                  PASSED
SANITY TIMER TEST                         PASSED
ADDRESS MATCHER TEST                      PASSED
FLASH TEXT CHECKSUM TEST                  PASSED
RAM DATA CHECKSUM TEST                    PASSED

RESET 4 (REBOOT PERFORMED)
```

Screen 3-1. Typical Start-up Messages (Release 8r)

2. About 2 minutes after `REBOOT PERFORMED` displays, the screen displays:

   `Login:`

Screens and Commands

Screens

The system is administered using screens displayed on the terminal. The screens are used to add, change, display, list data, and to remove system and telephone features. To access a screen, enter a valid system command in response to the `Command:` prompt.

Commands

System commands are standard words and phrases instructing the system to perform a specific function. The commands are arranged in a hierarchy of keywords; that is, enter 1 command to go to a different level. The commands contain three parts: ACTION, OBJECT, and QUALIFIER.

- ACTION is the first part of the command. When `Command:` appears on the screen. The ACTION specifies the operation desired. Examples include **add, duplicate, change, remove, display, list,** and **save.**
- OBJECT is the second part of the command and specifies the particular object to be administered. Typical entries are **hunt-group, coverage path,** and **station.**
- QUALIFIER is the last part of the command. It is 1 or more words or digits used to further identify or complete the OBJECT. For example, *hunt group 15* or *station 3600*, where *15* and *3600* are qualifiers.

An example of the command line required to add a station with extension number *1234* is **add station 1234**. In this example, **add** is the ACTION, **station** is the OBJECT, and **1234** is the QUALIFIER. In the command line, spaces are required between the ACTION, OBJECT, and QUALIFIER.

To save time, enter enough letters for each part of the command to make it unique. For example, if you want to enter the command **change system-parameters country-options**, typing **cha sys coun** is acceptable. However, typing the entire command is always best.

NOTE:
The craft login may not be allowed to perform some of the steps needed to initialize the system. If access is denied to some of these procedures, contact your Lucent Technologies representative for assistance.

Getting Help

Use the Help key for a list of options and the Cancel key to back out of any command. Refer to *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*, for detailed procedures.

System Administration

NOTE:
An "init" login is required to perform the following. Contact the regional CSA (Customer Software Associate) to assign the Offer Category option. Maintenance capabilities to initialize the system and access to either an internal or external modem are the only command options available until the Offer Category option is set.

Log into the System

1. Verify the screen displays: `Login:`
2. Type **craft** and press Enter.
3. To use Access Security Gateway (ASG), see Appendix E, "Access Security Gateway".
4. Verify the screen displays: `password`:
5. Type **crftpw** and press Enter. For security reasons, the password does not display as it is typed. The system verifies a valid login and password name were entered. If an invalid login or password name was entered, the screen displays:

   ```
   login incorrect:
   ```

   In this case, repeat the procedure using the correct login and matching password.

   If the system recognizes the login and password name, the screen displays the software version.
6. Verify the screen display is similar to:

   ```
   Terminal Type (513, 715, 4410, 4425, VT220): [513]
   ```
7. Type the number of the management terminal and press Enter.
8. Verify the screen displays: `Command`:

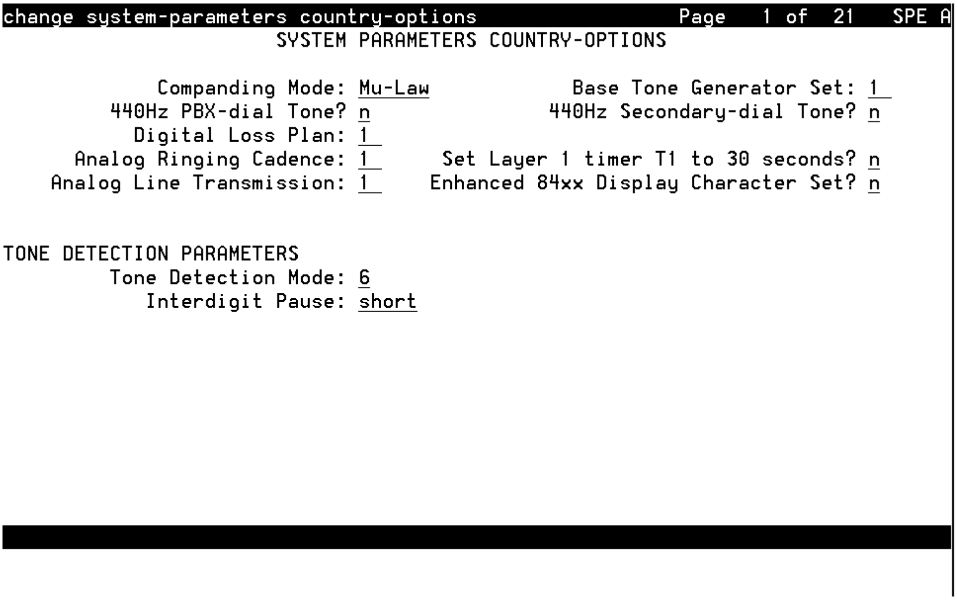
NOTE:
The following sections describe some of the procedures used to access and change certain options. These sections are not intended to replace or modify the instructions provided in *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.

Set Country Options

Certain country options need to be set to turn red failure indication LEDs off.

1. Verify the screen displays: `Command:`
2. Type **change system-parameters country options** and press Enter.

   A screen similar to Screen 3-2 is displayed on the terminal. The cursor is set on the `Companding Mode` line.



```
change system-parameters country-options                       Page   1 of  21   SPE A
                            SYSTEM PARAMETERS COUNTRY-OPTIONS

             Companding Mode: Mu-Law              Base Tone Generator Set: 1_
         440Hz PBX-dial Tone? n                 440Hz Secondary-dial Tone? n
           Digital Loss Plan: 1_
      Analog Ringing Cadence: 1_     Set Layer 1 timer T1 to 30 seconds? n
    Analog Line Transmission: 1_    Enhanced 84xx Display Character Set? n


TONE DETECTION PARAMETERS
         Tone Detection Mode: 6
            Interdigit Pause: short
```

Screen 3-2. Typical System Parameters Country-Options Screen

3. The default companding mode is µ-Law. If the country uses A-Law companding, type A-Law.
4. Press Enter when this information is correct.

   Other items eventually need to be entered on this screen, but this is all that must be done to turn the red alarm LEDs off. Refer to Table 3-1 for a list of the country codes.

Table 3-1. Country Codes

Country	Code	Country	Code
USA	1	France	12
Australia	2	Germany	13
Japan	3	Czechoslovakia	14
Italy	4	Russia	15
The Netherlands	5	Argentina	16
Singapore	6	Greece	17
Mexico	7	China	18
Belgium	8	Hong Kong	19
Saudi Arabia	9	Thailand	20
United Kingdom	10	Macedonia	21
Spain	11		

5. If all red LEDs do not go off, reseat (unplug and reinsert) any *purple*-labeled circuit packs displaying red LEDs.

CAUTION:

To avoid a disk crash, ***never*** *reset the DEFINITY AUDIX System without first shutting it down. Shut down the DEFINITY AUDIX System (and allow the disk to completely spin down) before unplugging the assembly. See “DEFINITY AUDIX Power Procedures” on page 3-48 for the proper procedures.*

6. If the red LEDs still do not go off, refer to *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8r*, or to *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

NOTE:

Ignore the red alarm indication LED on the TN767 or TN464 DS1 circuit pack until after the DS1 circuit pack is administered. Alarms will appear in the Alarm Log when power is applied to the system before all equipment connecting to port circuit packs is installed. Normally, some alarms will be logged when power is applied to the system, but should be resolved quickly. If no equipment is connected to the port circuit packs, alarms associated with these ports can take up to four hours to log, but will clear automatically after all equipment is installed and operating correctly.

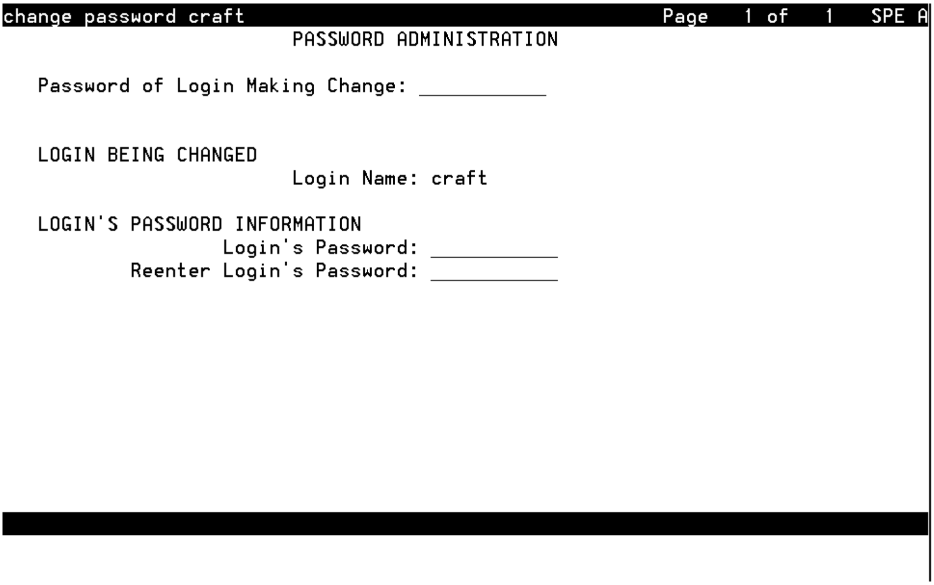
Change Craft Password

The password for the craft login *must be changed* by the installing technician to prevent unauthorized administration changes.

CAUTION:

After the password is changed, the new password must be safeguarded so no unauthorized administration changes can be made. This password MUST NOT BE REVEALED to the customer or to any unauthorized person.

1. Login as **craft** and type **change password craft**. Press Enter.



```
change password craft                                    Page   1 of   1    SPE A
                         PASSWORD ADMINISTRATION

   Password of Login Making Change: ___________


   LOGIN BEING CHANGED
                         Login Name: craft

   LOGIN'S PASSWORD INFORMATION
                   Login's Password: ___________
           Reenter Login's Password: ___________
```

Screen 3-3. Typical Change Password Screen

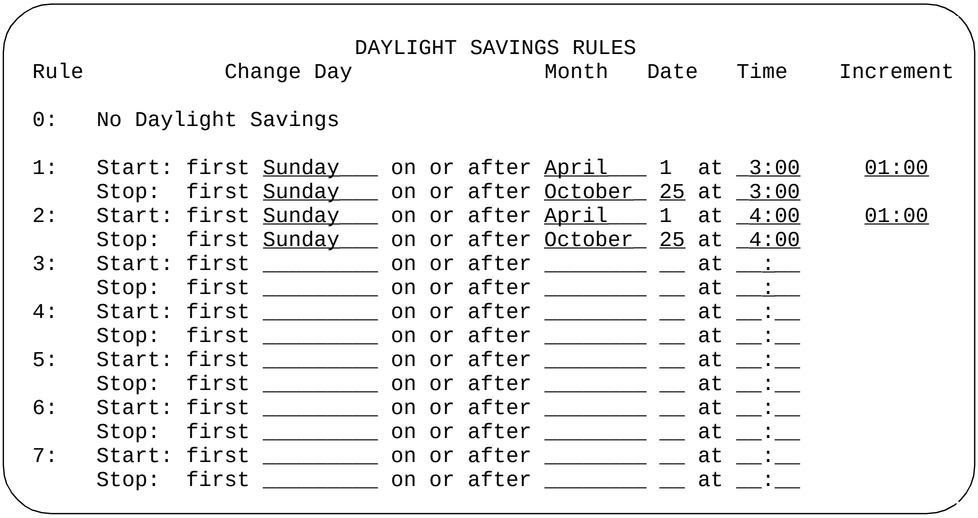
2. Verify the Password Administration screen displays. See Screen 3-3. The cursor is positioned on `Password for Login Making Change:`
3. Type the password for the craft login (assigned as *crftpw* when the system is shipped) and press Enter. The cursor is positioned on `Login’s Password:`.
4. Enter the new password. Valid passwords consist of a combination of 4 to 11 alpha or numeric characters. At least 1 letter and 1 number must be used in each password. Press Enter.
5. The cursor is positioned on `Reenter Login’s Password:`. Type the new password again and press Enter.
6. Verify the screen displays:

   `command successfully completed`

Set Daylight Savings Rules

You can set up to 15 customized daylight savings time rules. If you have switches in several different time zones, you can set up rules for each. A daylight savings time rule specifies the exact time when you want to transition to and from daylight savings time. It also specifies the increment at which to transition.

1. Type **change daylight-savings-rules** and press Enter.



```
                         DAYLIGHT SAVINGS RULES
Rule           Change Day                    Month    Date    Time     Increment

0:   No Daylight Savings

1:   Start: first Sunday___  on or after April___  1  at  3:00      01:00
     Stop:  first Sunday___  on or after October_ 25  at  3:00
2:   Start: first Sunday___  on or after April___  1  at  4:00      01:00
     Stop:  first Sunday___  on or after October_ 25  at  4:00
3:   Start: first _________  on or after ________ __  at __:__
     Stop:  first _________  on or after ________ __  at __:__
4:   Start: first _________  on or after ________ __  at __:__
     Stop:  first _________  on or after ________ __  at __:__
5:   Start: first _________  on or after ________ __  at __:__
     Stop:  first _________  on or after ________ __  at __:__
6:   Start: first _________  on or after ________ __  at __:__
     Stop:  first _________  on or after ________ __  at __:__
7:   Start: first _________  on or after ________ __  at __:__
     Stop:  first _________  on or after ________ __  at __:__
```

2. Type the appropriate start and stop information in the `Change Day`, `Month`, `Date`, `Time`, and `Increment` (for example, **1:00** equals one hour) fields for each rule.

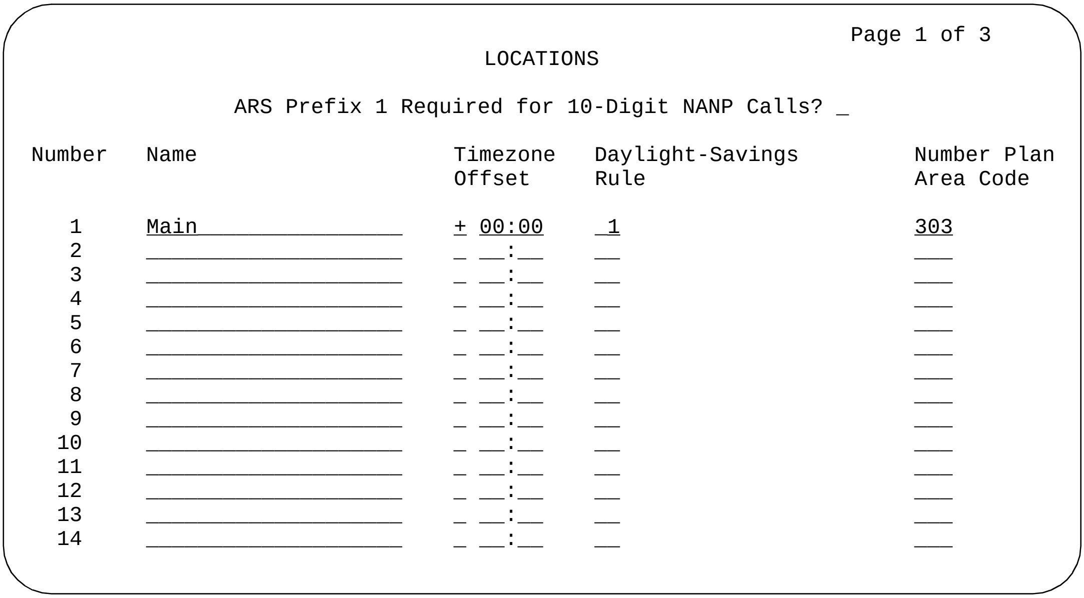
   NOTE:
   You can change any rule except rule 0 (zero). You cannot delete a daylight savings rule if it is in use on either the Locations or Date and Time screens.

3. Press Enter.

Set Locations

After you set the daylight savings rules, you must set the locations for all switches. It is possible to have switches in different time zones.

1. Type **change locations** and press Enter.



```
                                                                Page 1 of 3
                                   LOCATIONS

                ARS Prefix 1 Required for 10-Digit NANP Calls? _

Number   Name                    Timezone   Daylight-Savings         Number Plan
                                 Offset     Rule                     Area Code

   1     Main________________    + 00:00     1                       303
   2     ____________________    _ __:__    __                       ___
   3     ____________________    _ __:__    __                       ___
   4     ____________________    _ __:__    __                       ___
   5     ____________________    _ __:__    __                       ___
   6     ____________________    _ __:__    __                       ___
   7     ____________________    _ __:__    __                       ___
   8     ____________________    _ __:__    __                       ___
   9     ____________________    _ __:__    __                       ___
  10     ____________________    _ __:__    __                       ___
  11     ____________________    _ __:__    __                       ___
  12     ____________________    _ __:__    __                       ___
  13     ____________________    _ __:__    __                       ___
  14     ____________________    _ __:__    __                       ___
```

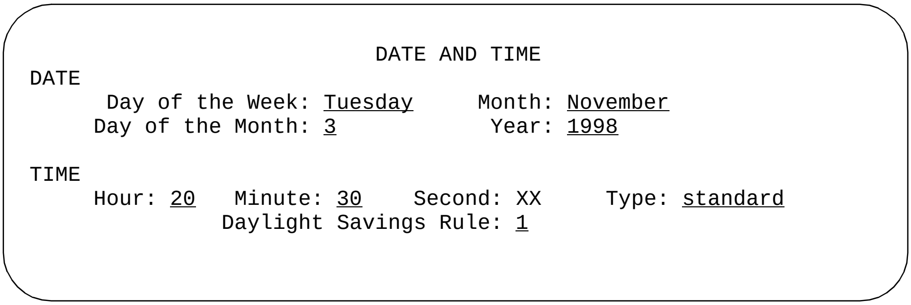
2. Type **y** in the `ARS Prefix 1 Required for 10-Digit NANP Calls?` field.
3. Type the information in the various fields for each switch.

   NOTE:
   Use the name of the switch or "Local Switch" in the `Name` field for the first location.

4. Press Enter.

Set Date and Time

1. Type **set time** and press Enter.
2. Verify the screen displays the Date and Time screen. See Screen 3-4. The cursor is positioned on the `Day of the Week:` field.



```
                              DATE AND TIME
DATE
      Day of the Week: Tuesday     Month: November
     Day of the Month: 3            Year: 1998

TIME
     Hour: 20    Minute: 30    Second: XX     Type: standard
               Daylight Savings Rule: 1
```

Screen 3-4. Typical Date and Time Screen

3. Type the day of the week in English (Sunday through Saturday). See Table 3-2 for English day of the week names.

Table 3-2. English Day of the Week Names

Day Number	Day Name
1	Sunday
2	Monday
3	Tuesday
4	Wednesday
5	Thursday
6	Friday
7	Saturday

4. The cursor is positioned on the `Month:` field. Type the current month in English (January through December). See Table 3-3 for English month names. After the month is entered, press Tab to move to next field.

Table 3-3. English Month Names

Month Number	Month Name
1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
10	October
11	November
12	December

5. The cursor is positioned on the `Day of the Month:` field. Type the day of month (1 through 31) and press Tab to move to the next field.
6. The cursor is positioned on the `Year:` field. Type the current year and press TAB to move to the next field.
7. The cursor is positioned on the `Hour:` field. Type the current hour for a 24-hour clock. Press Tab to move to the next field.
8. The cursor is positioned on the `Minute:` field. Type current minute (0 through 59). Seconds cannot be set.
9. Type **standard** or **daylight savings** in the `Type` field.
10. Type the rule (number) in the `Daylight Savings Rule` field.
11. Press Enter when the information is correct.
12. Type **display time** and press Enter to verify date/time data.

Circuit Pack Administration

After the equipment is installed (including circuit packs), the circuit packs must be administered. Refer to *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide* for more information.

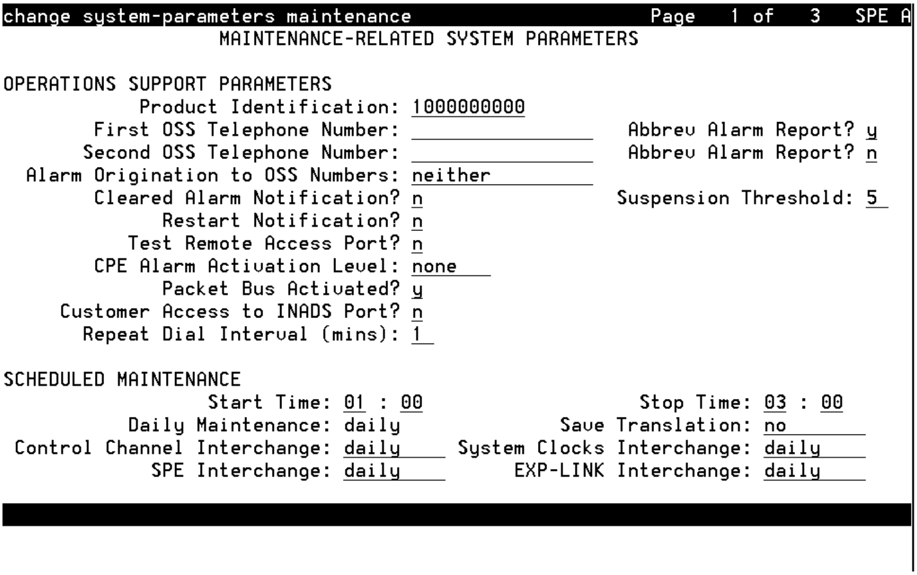
The following information describes general administration information:

- Use the Circuit Packs form to administer circuit packs to carrier slots. The circuit packs must be installed (or assigned using the Circuit Packs form) before administering voice terminals, attendant consoles, or trunks.
- Each page of the form represents 1 carrier in the cabinet shown on the command line. For Release 8si, all carriers and slots appear even if they are not included in the hardware.
- It is not necessary to fill in the Circuit Packs form if the circuit packs are installed at the time of administration.
- Refer to *DEFINITY Communications System Generic 3 Planning and Configuration*, 555-230-601, for more information about circuit pack administration and port assignment records.
- For initial installation, assign circuit packs to slots using the hardware configuration layout record from the factory or Customer Services Organization. Do not arbitrarily assign circuit packs to slots.
- For Release 8r, if the carrier type administered on the Cabinet Administration form does not match the physical hardware, question marks (??) may display in the Code fields.
- When a circuit pack in a slot differs from what has been administered on the form, a “#” displays between the “Sfx” and “Name” fields.
- For Release 8r, the number of slot fields displayed represents administrable slots for the given carrier type. For Release 8si configurations, all slot fields are displayed.

Set System Maintenance Parameters

If the system does not contain a TN778 Packet Control circuit pack, skip this section and proceed to "Administer System Configurations (Release 8r)".

1. Verify the terminal screen displays: `Command:`
2. Type **change system-parameters maintenance** and press Enter. Verify the screen displayed is similar to Screen 3-5. The screen shows default values and the cursor is positioned on `Product Identification:` line.



```
change system-parameters maintenance                        Page   1 of   3   SPE A
                              MAINTENANCE-RELATED SYSTEM PARAMETERS

OPERATIONS SUPPORT PARAMETERS
            Product Identification: 1000000000
        First OSS Telephone Number: ________________    Abbrev Alarm Report? y
       Second OSS Telephone Number: ________________    Abbrev Alarm Report? n
     Alarm Origination to OSS Numbers: neither
         Cleared Alarm Notification? n                 Suspension Threshold: 5
               Restart Notification? n
             Test Remote Access Port? n
          CPE Alarm Activation Level: none
               Packet Bus Activated? y
        Customer Access to INADS Port? n
          Repeat Dial Interval (mins): 1

SCHEDULED MAINTENANCE
                  Start Time: 01 : 00                       Stop Time: 03 : 00
           Daily Maintenance: daily                  Save Translation: no
 Control Channel Interchange: daily         System Clocks Interchange: daily
            SPE Interchange: daily              EXP-LINK Interchange: daily
```

Screen 3-5. Typical System-Parameters Maintenance Screen

CAUTION:

To prevent unnecessary trouble tickets, do not enable the system alarms (Alarm Origination feature) until all installation and administration procedures are completed.

3. Move the cursor by pressing Tab to move down the screen from field to field and enter y in the `Packet Bus Activated?` field to indicate a TN778 circuit pack is installed. This is the only field needing change on this screen to turn the red LEDs off.
4. Press Enter when the information is correct.

Administer System Configurations (Release 8r)

If a Release 8si is installed, skip to "Administer Attendant Console" on page 3-45.

Change Customer Options

The following features are part of the basic software package and do not need to be activated. They default to y (yes) on the Optional Features Form.

- Automatic Route Selection/Automatic Alternate Routing Partitioning
- Emergency Access to the Attendant
- Hospitality
- Service Observing

An "init" password is required to modify customer options. Contact your regional CSA for the password.

Use the following procedure to change the customer's optional features.

1. At the `Command:` prompt, type **change system-parameters customer-options** and press Enter. A display similar to Screen 3-6 appears.

```
display system-parameters customer-options                    Page   2 of   6
                               OPTIONAL FEATURES

     Abbreviated Dialing Enhanced List? n                        CAS Branch? n
         Access Security Gateway (ASG)? n                          CAS Main? n
         Analog Trunk Incoming Call ID? n   Cvg Of Calls Redirected Off-net? n
  A/D Grp/Sys List Dialing Start at 01? n                      DCS (Basic)? y
 Answer Supervision by Call Classifier? n                DCS Call Coverage? y
                                   ARS? y               DCS with Rerouting? y
                  ARS/AAR Partitioning? y           DEFINITY Network Admin? y
              ARS/AAR Shortcut Dialing? n    Digital Loss Plan Modification? n
                 ASAI Interface? n                          DS1 MSP? n
        ASAI Proprietary Adjunct Links? n     Emergency Access to Attendant? y
                                                   Extended Cvg/Fwd Admin? n

   Async. Transfer Mode (ATM) Trunking? n       External Device Alarm Admin? n
                                  ATMS? n                  Flexible Billing? n
                   Attendant Vectoring? n     Forced Entry of Account Codes? n
               Audible Message Waiting? n        Global Call Classification? n
           Authorization Codes? n


        (NOTE: You must logoff & login to effect the permission changes.)
```

Screen 3-6. Typical Customer-Options Form

2. Enable the optional features purchased by the customer (as shown by PEC codes on the Customer Order).

   In Release 8 systems, a separate screen offers ASAI capability groups for selection in cases where the ASAI interface has been enabled. Change this screen in the same manner as Page 1 of the customer-options form.

Change and Logoff Critical Reliability System

If a critical reliability system is installed (1 with both processor and PNC duplicated), follow these steps. Otherwise, proceed to "Change Site-Data" on page 3-23.

NOTE:
Be sure `PNC Duplication` was set to y in the customer-options form.

1. Log off and log back in as **craft**.

Change Site-Data

This form initializes the building, floor, and color data to make them available later in help messages that refer to site information.

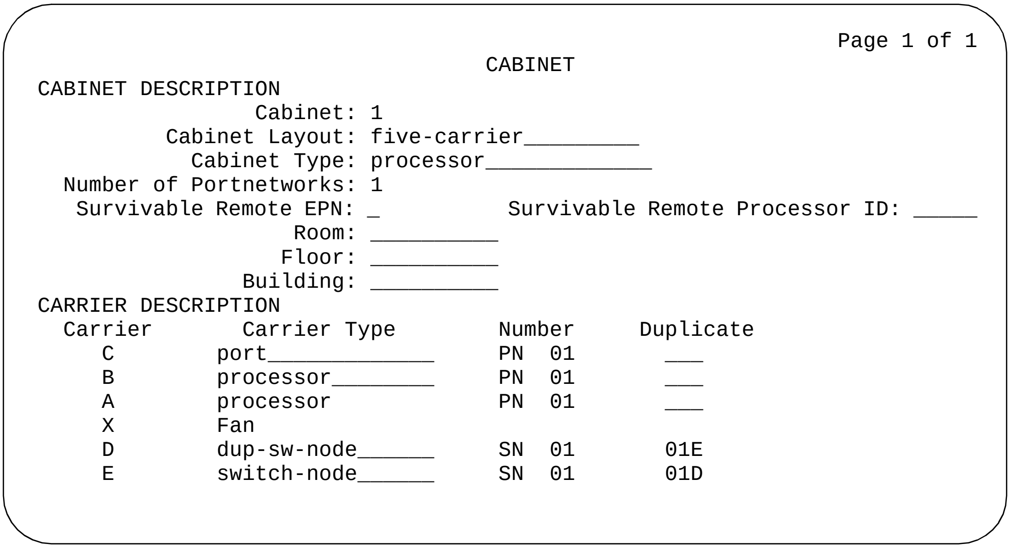
1. At the `Command:` prompt, type **change site-data** and press Enter.

   The first of 3 pages of site data appears:

2. Enter optional names for the buildings or offices served by the system.
3. Access the remaining site-data pages and fill them in appropriately.

Change Cabinet 1

1. Type **change cabinet 1** and press Enter. A screen similar to Screen 3-7 appears.
2. Fill in the blanks as required by the location and nature of the cabinet. If the system is critical reliability, verify the `B` field is set to the processor option, the `D` field is set to the dup-sw-node option, and the `E` field is set to the switch-node option.



```
                                                              Page 1 of 1
                                   CABINET
CABINET DESCRIPTION
                 Cabinet: 1
          Cabinet Layout: five-carrier_________
            Cabinet Type: processor_____________
  Number of Portnetworks: 1
   Survivable Remote EPN: _         Survivable Remote Processor ID: _____
                    Room: __________
                   Floor: __________
                Building: __________
CARRIER DESCRIPTION
  Carrier         Carrier Type          Number     Duplicate
     C          port______________      PN   01       ___
     B          processor_________      PN   01       ___
     A          processor               PN   01       ___
     X          Fan
     D          dup-sw-node______       SN   01       01E
     E          switch-node______       SN   01       01D
```

Screen 3-7. Cabinet Administration form

Cabinet Description

- **Cabinet** — Display-only field. This field shows the cabinet number as entered in the command line.
- **Cabinet Layout** — Enter the type of physical carrier layout. Valid entries are **five-carrier** and **single-carrier-stack**. Default is blank.
- **Cabinet Type** — Display-only field. This field shows the type of cabinet being administered. If cabinet "01" is being administered, this field is "processor." If cabinets "02 through 44" are being administered, this field is "expansion-portnetwork."
- **Number of Port Networks** — Enter the number of PNs in the cabinet. Valid entries are **1** (default), and **2**.
- **Survivable Remote EPN** — Displays only if the `Cabinet Type` field is "expansion-portnetwork." If set to **y**, the cabinet has a remote si processor that provides a backup if the links to this cabinet are inoperative.

- **Survivable Remote Processor ID** — Displays only if the `Survivable Remote EPN` field is **y**. Enter the product ID assigned to the remote si. This allows DEFINITY Fault Management to know which machine is the backup for this cabinet. The entry in this field cannot be the same as the entry in the `Production Identification` field in the Maintenance-Related System Parameters form.
- **Room** — Enter up to ten characters identifying the room where the cabinet is located. Default is blank.
- **Floor** — Enter up to ten characters identifying the floor in the building where the cabinet is located. Default is blank.
- **Building** — Enter up to ten characters identifying the building where the cabinet is located. Default is blank.

Carrier Description

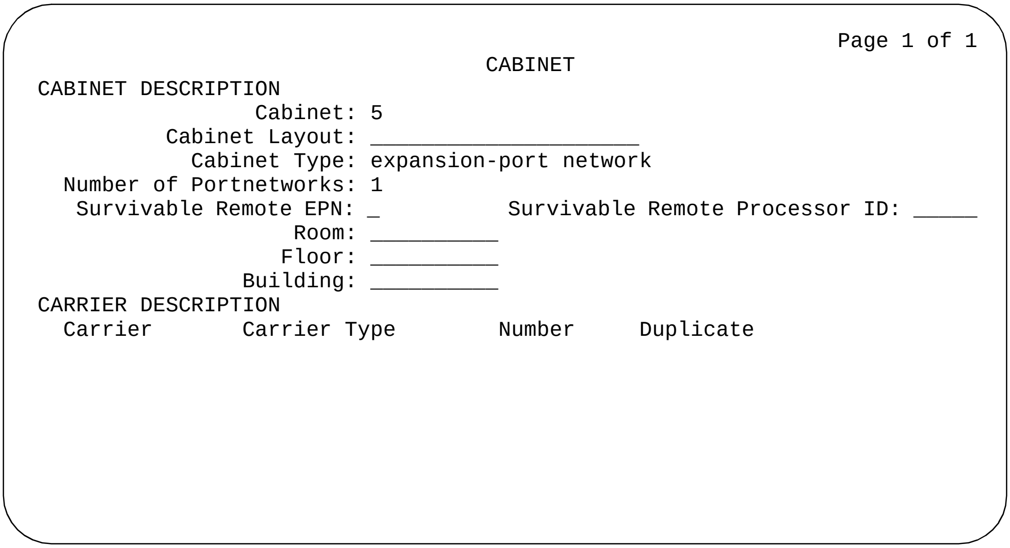
- **Carrier Type** — Enter the type of carrier in the cabinet being administered. Valid entries are **dup-switch-node**, **expansion-control**, **not-used**, **port**, **processor**, and **switch-node**.
- **Number** — Display-only field. Consists of two fields: the `Designator` and `Number` fields. The `Designator` field contains one of the following entries:
  - — **PN** — If the carrier is a port carrier, processor carrier, or unused carrier.
  - — **SN** — If the carrier is a switch node carrier, or duplicate switch node carrier.

  The `Number` field contains either the switch node number or port network number.
- **Duplicate** — The location for the duplicate of a switch node. Only displays when administration of PNC Duplication is enabled. If the `Carrier Type` is **dup-switch-node**, the field displays the three-character carrier address of the duplicate. The first two characters represent the cabinet number; the third character represents the carrier (A through E).

  This is a display-only field if the `Carrier Type` field is **switch-node**.

Add Cabinet 2 through N (Release 8r)

1. Type **add cabinet** <**2-44**> and press Enter. See Screen 3-8.
2. Fill in the blanks as required by the location and nature of the cabinet.



```
                                                               Page 1 of 1
                                   CABINET
CABINET DESCRIPTION
                 Cabinet: 5
          Cabinet Layout: _____________________
            Cabinet Type: expansion-port network
  Number of Portnetworks: 1
   Survivable Remote EPN: _          Survivable Remote Processor ID: _____
                    Room: __________
                   Floor: __________
                Building: __________
CARRIER DESCRIPTION
  Carrier       Carrier Type        Number     Duplicate
```

Screen 3-8. Typical Add Cabinet Form

Administer Fiber Links (Release 8r Only)

Administer system fiber link configurations to match the hardware installed and according to the Fiber Optic Cable Running List.

NOTE:
Fiber link administration interacts with or depends upon other system features that must be administered before it.

Fiber link administration creates translation data by identifying the endpoint pairs for each link. Endpoints can be:

- An Expansion Interface (EI) circuit pack
- A Switch Node Interface (SNI) circuit pack

Circuit Pack Form

After installing the equipment (including circuit packs), the circuit packs must be administered *before* the fiber link is administered. Refer to *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide* for more information.

The following information describes general circuit pack administration information:

a. Use the Circuit Packs form to administer circuit packs to carrier slots. Install or administer the circuit packs (or assigned using the Circuit Packs form) before administering voice terminals, attendant consoles, or trunks.

b. Each page of the form represents 1 carrier in the cabinet shown on the command line.

c. Refer to *DEFINITY Communications System Generic 3 Planning and Configuration*, 555-230-601, for more information about circuit pack administration and port assignment records.

d. For initial installation, assign circuit packs to slots using the hardware configuration layout record from the factory or Customer Services Organization. Do not arbitrarily assign circuit packs to slots.

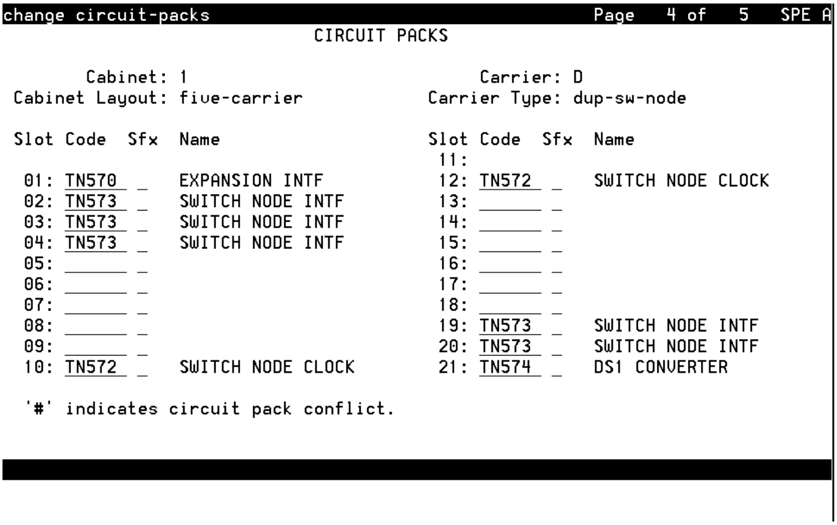
e. If the carrier type administered on the Cabinet Administration form does not match the physical hardware, question marks (??) may display in the Code fields.

f. When a circuit pack in a slot differs from what has been administered on the form, a "#" displays between the "Sfx" and "Name" fields to indicate a conflict.

g. For Release 8r, the number of slot fields displayed represents administrable slots for the given carrier type.

Administer Fiber Links on Simplex Systems

1. Administer the TN570 Expansion Interface and the TN574 or TN1654 DS1 Converter circuit packs. Type **change circuit packs** and press Enter. See Screen 3-9.



```
change circuit-packs                                  Page   4 of   5   SPE A
                              CIRCUIT PACKS

        Cabinet: 1                                     Carrier: D
 Cabinet Layout: five-carrier                     Carrier Type: dup-sw-node

 Slot  Code  Sfx  Name                            Slot  Code  Sfx  Name
                                                   11:
  01: TN570  _    EXPANSION INTF                   12: TN572  _    SWITCH NODE CLOCK
  02: TN573  _    SWITCH NODE INTF                 13: ______ _
  03: TN573  _    SWITCH NODE INTF                 14: ______ _
  04: TN573  _    SWITCH NODE INTF                 15: ______ _
  05: ______ _                                     16: ______ _
  06: ______ _                                     17: ______ _
  07: ______ _                                     18: ______ _
  08: ______ _                                     19: TN573  _    SWITCH NODE INTF
  09: ______ _                                     20: TN573  _    SWITCH NODE INTF
  10: TN572  _    SWITCH NODE CLOCK                21: TN574  _    DS1 CONVERTER

  '#' indicates circuit pack conflict.
```

Screen 3-9. Circuit Packs Form

2. Scroll through the pages on the form until the carrier containing the new circuit packs displays. Enter the circuit packs into the appropriate slot locations on the form. Press Enter when finished.
3. Type **list fiber** and press Enter. All administered fiber connections display.
4. If a previously used fiber link is to be reused, type **add fiber** <**number**>. If this is a new fiber link, type **add fiber next**. Press Enter. The Fiber Link Administration screen appears. Use this form to administer fiber links, each of which is identified by a fiber number.
5. Type **y** or **n** in the field `Is one endpoint remoted via DS1 Converter complex?` and press Enter.
6. Type the location of the TN570 and the TN574 or TN1654 circuit pack for both ENDPOINT-1 and ENDPOINT-2.
7. Scroll to page 2 of the form. Type **y** as applicable, in each `Facility Installed?` field (A, B, C, and D).
8. In the `Bit Rate:` field, type either **1.544** (T1) or **2.048** (E1).
9. Type the idle code in the `Idle Code MSB (1) . . . . LSB (8):` field. The default value is **11101000**. It is recommended that the default value be used unless it becomes absolutely necessary to change it. The "MSB" means Most Significant Bit, the "LSB" means Least Significant Bit.

10. In the `Line Coding:` field, enter the line coding information. This information should match the line coding of the facility. For T1, example line coding is **b8zs**. For E1, example line coding is **hdb3**.

    NOTE:
    If this data is not correct, wideband errors (multimedia call handling) may occur.

11. For T1 sites, refer to "T1 Installations Only". For E1 sites, refer to "E1 Installations Only".

T1 Installations Only

a. The `Framing Mode:` field is display only and shows the hardware setting.

b. The `DS1CONV-1 Line Compensation:` and the `DS1CONV-2 Line Compensation:` fields are display only and show the hardware setting.

c. In the `Facility A Circuit ID:` field, enter an optional facility name that is unique to each facility (up to 40 alphanumeric characters). Press Enter.

d. A display similar to the following appears after the fiber link administration is completed:

```
RESET PORT-NETWORK 2 LEVEL 2 (COLD) PERFORMED.
```

E1 Installations Only

a. Type **y** or **n** in the `CRC?` field. The "CRC" means Cyclic Redundancy Check. This is an error detection algorithm.

b. The `Line Termination:` field is display only. A 75 (75 Ohms) or 120 (120 Ohms) typically displays.

c. In the `Facility A Circuit ID:` field, enter an optional facility name that is unique to each facility (up to 40 alphanumeric characters). Press Enter.

d. A display similar to the following appears after the fiber link administration is completed:

```
RESET PORT-NETWORK 2 LEVEL 2 (COLD) PERFORMED.
```

All Installations

1. When the system reset is finished, enter the **status port-network 2** command. The Port Network Status screen appears. Verify that PNC Active is “up” and that the Service State is “in.”
2. A Span LED, on the front of the DS1 Converter circuit pack, must be on for each active facility administered. For example, if Facility A and Facility B are administered, then the top 2 Span LEDs on the circuit pack must be on (yellow). The yellow LEDs are on only if no problems were encountered during the administration of hardware. Span LEDs associated with non-administered facilities (C and D, in this example) should be off.
3. Perform a test call, if desired.

Administer Fiber Links on Duplex Systems

The PNC Duplication feature is enabled on the System-Parameters Customer-Options form and Operation of Duplication is enabled on the Duplication-Related System-Parameters form. All non-duplicated SNIs to SNI fiber links are automatically duplicated.

When PNC Duplication is enabled on the System-Parameters Customer-Options form, the following administration forms change:

- Cabinet Form — Additional fields appear to allow administration of switch nodes to A-PNC and B-PNC sides of the CSS. The B-PNC is the duplicated hardware for the A-PNC. Either the A-PNC or the B-PNC can provide full customized service. B-PNC cannot be used in a simplex PNC configuration. Pairing of switch nodes is also defined here.
- Fiber Link Administration Form — Additional fields appear to allow administration of fiber links on the B-PNC side of the CSS. If an endpoint on the A-PNC side is administered as an SNI, its corresponding endpoint on the B-PNC side is determined (if switch nodes are paired in the cabinet form prior to this administration) and displayed. However, administration of the duplicate B-PNC link is not enforced until duplication is in full operation.
- Duplication-Related System-Parameters Form — An additional field appears to enable operation of PNC duplication.

1. Type **change system-parameters customer-options** and press Enter. On Page 2 of the form, set the `PNC Duplication?` field to **y**. Press Enter.
2. Type **change system-parameters duplication** and press Enter. Change the `Enable operation of PNC duplication?` field to **y**. Press Enter.
3. Type **status pnc** and press Enter. Verify the `Duplicated ?` field is **yes**.
4. Type **list fiber** and press Enter. All administered fiber connections display.
5. If a previously used fiber link is to be reused, type **add fiber** <**number**>. If this is a new fiber link, type **add fiber next**. Press Enter.

6. The Fiber Link Administration form appears. On Page 1, enter the `Board Location:` for ENDPOINT-1 and ENDPOINT-2. This is the cabinet, carrier, and slot that identifies the physical location of an SNI or EI circuit pack that is the first endpoint of the fiber link. Repeat for the remaining endpoints.
7. The `Board Type` field is display only and shows the type of circuit pack in Endpoint-1.
8. In the `DS1CONV Board Location`: field, enter the cabinet, carrier, and slot that identifies the physical location of DS1 Converter circuit pack in the first endpoint of the duplicate fiber link. Endpoint-1's duplicate along with Endpoint-2's duplicate make up the duplicate fiber link called the B-PNC link.
9. The `DS1CONV Board Type`: field is display only and shows the type of DS1 Converter circuit pack in Endpoint-1. The circuit pack type in Endpoint-1 (A-PNC) and Endpoint-1 (B-PNC) must be the same.
10. In the `Is one endpoint remoted via a DS1 Converter Complex?` field, enter **y** to specify that a DS1 Converter complex is used to remote 1 endpoint. If a **y** is entered, administer the A-PNC DS1 Converter Board Location on Page 1. The A-PNC DS1 Converter Board Type displays. Administer the A-PNC DS1 Converter (DS1CONV) Attributes on Page 2 of this form.
11. On Page 2 of the form, enter the DS1 Converter Facilities information. In the `Facility Installed?` field, enter **y** for all installed facilities (A, B, C, and D).
12. In the `Bit Rate`: field, enter **1.544** for T1 operation or **2.048** for E1 operation.

    NOTE:
    One bit rate applies for all facilities within the same DS1 Converter complex. The `Bit Rate:` field displays only under Facility A.

13. Enter the idle code in the `Idle Code MSB (1) . . . . LSB (8):` field. The default value is **11101000**. It is recommended that the default value be used unless it becomes absolutely necessary to change it. The “MSB” means Most Significant Bit, the “LSB” means Least Significant Bit.
14. In the `Line Coding:` field, enter the line coding information. This information should match the line coding of the facility. For T1, example line coding is **b8zs**. For E1, example line coding is **hdb3**. Scroll to Page 3 and modify the fields as needed for the B-PNC.

    NOTE:
    If this data is not correct, wideband errors (such as multimedia call handling) may occur.

15. For T1 sites, refer to “T1 Installations Only”. For E1 sites, refer to “E1 Installations Only”.

T1 Installations Only

1. The `Framing Mode:` field is display only and shows the hardware setting.
2. The `DS1CONV-1 Line Compensation:` and the `DS1CONV-2 Line Compensation:` fields are display only and show the hardware setting.
3. In the `Facility A Circuit ID:` field, enter an optional facility name that is unique to each facility (up to 40 alphanumeric characters). Press Enter.
4. A display similar to the following appears after the fiber link administration is completed:

   ```
   RESET PORT-NETWORK 2 LEVEL 2 (COLD) PERFORMED.
   ```

E1 Installations Only

1. Type **y** or **n** in the `CRC?` field. The “CRC” means Cyclic Redundancy Check. This is an error detection algorithm.
2. The `Line Termination:` field is display only. A 75 (75 Ohms) or 120 (120 Ohms) typically displays.
3. In the `Facility A Circuit ID:` field, enter an optional facility name that is unique to each facility (up to 40 alphanumeric characters). Press Enter.
4. A display similar to the following appears after the fiber link administration is completed:

   ```
   RESET PORT-NETWORK 2 LEVEL 2 (COLD) PERFORMED.
   ```

All Installations

1. When the system reset is finished, type **status port-network 2** and press Enter. The Port Network Status screen appears. Verify that PNC Active is “up” and that the Service State is “in.”
2. A Span LED, on the front of the DS1 Converter circuit pack, must be on for each active facility administered. For example, if Facility A and Facility B are administered, then the top 2 Span LEDs on the circuit pack must be on (yellow). The yellow LEDs are on only if no problems were encountered during the administration of hardware. Span LEDs associated with non-administered facilities (C and D, in this example) should be off.
3. Perform a test call, if desired.

Fiber Link Administration Form

This form administers fiber links, each of which is identified by a fiber number.

NOTE:
Fiber link administration only applies to R5r and later configurations.

Port networks (PNs) are connected via direct fiber link connections or through a center stage switch (CSS) to provide the interconnection of port networks required for voice/data information transfer. The CSS is composed of "switch nodes" that can be interconnected in one or two levels to provide Port Network Connectivity (PNC). The CSS provides circuit-switched connectivity for voice and data communications as well as packet-switched connectivity. Fiber link administration permits an administration of translation data associated with a switch connection (such as optical fiber, metallic cable, or DS1CONV circuit packs and DS1 facility links between two endpoints). The two fiber endpoints can be:

- An expansion interface (EI) circuit pack
- A switch node interface (SNI) circuit pack

NOTE:
Only one administrative terminal can administer fiber links at a time; others can display fiber link information.

Administration commands

Use the following commands to administer the Fiber Link Administration form.

Action	Object	Qualifier[1]
add	fiber-link	link number or [‘next’]
change	fiber-link	link number
display	fiber-link	link number
list	fiber-link	link number
remove	fiber-link	link number

---

1. Brackets [ ] indicate the qualifier is optional. Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

PNCs have three different reliability configurations (one for each system reliability configuration) as follows:

System Configuration	PNC
Standard Reliability	Simplex Fibers
High Reliability	Simplex Fibers to Expansion Port Networks and Duplicated Fibers between Processor Port Networks (PPN) and Switch Nodes
Critical Reliability	Duplicated Fibers

Simplex PNC

For Simplex PNC, PNC Duplication is disabled on the System-Parameters Customer-Options form and Operation of Duplication is disabled on the Duplication-Related System-Parameters form.

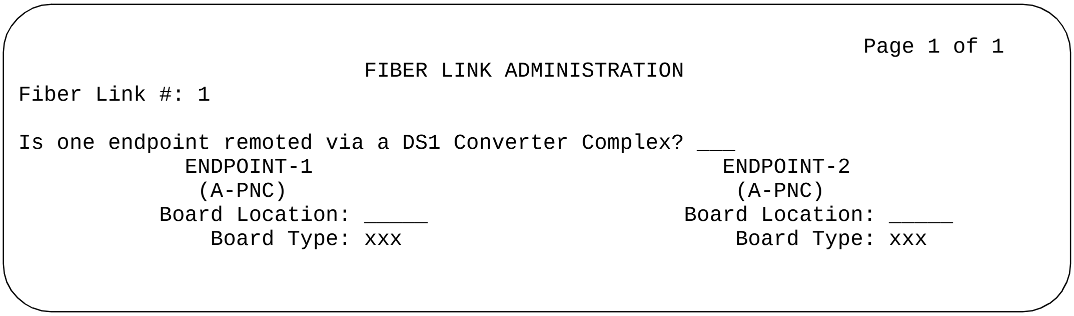
Administration of PNC Duplication

The PNC Duplication feature is enabled on the System-Parameters Customer-Options form and Operation of Duplication is enabled on the Duplication-Related System-Parameters form. When PNC Duplication is enabled on the System-Parameters Customer-Options form, the following administration forms change:

- Cabinet form — Additional fields appear to allow administration of switch nodes to A-PNC and B-PNC sides of the CSS. The B-PNC is the duplicated hardware for the A-PNC. Either the A-PNC or the B-PNC can provide full customized service. B-PNC cannot be used in a simplex PNC configuration. Pairing of switch nodes is also defined here.
- Fiber Link form — Additional fields appear to allow administration of fiber links on the B-PNC side of the CSS. If an endpoint on the A-PNC side is administered as an SNI, its corresponding endpoint on the B-PNC side is determined (if switch nodes are paired in the cabinet form prior to this administration) and displayed. However, administration of the duplicate B-PNC link is not enforced until duplication is in full operation.
- Duplication-Related System-Parameters form — An additional field appears to enable operation of PNC duplication.

Form instructions

Page 1 of the form



```
                                                                      Page 1 of 1
                           FIBER LINK ADMINISTRATION
Fiber Link #: 1

Is one endpoint remoted via a DS1 Converter Complex? ___
             ENDPOINT-1                                  ENDPOINT-2
              (A-PNC)                                     (A-PNC)
           Board Location: _____                       Board Location: _____
               Board Type: xxx                             Board Type: xxx
```

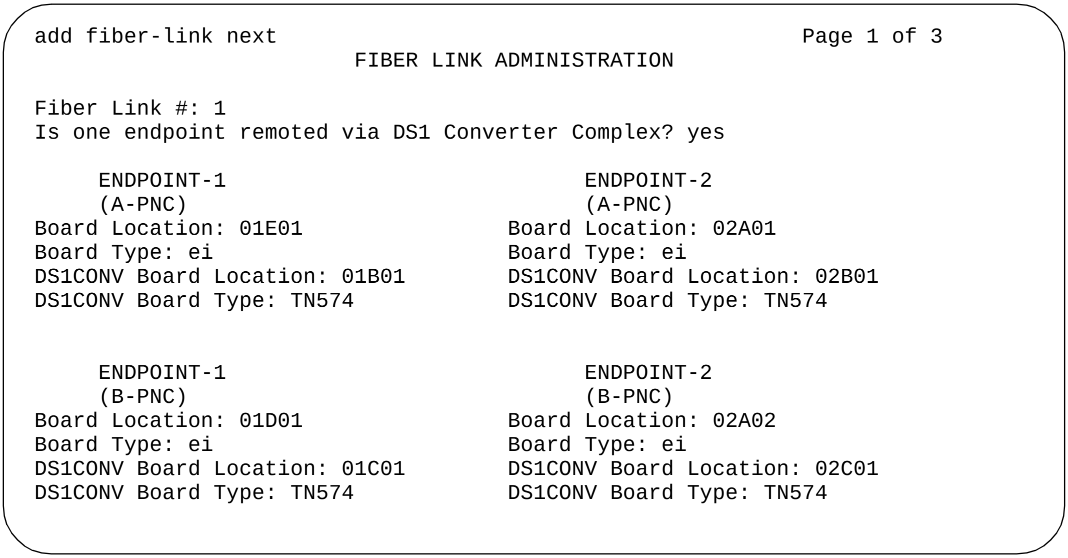
Screen 3-10. Fiber Link Administration form

Basic Fiber Link Administration.

The following fields appear:

- **Fiber Link #** — Display-only field. From the command line, enter a 1- to 3-digit number to uniquely identify a switch connection in the system and its duplicate if appropriate.
- **Board Location** — Enter the cabinet, carrier, and slot that identifies the physical location of an SNI or EI board that is the first endpoint of the fiber link.
- **Board Type** — Display-only field showing the type of circuit pack in Endpoint-1.
- **Board Location** — Enter the cabinet, carrier, and slot that identifies the physical location of an SNI or EI board that is the second endpoint of the fiber link.
- **Board Type** — Display-only field showing the type of circuit pack in Endpoint-2.
- **Is one endpoint remoted via a DS1 Converter Complex?** — Enter **y** to specify that a DS1 Converter complex is used to remote one endpoint. If a **y** is entered, A-PNC DS1 Converter circuit pack Location must be administered on Page 1. A-PNC DS1 Converter circuit pack Type displays. A-PNC DS1 Converter (DS1CONV) Attributes must be administered on Page 2 of this form.

Duplicated Fiber Link Administration.



```
add fiber-link next                                              Page 1 of 3
                         FIBER LINK ADMINISTRATION

Fiber Link #: 1
Is one endpoint remoted via DS1 Converter Complex? yes

     ENDPOINT-1                                ENDPOINT-2
     (A-PNC)                                   (A-PNC)
Board Location: 01E01                     Board Location: 02A01
Board Type: ei                            Board Type: ei
DS1CONV Board Location: 01B01             DS1CONV Board Location: 02B01
DS1CONV Board Type: TN574                 DS1CONV Board Type: TN574


     ENDPOINT-1                                ENDPOINT-2
     (B-PNC)                                   (B-PNC)
Board Location: 01D01                     Board Location: 02A02
Board Type: ei                            Board Type: ei
DS1CONV Board Location: 01C01             DS1CONV Board Location: 02C01
DS1CONV Board Type: TN574                 DS1CONV Board Type: TN574
```

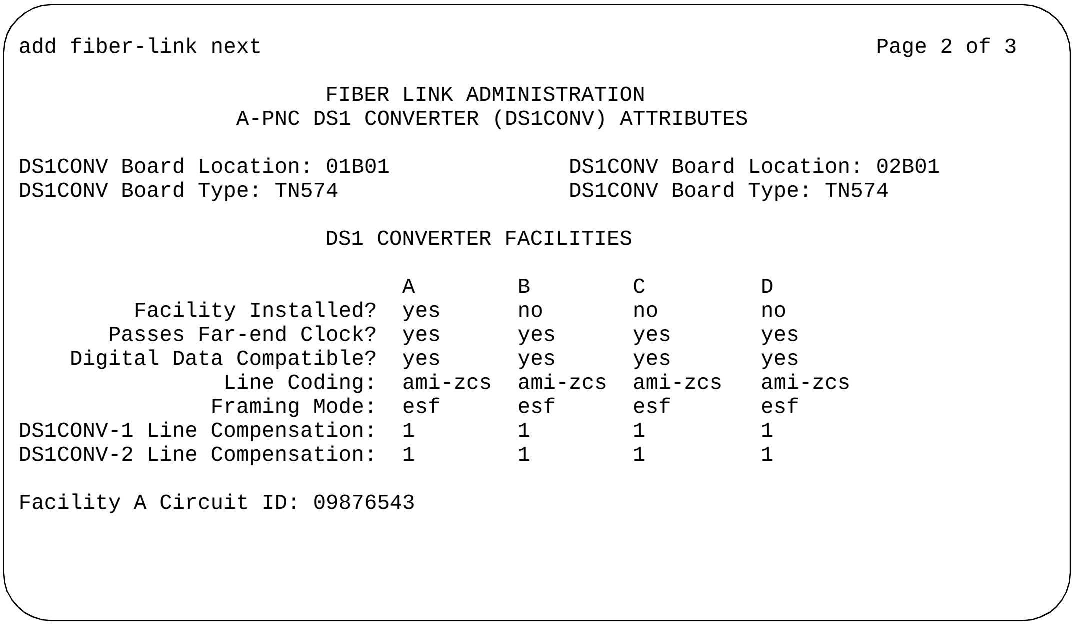
Screen 3-11. Fiber Link Administration form (page 1 of 3)

The following fields appear when `Administration of PNC Duplication` is enabled on the System-Parameters Customer-Options form:

- **Fiber Link #** — Display-only field. From the command line, enter a 1- to 3-digit number to uniquely identify a switch connection in the system and its duplicate if appropriate.
- **Is one endpoint remoted via DS1 Converter Complex?** — Enter **yes** to specify that a DS1 converter complex is used to remote one endpoint. If **yes** is entered, A-PNC and B-PNC DS1 Converter (DS1CONV) Attributes must be administered on Pages 2 and 3 (respectively) of the form.
- **Board Location** — Enter the cabinet, carrier, and slot that identifies the physical location of a circuit pack in the first endpoint of the duplicate fiber link. Endpoint-1's duplicate along with Endpoint-2's duplicate make up the duplicate fiber link called the B-PNC link.
- **Board Type** — Display-only field showing the type of circuit pack in Endpoint-1. The circuit pack type in Endpoint-1 (A-PNC) and Endpoint-1 (B-PNC) must be the same.
- **DS1CONV Board Location** — Enter the cabinet, carrier, and slot that identifies the physical location of DS1 Converter circuit pack in the first endpoint of the duplicate fiber link. Endpoint-1's duplicate along with Endpoint-2's duplicate make up the duplicate fiber link called the B-PNC link.

- **DS1CONV Board Type** — Display-only field showing the type of DS1 Converter circuit pack in Endpoint-1. The circuit pack type in Endpoint-1 (A-PNC) and Endpoint-1 (B-PNC) must be the same. This field is updated via the Change Circuit-packs command.
- **Board Location** — Enter the cabinet, carrier, and slot that identifies the physical location of a circuit pack in the second endpoint of the duplicate fiber link. Endpoint-2's duplicate along with Endpoint-1's duplicate make up the duplicate fiber link called the B-PNC link.
- **Board Type** — Display-only field showing the type of circuit pack in Endpoint-2. The circuit pack type in Endpoint-2 (A-PNC) and Endpoint-2 (B-PNC) must be the same.
- **DS1CONV Board Location** — Enter the cabinet, carrier, and slot that identifies the physical location of DS1 Converter circuit pack in the second endpoint of the duplicate fiber link. Endpoint-2's duplicate along with Endpoint-1's duplicate make up the duplicate fiber link called the B-PNC link.
- **DS1CONV Board Type** — Display-only field showing the type of DS1 Converter circuit pack in Endpoint-2. The circuit pack type in Endpoint-2 (A-PNC) and Endpoint-2 (B-PNC) must be the same. This field is updated via the Change Circuit-packs command.

DS1C Converter Complex Administration for TN574 Circuit Packs.



```
add fiber-link next                                                  Page 2 of 3

                        FIBER LINK ADMINISTRATION
                 A-PNC DS1 CONVERTER (DS1CONV) ATTRIBUTES

DS1CONV Board Location: 01B01              DS1CONV Board Location: 02B01
DS1CONV Board Type: TN574                  DS1CONV Board Type: TN574

                        DS1 CONVERTER FACILITIES

                              A        B        C         D
         Facility Installed?  yes      no       no        no
       Passes Far-end Clock?  yes      yes      yes       yes
    Digital Data Compatible?  yes      yes      yes       yes
                Line Coding:  ami-zcs  ami-zcs  ami-zcs   ami-zcs
               Framing Mode:  esf      esf      esf       esf
DS1CONV-1 Line Compensation:  1        1        1         1
DS1CONV-2 Line Compensation:  1        1        1         1

Facility A Circuit ID: 09876543
```

Screen 3-12. Fiber Link Administration form for TN574 Circuit Pack (DS1 Converter Complex Administration) (page 2 of 3)

The following DS1 Converter Complex fields appear on Page 2 when the Is one endpoint remoted via a DS1 Converter Complex field is **y**.

NOTE:
When you administer DS1 Converter TN1654 circuit packs, different fields display.

- **DS1CONV Board Location** — Enter the cabinet, carrier, and slot that identifies the physical location of the converter circuit pack connected to the first endpoint of the fiber link. This is entered on Page 1 and displays on Page 2.
- **DS1CONV Board Type** — Display-only field showing the type of DS1 Converter circuit pack for the first endpoint.
- **DS1CONV Board Location** — Enter the cabinet, carrier, and slot that identifies the physical location of the converter circuit pack connected to the second endpoint of the fiber link.
- **DS1CONV Board Type** — Display-only field showing the type of DS1 Converter circuit pack for the second endpoint. This field is updated via the Change Circuit-packs command.
- **Facility Installed** — Enter **yes** in the B, C, and D columns under the DS1 Converter Facilities heading to indicate that this DS1 facility is physically installed. At least facility A must be installed within the converter complex. Default is **yes** for Facility A.
- **Passes Far-end Clock** — Enter "**yes**" in the B, C, and D columns under the DS1 Converter Facilities heading to indicate that this DS1 facility is suitable to be used as a clock source. If the DS1 signal does not come directly from the far end converter circuit pack or the network (such as when the signal is converted from digital to analog and then back to digital), enter "**no**.” Default is **yes** for Facility A.

  This field determines whether the DS1 converter circuit pack can use receive DS1 signal timing to time the transmit fiber signal. This is necessary for passing timing from a master PN to a slave PN across a Converter Complex.
- **Digital Data Compatible** — Enter **yes** (default) in the B, C, and D columns under the DS1 Converter Facilities heading to indicate that this DS1 facility is suitable for transmission of digital data. At least Facility A must be suitable for transmission of digital data. If Customer Premises Equipment that alters digital data exists on this facility (such as with a channel expansion multiplexer), enter **no**.

- **Line Coding** — Enter the line coding format, **ami-zcs** (default), or **ami-basic**, **b8zs**, or **hdb3** in the A, B, C, and D columns under the DS1 Converter Facilities heading for each DS1 facility.

  When ami-zcs line coding is used, all-zero bytes are prevented from being transmitted on the DS1 facility because a 1 is arbitrarily written into the second position of each byte. Thus, if no measures are taken to prevent it, ami-zcs line coding results in data corruption. The DS1CONV circuit pack protects the packet facility (one of up to four facilities dynamically allocated by the DS1CONV circuit pack) from corruption through a special escape mechanism.

  When b8zs line coding is used, it maintains DS1 facility's ones-density requirements by encoding a zero data byte into a specific unique pattern of bipolar violations on the DS1 line. The opposite end recognizes this pattern and replaces it with a zero data byte when the data is recovered at the receiving end.

  NOTE:
  Note that although the esf framing mode and b8zs line coding are the preferable modes of operation, you should confirm that the DS1 facilities support them before selecting this line coding.

- **Framing Mode** — Enter the framing format, **esf** (default) or **d4**, in the A, B, C, and D columns under the DS1 Converter Facilities heading for each DS1 facility.

  NOTE:
  The D4 format is supported by the Converter circuit packs, but because of problems inherent with this format (specifically, inability to frame on a bit stream that contains data that emulates the D4 framing pattern), its use is discouraged.

- **DS1CONV-1 Line Compensation** — Enter the line compensation (**1** to **5**) in the A, B, C, and D columns under the DS1 Converter Facilities heading for each DS1 facility connected to ENDPOINT-1 (see Table 3-4).

  The DS1 line signal is pre-equalized at the transmitter so that DS1 line pulses are the correct amplitude and shape when they reach the Network Interface. The amount of equalization necessary is determined by the distance to the Network Interface (when the endpoint supplies a DSX-1 interface) and also by the type of wiring used to connect to the Network Interface. The types of wiring allowed are 22 gauge ABAM (shielded twisted pair) cable, 24 gauge Premises Distribution System (PDS) wiring, and 26 gauge PDS wiring.

Table 3-4. Distance to DSX-1 Interface (in feet)

Equalizer Setting	22 AWG ABAM & 24 AWG PDS	26 AWG PDS
1	1 to 133	0 to 90
2	133 to 266	90 to 180
3	266 to 399	180 to 270
4	399 to 533	270 to 360
5	533 to 655	360 to 450

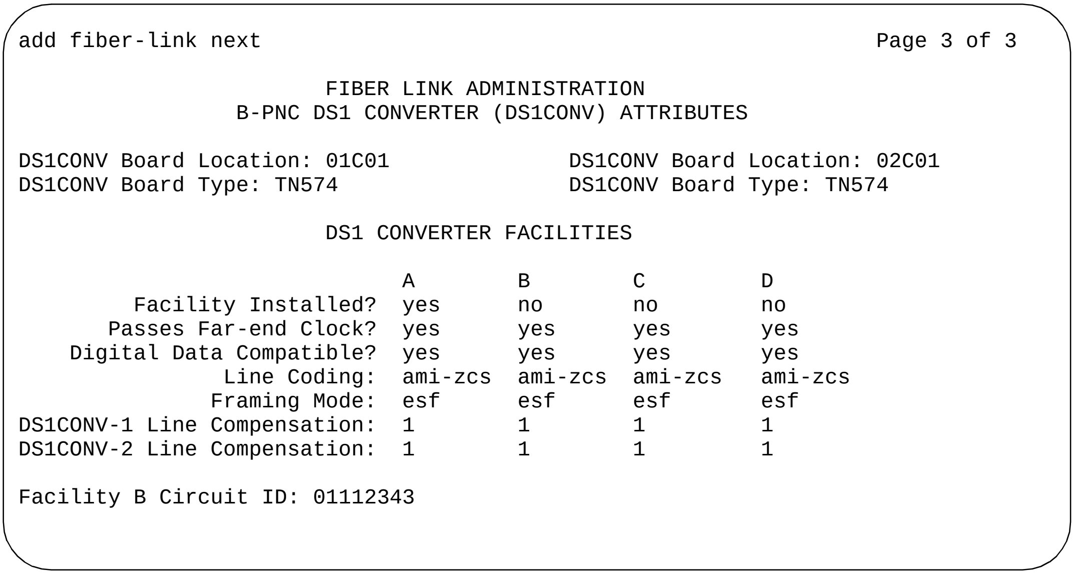
NOTE:
The line equalization setting defaults to 2 and remains in effect until changed by administration. Because incorrect equalizer settings cause a potentially higher error rate on the DS1 facility, it is necessary to provide the correct settings based on the distance to the Network interface.

If it is a TN574 circuit pack, the default for all facilities is **1**.

- **DS1CONV-2 Line Compensation** — Enter the line compensation (**1** to **5**) in the A, B, C, and D columns under the DS1 Converter Facilities heading for each DS1 facility connected to ENDPOINT-2 (see Table 3-4). The DS1 line signal is pre-equalized at the transmitter so that DS1 line pulses are the correct amplitude and shape when they reach the Network Interface. The amount of equalization necessary is determined by the distance to the Network Interface (when the endpoint supplies a DSX-1 interface) and also by the type of wiring used to connect to the Network Interface. The types of wiring allowed are 22-gauge ABAM (shielded twisted pair) cable, 24-gauge Premises Distribution System (PDS) wiring, and 26-gauge PDS wiring.
- **Facility A Circuit ID** — Displays when the value in `Facility Installed` for Facility A is **yes**. Enter up to 40 characters to identify the cabinet, carrier, and slot of the DS1 Converter circuit pack's physical location.

  Similarly, Facility B Circuit ID, Facility C Circuit ID, and Facility D Circuit ID fields display for each of the DS1 Converter Facilities when **yes** is entered in the corresponding Facility Installed field.

Duplicated DS1C Converter Complex Administration for TN574 Circuit Packs.



```
add fiber-link next                                            Page 3 of 3

                        FIBER LINK ADMINISTRATION
                 B-PNC DS1 CONVERTER (DS1CONV) ATTRIBUTES

DS1CONV Board Location: 01C01             DS1CONV Board Location: 02C01
DS1CONV Board Type: TN574                 DS1CONV Board Type: TN574

                        DS1 CONVERTER FACILITIES

                              A        B        C         D
         Facility Installed?  yes      no       no        no
       Passes Far-end Clock?  yes      yes      yes       yes
    Digital Data Compatible?  yes      yes      yes       yes
                Line Coding:  ami-zcs  ami-zcs  ami-zcs   ami-zcs
               Framing Mode:  esf      esf      esf       esf
DS1CONV-1 Line Compensation:  1        1        1         1
DS1CONV-2 Line Compensation:  1        1        1         1

Facility B Circuit ID: 01112343
```

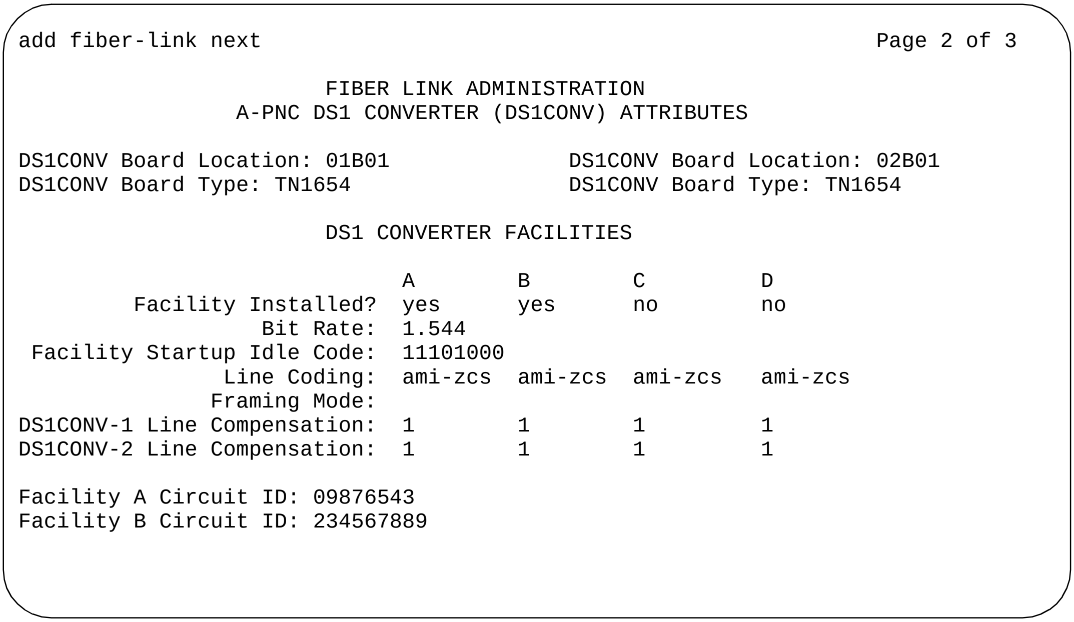
Screen 3-13. Fiber Link Administration form for TN574 Circuit Pack (Duplicated DS1 Converter Complex Administration) (page 3 of 3)

Page 3 appears when the Is one endpoint remoted via a DS1 Converter Complex field is "**yes**" and duplication is enabled.

NOTE:
When you administer DS1 Converter TN1654 circuit packs, different fields display.

For field definitions of the fields displayed on page 3 of the Fiber Link Administration form, refer back to the previous section.

DS1 Converter Complex Administration for T1 TN1654 Circuit Packs.



```
add fiber-link next                                                Page 2 of 3

                        FIBER LINK ADMINISTRATION
                 A-PNC DS1 CONVERTER (DS1CONV) ATTRIBUTES

DS1CONV Board Location: 01B01              DS1CONV Board Location: 02B01
DS1CONV Board Type: TN1654                 DS1CONV Board Type: TN1654

                        DS1 CONVERTER FACILITIES

                              A        B        C         D
         Facility Installed?  yes      yes      no        no
                   Bit Rate:  1.544
 Facility Startup Idle Code:  11101000
                Line Coding:  ami-zcs  ami-zcs  ami-zcs   ami-zcs
               Framing Mode:
DS1CONV-1 Line Compensation:  1        1        1         1
DS1CONV-2 Line Compensation:  1        1        1         1

Facility A Circuit ID: 09876543
Facility B Circuit ID: 234567889
```

Screen 3-14. Fiber Link Administration form for T1 TN1654 Circuit Pack (DS1 Converter Complex Administration) (page 2 of 3)

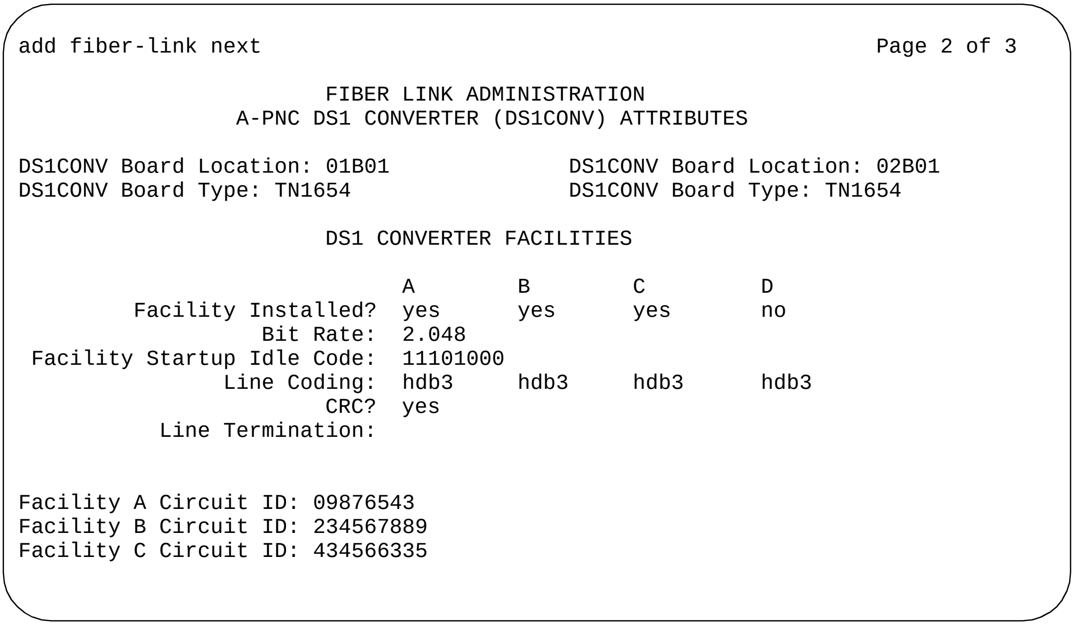
The following unique fields display when administering a T1 TN1654 DS1 Converter.

- **Bit Rate** — Displays when the DS1 Converter circuit pack is TN1654. Enter either **1.544** for domestic T1 operation or **2.048** for international E1 operation.

  NOTE:
  Since one bit rate applies for all facilities within the same DS1 Converter complex, the `Bit Rate` field displays only under Facility A.

- **Facility Startup Idle Code**— Displays when the DS1 Converter circuit pack is TN1654. Enter 8 digits, each digit must be **0** or **1**. The second digit must be **1**. Default is **11101000**. You can administer this field on a per circuit pack basis. This is the idle code used when a TN1654 first establishes a link on a T1/E1 facility. The initial idle code used by the TN1654 is overwritten by the center stage switch to an “all ones” pattern once framing is established on that T1/E1 facility.
- **Framing Mode** — For TN1654 with 1.544 Mbps Bit Rate, this is a display-only field.

Duplicated DS1 Converter Complex Administration for T1 TN1654 Circuit Packs.



```
add fiber-link next                                                Page 2 of 3

                        FIBER LINK ADMINISTRATION
                 A-PNC DS1 CONVERTER (DS1CONV) ATTRIBUTES

DS1CONV Board Location: 01B01               DS1CONV Board Location: 02B01
DS1CONV Board Type: TN1654                  DS1CONV Board Type: TN1654

                        DS1 CONVERTER FACILITIES

                              A        B        C         D
         Facility Installed?  yes      yes      yes       no
                   Bit Rate:  2.048
 Facility Startup Idle Code:  11101000
                Line Coding:  hdb3     hdb3     hdb3      hdb3
                       CRC?   yes
           Line Termination:


Facility A Circuit ID: 09876543
Facility B Circuit ID: 234567889
Facility C Circuit ID: 434566335
```

Screen 3-15. Fiber Link Administration form for E1 TN1654 Circuit Pack (DS1 Converter Complex Administration) (page 2 of 3)

The following unique fields display when administering a TN1654 DS1 Converter.

- **Bit Rate** — A display-only field for TN1654 entered on page 3 of the form. See previous section. **1.544** indicates domestic T1 operation and **2.048** indicates international E1 operation.

DS1 Converter Complex Administration for E1 TN1654 Circuit Packs .

The following unique fields display when administering a E1 TN1654 DS1 Converter.

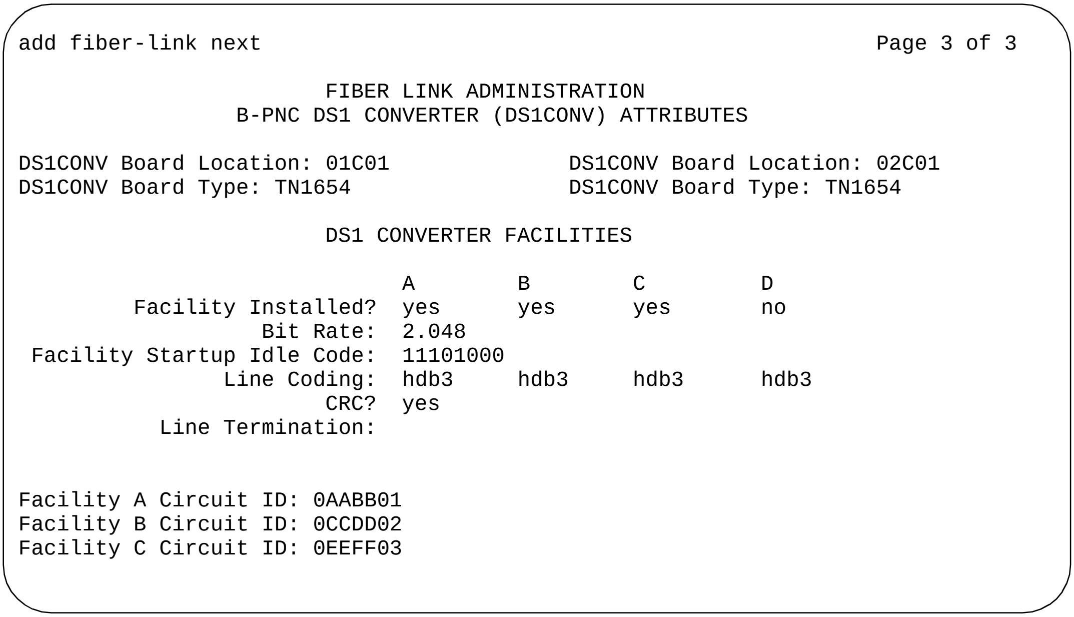
- **Bit Rate** — Displays when the DS1 Converter circuit pack is TN1654. Enter either **1.544** for domestic T1 operation or **2.048** for international E1 operation.

  NOTE:
  Since one bit rate applies for all facilities within the same DS1 Converter complex, `Bit Rate` displays only under Facility A. To activate the desired Bit Rate, the toggle switch on the circuit pack must be set and it must correspond to the Bit Rate.

- **Idle Code MSB(1) ... LSB(8)** — Displays when the DS1 Converter circuit pack is TN1654. Enter 8 digits, each digit must be **0** or **1**. The second digit must be **1**. Default is **11101000**. You can administer this field on a per circuit pack basis.
- **CRC** — Displays when the DS1 Converter circuit pack is TN1654 and the Bit Rate is 2.048 Mbps. Enter **yes** to receive a “yellow 2” alarm for E1 operation. Default is **no**. You can administer this field on a per circuit pack basis.
- **Line Termination** — A display-only field for DS1 Converter circuit packs that are TN1654 and have a Bit Rate of 2.048 Mbps. It identifies facility connections as CEPT 75 ohm coaxial or 120 ohm CEPT twisted pair.

Duplicated DS1 Converter Complex Administration for E1 TN1654 Circuit Packs.

See the previous sections for screen layout and field definitions.



```
add fiber-link next                                                Page 3 of 3

                        FIBER LINK ADMINISTRATION
                 B-PNC DS1 CONVERTER (DS1CONV) ATTRIBUTES

DS1CONV Board Location: 01C01              DS1CONV Board Location: 02C01
DS1CONV Board Type: TN1654                 DS1CONV Board Type: TN1654

                        DS1 CONVERTER FACILITIES

                              A        B        C         D
         Facility Installed?  yes      yes      yes       no
                   Bit Rate:  2.048
 Facility Startup Idle Code:  11101000
                Line Coding:  hdb3     hdb3     hdb3      hdb3
                        CRC?  yes
           Line Termination:


Facility A Circuit ID: 0AABB01
Facility B Circuit ID: 0CCDD02
Facility C Circuit ID: 0EEFF03
```

Screen 3-16. Fiber Line Administration form for B-PNC DS1 Converter (DS1CONV) Attributes

Reboot High Reliability System

1. Type **reset system 4** and press Enter.
2. When the `login:` prompt appears, login as **craft.**
3. About eight minutes after booting and at the `Command:` prompt, type **status spe** and press Enter.
4. Verify that `handshake, shadowing`, and `refreshed` are all shown to be either `yes` or `on`.

Enable Duplication and Boot Critical Reliability System (Release 8r)

1. Type **change system-parameters duplication** and press Enter.
2. Make sure duplication of both SPE and PNC are enabled on the screen that follows the command. Confirm that a `y` is contained in both fields.
3. Type **save translation** and press Enter.
4. Type **reset system 4** and press Enter to reboot the system.
5. When `login:` appears on the screen, login as **craft.**
6. About eight minutes after booting the system and at the `Command:` prompt, type **status spe** and press Enter.
7. Verify that `handshake, shadowing`, and `refreshed` are all shown to be either `yes` or `on`.

Administer Attendant Console

1. Type **display system-parameters country-options** and press Enter to verify 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).
2. If necessary, type **change terminal-parameters 603/302B1** and press Enter to change the default system-level parameters and audio levels for these terminals.

   NOTE:
   For information about changing the default parameters and audio levels, refer to *DEFINITY Application Notes* available through the International Technical Assistance Center (ITAC).

3. Administer other forms listed under Attendant Console in *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.

Save Translations

Save Translations (Release 8si)

For standard reliability systems, 1 translation card plus 1 backup is required. For high or critical reliability systems, 2 translation cards plus 2 backups are required.

⚠ **CAUTION:**

Do not attempt to save translations on the orange-labeled, 10 MB memory card. Use the white translation card.

1. At the `Command:` prompt, type **save translation** and press Enter.
2. After several minutes, the Save Translation screen appears.
3. Verify a “`0`” (zero) displays in the Error Code column for each SPE. A “`0`” indicates that the save translation completed successfully. If not, the save translation did not complete. Record the “error code number” and the “error message” and notify your Lucent Technologies representative.
4. Remove the original card from the TN794 and replace with backup card.
5. Repeat Steps 1 through 4 for the backup card(s).
6. Remove the backup card and replace it with the original card.
7. Label the backup card with the date and time of the backup and store it in a secure place.

Save Translations (Release 8r)

To copy the current system translations onto both disks:

1. Type **save translation** and press Enter.
2. Verify the save completes to both disks and returns a result code of “`0`” (zero).

Add Translations

1. Refer to *DEFINITY Enterprise Communications Server Release 8 Administrator’s Guide*, to add new terminals.
2. Type **save translation** and press Enter to merge these translations with the contents of disk or flash memory.
3. If a standard reliability Release 8r system is installed, type **backup disk incremental**. If a high or critical reliability Release 8r system is installed, type **backup disk incremental both**. Press Enter.

Installation Completion

1. The system must now be tested for proper operation. See Chapter 4, "Test the System".
2. After completion of the system tests, install the telephones and other equipment. See Chapter 5, "Install and Wire Telephones and Other Equipment".
3. Administer the system by adding the customer data to match the wiring, telephones, and other equipment. See *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.
4. After the system is administered, the telephones and other equipment are tested. See Chapter 6, "Test Telephones and Other Equipment". The Alarm Origination feature is then activated and tested.

Logoff the System

Log off the system to prevent unauthorized changes to data. To log off:

1. Type **logoff** at the `Command:` prompt and press Enter.
2. The `login:` prompt appears on the screen.

DEFINITY AUDIX Power Procedures

Power Down the AUDIX System

A yellow caution sticker on the system's power unit notifies technicians to shut down the DEFINITY AUDIX System prior to powering down the system.

1. Log into the AUDIX System as **craft**.
2. Type **reset system shutdown**. Press Enter *once*.

   NOTE:
   Do not press Enter again. This will force the AUDIX to shutdown immediately, dropping all active calls on the AUDIX.

3. The "SHUTDOWN Completed" message appears when the AUDIX is successfully shutdown. This takes about 2 minutes.
4. The AUDIX System can now be removed for service.

Power Up the AUDIX System

- If the AUDIX was removed from the cabinet:
  1. Re-install the AUDIX and allow it to boot up automatically.
  2. Check for AUDIX System errors.
- If the AUDIX remained in the cabinet but power was removed from the cabinet:
  1. Power up the cabinet. The AUDIX reboots automatically.
  2. Check for AUDIX System errors.
- If the AUDIX remained in the cabinet and the cabinet was *not* powered down:
  1. At the AUDIX console, hold the crtl key and enter **cc**.
  2. Type **5** at the prompt and press Enter. In about 2 minutes, the AUDIX boots up.
  3. When the system initialization is complete, log in as **craft**.
  4. Check for AUDIX System errors.

Test the System

4

The following tests provide verification of the TDM bus cables and terminators, and fiber optic inter-cabinet cables. If a FAIL result code is seen or other problems are indicated, check these cables. If problems continue, refer to *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8r* or *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

NOTE:
Refer to "LED Indicators" on page 4-13 for information regarding the LED status indicators for the different circuit packs.

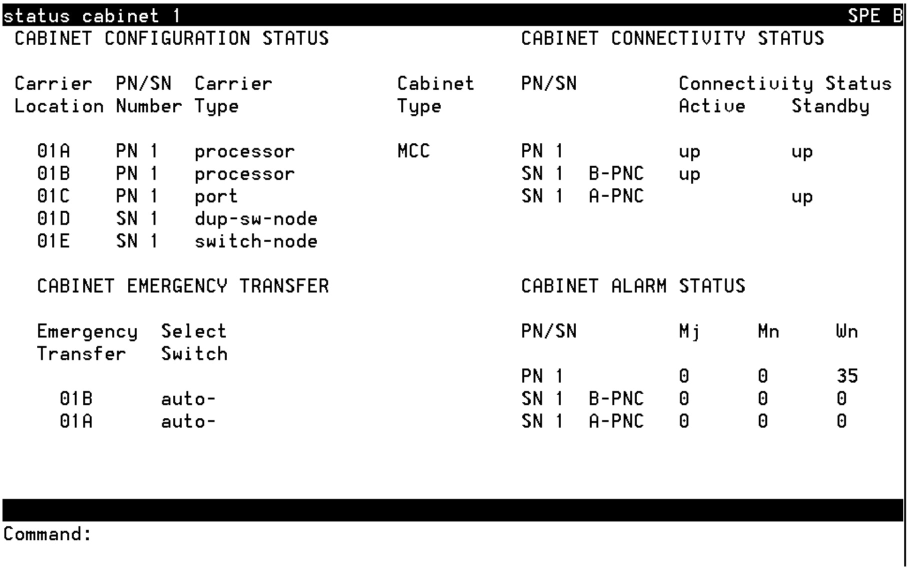
1. The status of the system should be reviewed first.
2. Test the tone-clock, TDM bus, and duplication link in the PPN.
3. Test the Switch Node carrier (Release 8r only).
4. Test Expansion Interface circuit packs, tone-clock circuit packs, TDM buses, and duplication in the EPNs.

Circuit pack positions are usually given by cabinet, carrier, and slot. They may also be given by port.

The term "*cabinet*" refers to 1 Multicarrier Cabinet making up 1 port network. A port network is defined as a group of cabinets connected together with one TDM bus.

Check System Status for Each Cabinet

1. Verify the terminal screen displays: `Command:`
2. Type **status cabinet** <**1-44**> and press Enter.
3. Verify the screen displays system status screens similar to Screen 4-1:

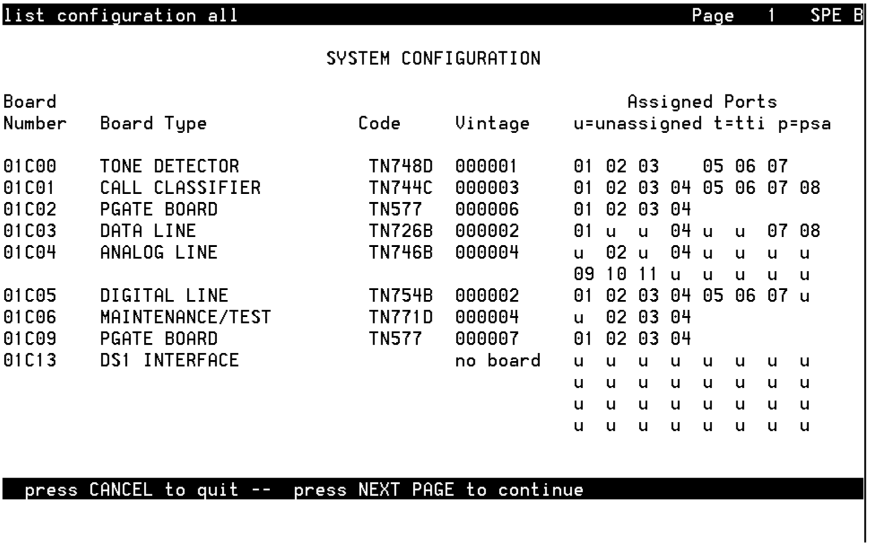


```
status cabinet 1                                                         SPE B
 CABINET CONFIGURATION STATUS                 CABINET CONNECTIVITY STATUS

 Carrier  PN/SN  Carrier          Cabinet     PN/SN         Connectivity Status
 Location Number Type             Type                      Active     Standby

   01A     PN 1   processor        MCC         PN 1          up         up
   01B     PN 1   processor                    SN 1  B-PNC   up
   01C     PN 1   port                         SN 1  A-PNC              up
   01D     SN 1   dup-sw-node
   01E     SN 1   switch-node

   CABINET EMERGENCY TRANSFER                  CABINET ALARM STATUS

   Emergency  Select                           PN/SN         Mj      Mn      Wn
   Transfer   Switch
                                               PN 1          0       0       35
     01B      auto-                            SN 1  B-PNC   0       0       0
     01A      auto-                            SN 1  A-PNC   0       0       0



Command:
```

Screen 4-1. Example System Status Screen for Cabinet 1

Check Circuit Pack Configuration

1. Verify the screen displays: `Command:`
2. Type **list configuration all** and press Enter.
3. Verify the screen displays list configuration screens similar to the example shown below. Check the report on the screen with the equipment installed and make sure the software is communicating with each circuit pack (except power supply circuit packs). Wait until after the diagnostic tests later in this chapter before attempting to correct any problems.
4. Note any circuit packs in the `VINTAGE` column stating: `BOARD NOT PRESENT` or `CONFLICT`.



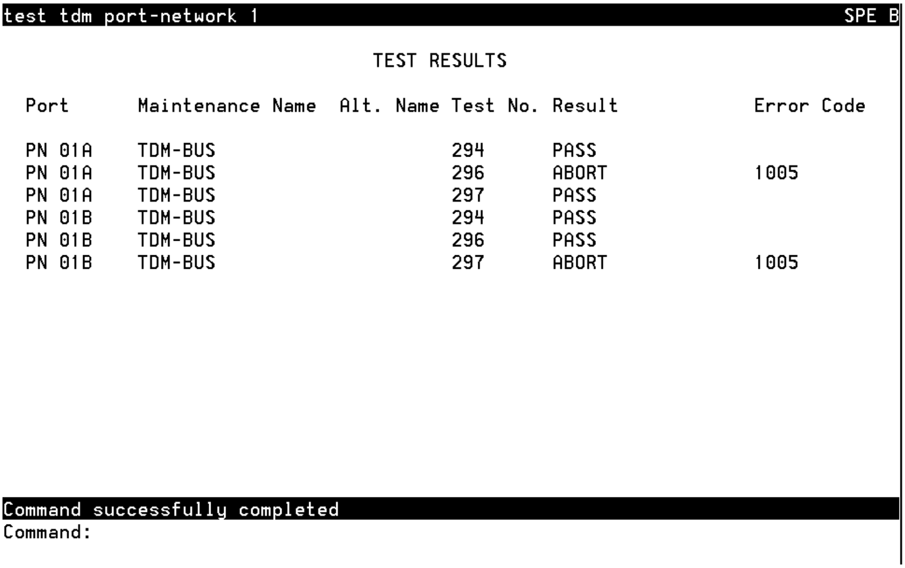
```
list configuration all                                          Page    1   SPE B

                              SYSTEM CONFIGURATION

Board                                                     Assigned Ports
Number   Board Type               Code      Vintage    u=unassigned t=tti p=psa

01C00    TONE DETECTOR             TN748D   000001     01 02 03    05 06 07
01C01    CALL CLASSIFIER           TN744C   000003     01 02 03 04 05 06 07 08
01C02    PGATE BOARD               TN577    000006     01 02 03 04
01C03    DATA LINE                 TN726B   000002     01 u  u  04 u  u  07 08
01C04    ANALOG LINE               TN746B   000004     u  02 u  04 u  u  u  u
                                                       09 10 11 u  u  u  u  u
01C05    DIGITAL LINE              TN754B   000002     01 02 03 04 05 06 07 u
01C06    MAINTENANCE/TEST          TN771D   000004     u  02 03 04
01C09    PGATE BOARD               TN577    000007     01 02 03 04
01C13    DS1 INTERFACE                      no board   u  u  u  u  u  u  u  u
                                                       u  u  u  u  u  u  u  u
                                                       u  u  u  u  u  u  u  u
                                                       u  u  u  u  u  u  u  u


  press CANCEL to quit --  press NEXT PAGE to continue
```

Screen 4-2. Example System Configuration Screen

NOTE:
Under `Assigned Ports`, a “u” indicates unassigned ports and a number indicates the port has been translated.

Test TDM Bus in PPN

1. Verify the screen displays: `Command:`
2. Type **test tdm port-network 1** and press Enter.
3. Verify the screen displays the results similar to Screen 4-3.



```
test tdm port-network 1                                                SPE B

                               TEST RESULTS

 Port      Maintenance Name  Alt. Name Test No. Result          Error Code

 PN 01A    TDM-BUS                     294      PASS
 PN 01A    TDM-BUS                     296      ABORT           1005
 PN 01A    TDM-BUS                     297      PASS
 PN 01B    TDM-BUS                     294      PASS
 PN 01B    TDM-BUS                     296      PASS
 PN 01B    TDM-BUS                     297      ABORT           1005









Command successfully completed
Command:
```

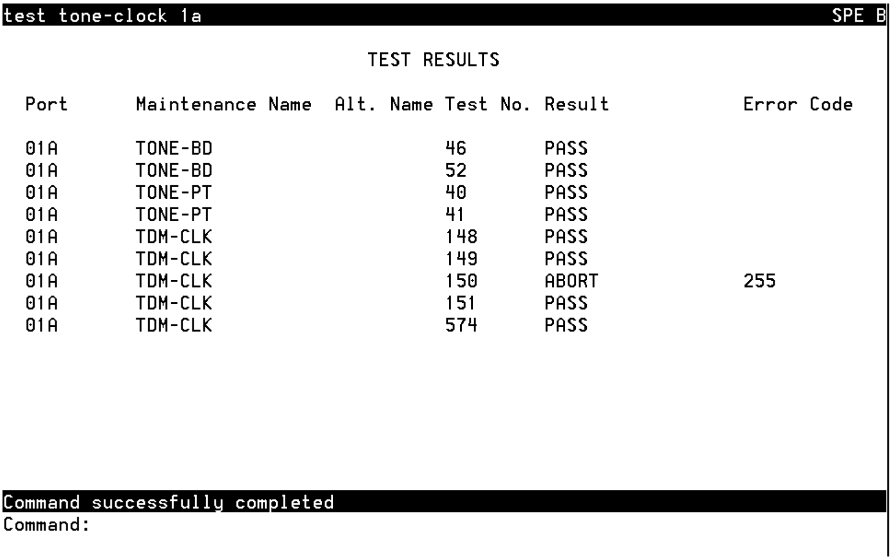
Screen 4-3. Example Test Results for TDM Port Network 1

4. If the result is `FAIL` for any test, check the connectors of the TDM bus cables in PPN 1.

Test Tone-Clock Circuit Packs

This test also detects problems with the TDM bus cables.

1. Verify the screen displays: `Command:`
2. Type **test tone-clock 1a** and press Enter.
3. Verify the screen displays test results similar to Screen 4-4.



```
test tone-clock 1a                                                        SPE B

                               TEST RESULTS

  Port       Maintenance Name  Alt. Name Test No. Result            Error Code

  01A        TONE-BD                     46       PASS
  01A        TONE-BD                     52       PASS
  01A        TONE-PT                     40       PASS
  01A        TONE-PT                     41       PASS
  01A        TDM-CLK                     148      PASS
  01A        TDM-CLK                     149      PASS
  01A        TDM-CLK                     150      ABORT             255
  01A        TDM-CLK                     151      PASS
  01A        TDM-CLK                     574      PASS






Command successfully completed
Command:
```

Screen 4-4. Example Test Results for Tone-Clock 1A

Test SPE Duplication Memory Shadowing Link

For high and critical reliability systems only.

1. Verify the screen displays: `Command:`
2. Type **test shadow-link** and press Enter.
3. Verify the screen displays test results similar to Screen 4-5.

```
                              TEST RESULTS

  Port      Maintenance Name  Alt. Name Test No. Result          Error Code

            SHDW-LNK                    318      PASS

Command successfully completed
```

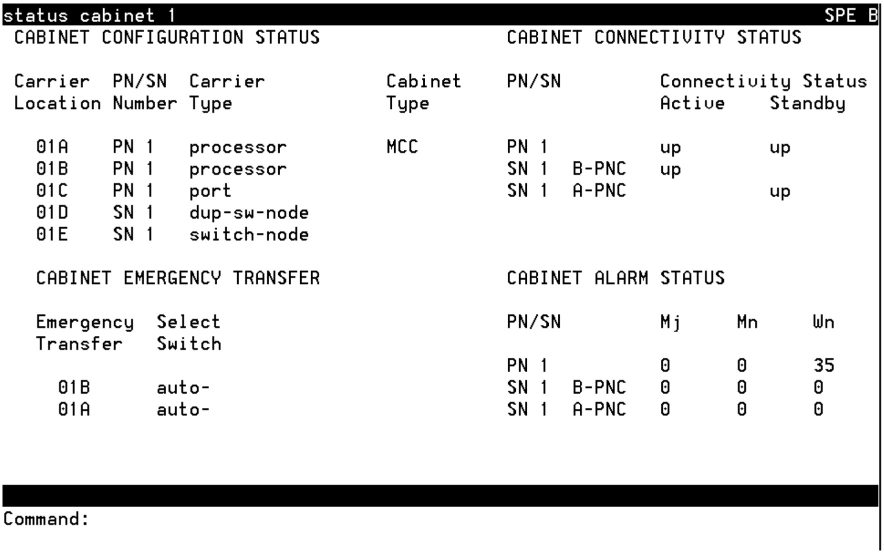
Screen 4-5. Example Test Results for SPE Duplication Memory Shadowing Link

4. If result is `FAIL` for any test, check the inter-cabinet cables in the PPN.

Test Duplicated Switch Processing Element Interchange

For high and critical reliability systems only.

1. Verify the screen displays: `Command:`
2. Type **status cabinet** <**1-44**> and press Enter.
3. Verify the screen displays test results similar to Screen 4-6.



```
status cabinet 1                                                         SPE B
 CABINET CONFIGURATION STATUS                 CABINET CONNECTIVITY STATUS

 Carrier  PN/SN  Carrier          Cabinet     PN/SN         Connectivity Status
 Location Number Type             Type                      Active     Standby

   01A     PN 1   processor        MCC         PN 1          up         up
   01B     PN 1   processor                    SN 1   B-PNC  up
   01C     PN 1   port                         SN 1   A-PNC             up
   01D     SN 1   dup-sw-node
   01E     SN 1   switch-node

   CABINET EMERGENCY TRANSFER                  CABINET ALARM STATUS

   Emergency  Select                           PN/SN         Mj     Mn     Wn
   Transfer   Switch
                                               PN 1          0      0      35
     01B      auto-                            SN 1   B-PNC  0      0      0
     01A      auto-                            SN 1   A-PNC  0      0      0



Command:
```

Screen 4-6. Example System Status Report for All Cabinets

4. Note the `MODE` of `SPE 1A` and `1B`.
5. Type **refresh spe** and press Enter.

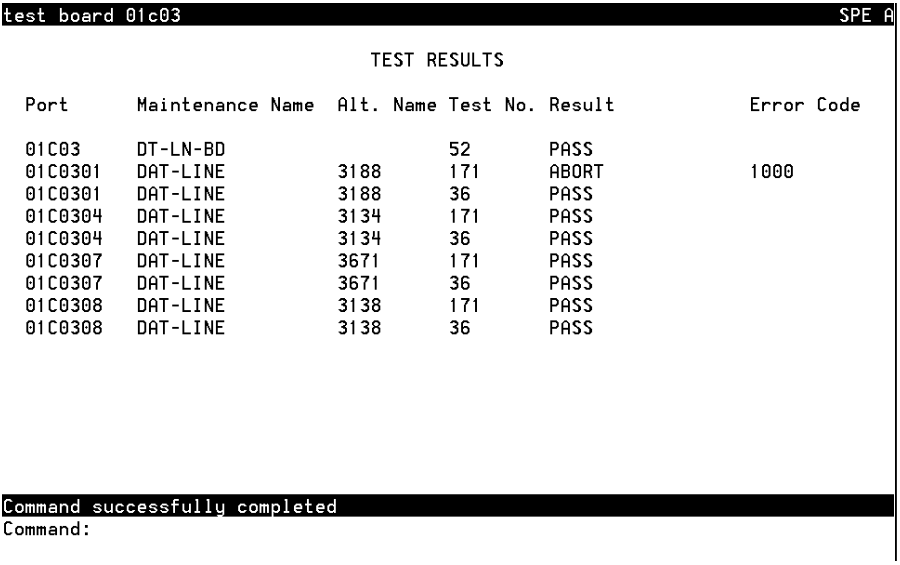
   `Command successfully completed` should be displayed.
6. Type **reset system interchange** and press Enter. This causes the terminal to log off.
7. Log in as **craft** again. Remember to use the new password established for craft.
8. Note the `MODE` for `SPE 1A` and `1B` should have changed from that noted in Step 4.

Test Expansion Interface Circuit Packs

1. Verify the screen displays: `Command:`
2. Type **test board** <**UUCCss**> (where **UUCCss** is the cabinet, carrier, and slot for an expansion interface circuit pack in the system) and press Enter. Labels on the port network and carrier containing the board and the label on the strip under the board contain this information.

   NOTE:
   Circuit pack positions are usually given by cabinet, carrier (within cabinet), and slot (within carrier). They may also be given by port (within slot). The term “cabinet” refers to one Multicarrier Cabinet making up one port network. A port network is defined as a group of cabinets connected together with one TDM bus.

3. Verify the screen displays test results similar to Screen 4-7. This example is for circuit pack 1C03.



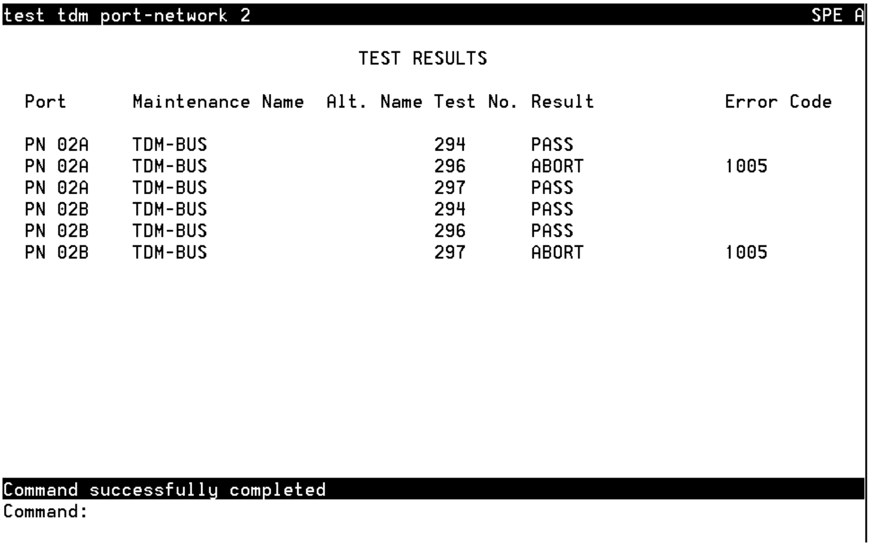
```
test board 01c03                                                    SPE A

                                 TEST RESULTS

 Port       Maintenance Name  Alt. Name Test No. Result            Error Code

 01C03      DT-LN-BD                    52       PASS
 01C0301    DAT-LINE          3188      171      ABORT             1000
 01C0301    DAT-LINE          3188      36       PASS
 01C0304    DAT-LINE          3134      171      PASS
 01C0304    DAT-LINE          3134      36       PASS
 01C0307    DAT-LINE          3671      171      PASS
 01C0307    DAT-LINE          3671      36       PASS
 01C0308    DAT-LINE          3138      171      PASS
 01C0308    DAT-LINE          3138      36       PASS







Command successfully completed
Command:
```

Screen 4-7. Example Test Board 1C03

4. If any result is FAIL, check the connections for the associated fiber optic link.
5. Repeat Steps 2 and 3 for each circuit pack in the system.

Test TDM for each EPN

1. Verify the screen displays: `Command:`
2. Type **test tdm port-network 2** and press Enter.
3. Verify a test results screen similar to Screen 4-8 is displayed.



```
test tdm port-network 2                                                  SPE A

                                TEST RESULTS

  Port       Maintenance Name  Alt. Name Test No. Result            Error Code

  PN 02A     TDM-BUS                      294      PASS
  PN 02A     TDM-BUS                      296      ABORT             1005
  PN 02A     TDM-BUS                      297      PASS
  PN 02B     TDM-BUS                      294      PASS
  PN 02B     TDM-BUS                      296      PASS
  PN 02B     TDM-BUS                      297      ABORT             1005












Command successfully completed
Command:
```

Screen 4-8. Example Test Results for TDM Port Network 2

4. If result is `FAIL` for any test, check the connectors of the TDM bus cables in PPN 2.
5. Repeat these steps for each EPN to check the TDM bus cables.

Test Tone-Clock for each EPN

1. Verify the screen displays: `Command:`
2. Type **test tone-clock 2A** (where **2A** is the cabinet and carrier number for one of the Tone-Clocks installed) and press Enter.

   NOTE:
   Circuit pack positions are usually given by cabinet, carrier, and slot. They may also be given by port. The term “cabinet” refers to 1 Multicarrier Cabinet making up one port network. A port network is defined as a group of cabinets connected together with 1 TDM bus.

   If any result is `FAIL`, check the associated TDM bus cables and intercabinet cables in the EPN.
3. Repeat Step 2 for each installed Tone-Clock circuit pack.

Test Tone-Clock Interchange for each EPN

Critical reliability only.

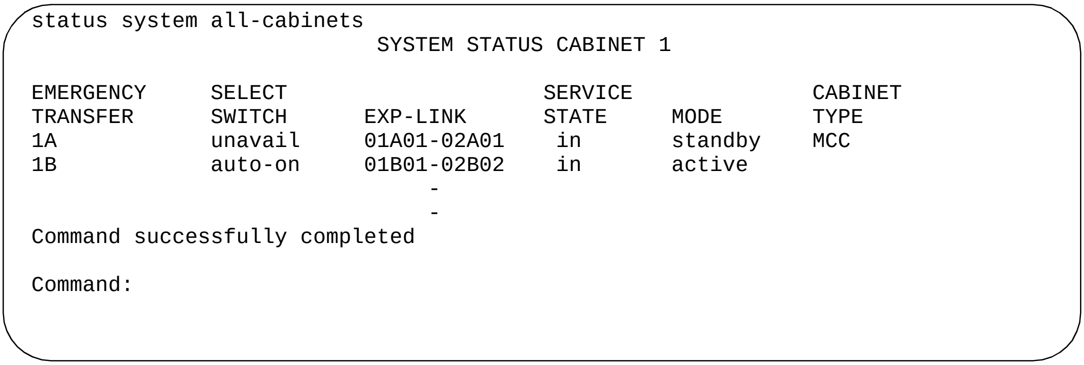
1. Verify the screen displays: `Command:`
2. Type **status system all-cabinets** and press Enter. This displays the location of the Standby Tone-Clock.
3. Type **set tone-clock xxx** (where **xxx** is the port network/carrier for the standby tone-clock). Press Enter.
4. Type **status system all-cabinets** and press Enter.
5. Verify the duplicated Tone-Clock is active using the information displayed on the screen.

   If any problems are indicated, check the TDM cables in the associated EPN.

Test Expansion Interface Exchange for Each EPN

Critical reliability only.

1. Verify the screen displays: `Command:`
2. Type **status cabinet** <**1-44**> and press Enter. This displays the standby expansion link (before changes are made). See Screen 4-9.



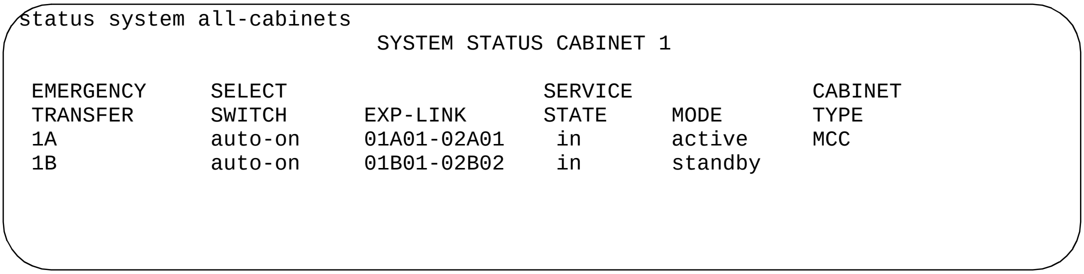
```
status system all-cabinets
                           SYSTEM STATUS CABINET 1

EMERGENCY     SELECT                    SERVICE                CABINET
TRANSFER      SWITCH      EXP-LINK      STATE     MODE         TYPE
1A            unavail     01A01-02A01    in       standby      MCC
1B            auto-on     01B01-02B02    in       active
                               -
                               -
Command successfully completed

Command:
```

Screen 4-9. Example of System Status Before Expansion Link is Set

3. Type **set expansion-link xxxx** (where xxxx is the either 1 of the cabinet, carrier, and port locations of the standby expansion link). Press Enter.
4. Verify the screen displays:

   `Command successfully completed`

   `Command:`
5. Type **status cabinet** <**1-44**> and press Enter. See Screen 4-10.



```
status system all-cabinets
                           SYSTEM STATUS CABINET 1

EMERGENCY     SELECT                    SERVICE                CABINET
TRANSFER      SWITCH      EXP-LINK      STATE     MODE         TYPE
1A            auto-on     01A01-02A01    in       active       MCC
1B            auto-on     01B01-02B02    in       standby
```

Screen 4-10. Example of System Status after Expansion Link is Set

6. Verify the `MODE`s of the expansion links have changed.
7. If any problems are indicated, check the TDM cables and the inter-cabinet cables in the associated EPN.

Check Circuit Pack Configuration Again

1. Verify the screen displays: `Command:`
2. Type **list configuration all** and press Enter.
3. Verify all circuit packs installed in the system are listed in the reports. Refer to *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8r*, to resolve any discrepancies.

System Test Completion

Save Translations

If any administration changes have been made, save and make a back up copy of the translations.

Next Steps

After the basic hardware is installed and tested, 3 more steps must be completed:

1. Install the telephones and other equipment. See Chapter 5, ''Install and Wire Telephones and Other Equipment''.
2. Administer the features, telephones, and other equipment according to customer data on the provisioning plan. The data for system and telephone features can be administered using *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.
3. After the system is administered, test the telephones and other equipment using the procedures in Chapter 6, ''Test Telephones and Other Equipment''.

NOTE:
It may be more efficient to install each hardware component, administer it, and test it before going on to install another component.

LED Indicators

Refer to *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8r* for detailed alarm and LED descriptions. If a maintenance object begins to fail some periodic tests, the system generates an alarm. The system identifies 3 levels of alarms:

- Major Alarms — Failures that cause critical degradation of service and require immediate attention.
- Minor Alarms — Failures that cause some degradation of service, but do not cause a critical portion of the system to be inoperable. This condition requires action, but its consequences are not immediate. Problems might be impaired service to a few trunks or stations or interfering with one feature across the entire system.
- Warning Alarms — Failures that cause no significant degradation of service or failures in equipment external to the system. Warning alarms are not reported to the attendant console or INADS.

Alarms are communicated to the system users and technicians by entries in the alarm log and the lighting of LEDs located on the attendant console, on all circuit packs, and, optionally, on customer-designated voice terminals.

Attendant Console LEDs

The console has 2 red LEDs, labeled “ALM” and “ACK”. The ALM LED lights steadily when there is a major or minor alarm at the system cabinet. The ACK LED lights steadily if the alarm has been successfully reported to INADS. If the system is unable to report the alarm to INADS, the LED flashes; this signals the attendant to call INADS and report the alarm.

Terminal Alarm Notification

Terminal Alarm Notification is an optional feature that displays several types of alarms on voice terminals with administered feature buttons or the attendant console. A maximum of 10 digital and/or hybrid voice terminals may be used.

When an alarm occurs, the green status LED associated with the assigned button is in a steady state. The LED may be turned off by pressing the button associated with the LED. If the LED is off and the alarm has not been resolved by the time maintenance reschedules testing, the green status LED resumes its steady state.

Circuit Pack LEDs

Typically, each circuit pack has 3 LEDs on the front panel. Table 4-1 describes the red, green, and yellow LEDs and their meaning. Also see Figure 4-1.

Table 4-1. Circuit Pack LEDs

LED Color	Status	Description
Red	Alarm	The system has detected a fault in this circuit pack. The alarm log should contain an on-board alarm. The red LED is also lit briefly when a circuit pack is inserted or reset. If the circuit pack passes its initialization tests, the LED goes out.
Green	Testing	The system is currently running tests on this circuit pack as part of background maintenance or demand testing. This LED is also lit during initialization tests when a circuit pack is inserted or reset.
Yellow	Busy	The circuit pack is currently in use by the system.

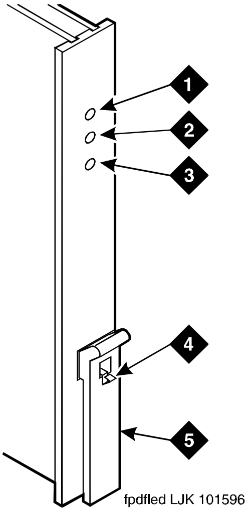


Figure Notes

1. Alarm LED (Red)
2. Test LED (Green)
3. Busy LED (Yellow)
4. Latch Pin
5. Locking Lever

Figure 4-1. Circuit Pack LEDs

DS1 Converter Circuit Pack LEDs

Eleven LEDs provide an indication of the state of the TN1654 DS1 Converter circuit pack and the T1/E1 facilities. The top group has the standard red, green and yellow LEDs. The red LED indicates an alarm condition and the green LED indicates testing in progress. The 4 SPAN LEDs indicate the status of the T1/E1 facilities. The four STATUS LEDs are currently unused and remain off.

The yellow LED is used to indicate the state of the fiber interface, the fiber channel, the control channel, and the communications link to the SPE in the following manner and order of priority. See Table 4-2.

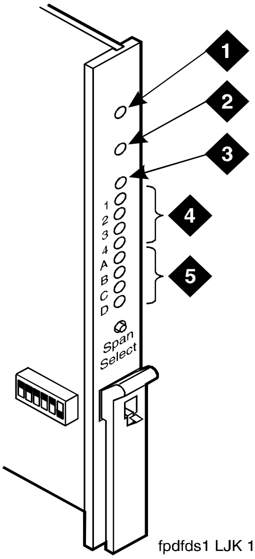
Table 4-2. DS1 Converter Yellow LED Flashing States

LED on	LED off	Condition
0.1 second	0.1 second	Fiber out-of-frame or fiber loss of signal
0.5 second	0.5 second	In frame, fiber channel down. The fiber channel communicating between the DS1 Converter and the other fiber endpoint (EI or SNI) is down.
1 second	1 second	In frame, control channel down. The control channel between the 2 DS1 Converters in the DS1 Converter complex is down.
2 seconds	0.2 second	No response from SPE. The SPE is not acknowledging messages from the DS1 Converter or the communications link to the SPE is down.
solid on		DS1 Converter active. This is the normal state for an active DS1 Converter.
	solid off	DS1 Converter standby. This is the normal state for a standby DS1 Converter in critical reliability systems (duplicated PNC).

SPAN LEDs

The 4 SPAN LEDs indicate the status of the 4 T1/E1 facilities. A SPAN LED is in one of the following states:

1. Solid on yellow: Facility is operational and alarm free.
2. Blinking yellow for 2 seconds, off 0.1 seconds: Facility is operational and alarm free AND is carrying the control channel (facility A or B only).
3. Solid on red: Facility is alarmed.
4. Solid off: Facility is not administered or has been busied out.



fpdfds1 LJK 101596

Figure Notes

1. Alarm LED (Red)
2. Test LED (Green)
3. Busy LED (Yellow)
4. STATUS LEDs
5. SPAN LEDs

Figure 4-2. TN1654 DS1 Converter Circuit Pack LEDs

LEDs on Standby Components

In high and critical reliability systems, duplicated components on standby usually have the yellow LEDs off, with the following exceptions:

- The major, minor and warning alarm LEDs on the SYSAM circuit pack on the standby SPE do not give reliable indications. Note only LEDs on the active SYSAM circuit pack.
- The yellow LED blinks on and off when the standby processor circuit pack is up and standby maintenance is running.
- In high reliability systems with a Center Stage Switch, (duplicated SPE, simplex PNC), the standby Switch Node clock’s yellow LED is off. In critical reliability systems, the standby SNC is located on a separate carrier and normally remains lit.
- Yellow LEDs on power units on standby carriers normally remain lit.

Install and Wire Telephones and Other Equipment

5

The wiring procedures are the same for most telephones and other equipment. This chapter provides wiring examples of these similar installation procedures. These are examples only and actual wiring procedures may differ at each site.

Wiring pinouts for circuit packs mentioned in this chapter are in the tables at the end of this chapter.

Refer to Figure 5-1 for punch-down information for common circuit packs. The figure shows the colors of the punch-downs and is best viewed from CD-ROM or on-line.

After installing the hardware, the data for the system and telephone features is administered. These procedures are provided in *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.

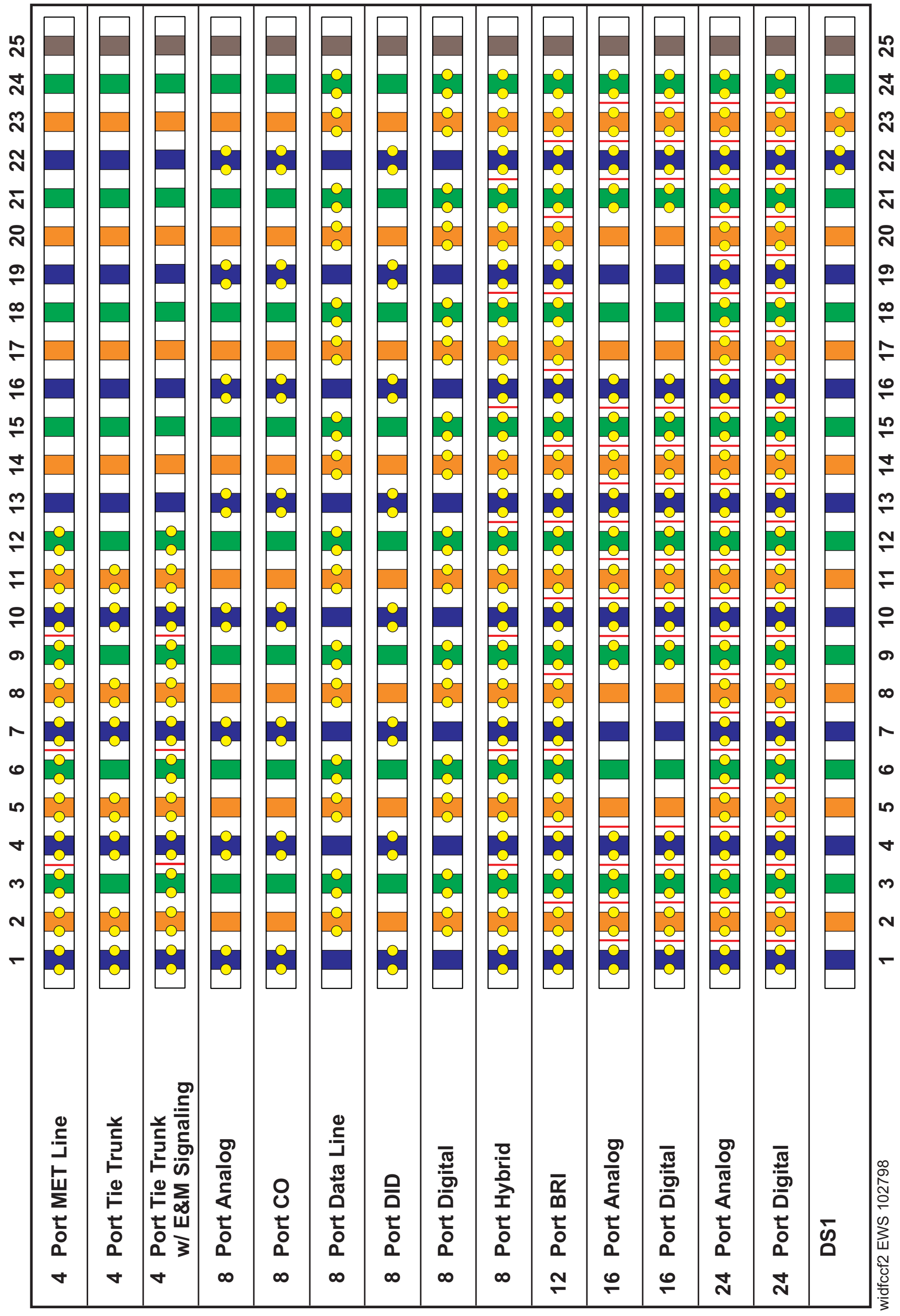


Figure 5-1. Punch-downs for Common Circuit Packs

Telephone Connection Example

The 302C Attendant Console is used as an example telephone connection. This is typical of the 603E, 84xx (4-wire), and 94xx telephones. The maximum cabling distance for a console powered from the cabinet is 350 feet (100 meters) using 24 AWG (#5) (0.26 mm^2) wire. The general steps to connect a telephone are:

1. Choose a device to connect such as a 302C Attendant Console.
2. Choose the port circuit pack, its carrier, slot number, and port; such as TN754B, cabinet 1, carrier C, slot 02, port 05.
3. Install cross-connect jumpers to wire the pins on the terminal to the pins on the port circuit pack. See Figure 5-2. This example is for the TN754B Digital Line circuit pack.

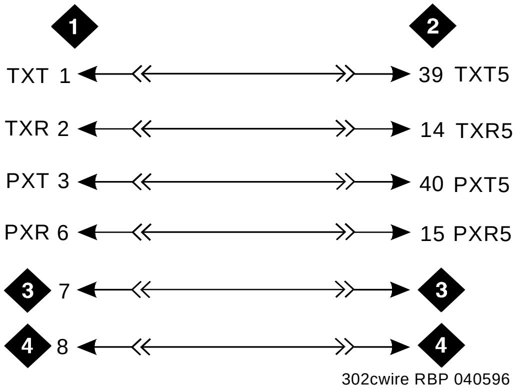


Figure Notes

1. 302C Attendant Console
2. TN754B Digital Line Circuit Pack
3. -48 VDC (From Adjunct Power)
4. Ground (From Adjunct Power)

Figure 5-2. 302C to TN754B Wiring

CAUTION:

Do not use the 329A power unit for the attendant console. Use an 1151A1, 1151A2, 1145A, or MSP-1 power unit.

Connect Adjunct Power

The attendant console requires -48 VDC adjunct power from pins 7 and 8 of the information outlet. Only 3 consoles can be powered by the cabinet from the AUX connector. Power the primary console from the cabinet so it has the same power failure backup as the system.

1. For terminals needing adjunct power, wire -48 VDC and ground to appropriate pins on the terminal. See Figure 5-3. Use the 400B2 adapter when connecting local -48 VDC power to a modular plug.

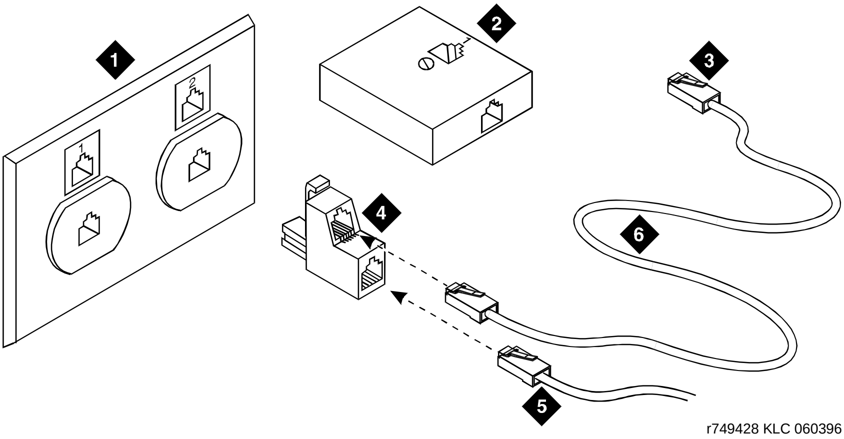


Figure Notes

1. Flush-Mounted Information Outlet	4. 400B2 Adapter
2. Surface-Mounted Information Outlet	5. To Telephone
3. To Individual Power Unit	6. Destination Service Access Point (DSAP) Power Cord

Figure 5-3. 400B2 Adapter Connecting to a Modular Plug

CAUTION:

Do not use the 329A power unit for the attendant console. Use an 1151A1, 1151A2, 1145A, or MSP-1 power unit.

Adjunct power can be provided from the equipment room or equipment closet with an 1145B power unit. See "1145B Power Supply" on page 5-48.

Adjunct power can also be provided locally at the telephone or console with a 1151A1 or 1151A2 power unit. See "1151A1 Power Supply" on page 5-58.

Analog Station or 2-Wire Digital Station Example

This example is typical of the 2-wire digital stations (603E, 84xx, 94xx, 302C), 2-wire analog stations (500, 2500, 71xx), analog CO trunks, DID trunks, and external alarms.

The wiring designations for this example are shown in Figure 5-4.

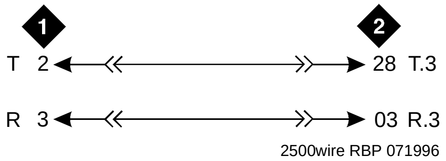


Figure Notes

1. 2500-Type Analog Station
2. TN2183 Analog Line Circuit Pack (Position 1C01)

Figure 5-4. 2500-Type Analog Telephone Wiring

1. Choose a peripheral to connect (such as an analog station or 2-wire digital station).
2. Choose the port circuit pack, its carrier, slot number, and port. For example TN2183 Analog Line, cabinet 1, carrier C, slot 1, port 03.
3. Install cross-connect jumpers to connect the pins from the analog station or 2-wire digital station to the appropriate pins on the port circuit pack. This pinout information is for the TN2183 Analog Line circuit pack.
4. Administer on the management terminal. See *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*, for more details.

Analog Tie Trunk Example

This example shows how to connect analog tie trunk wiring from one DEFINITY System to another DEFINITY System.

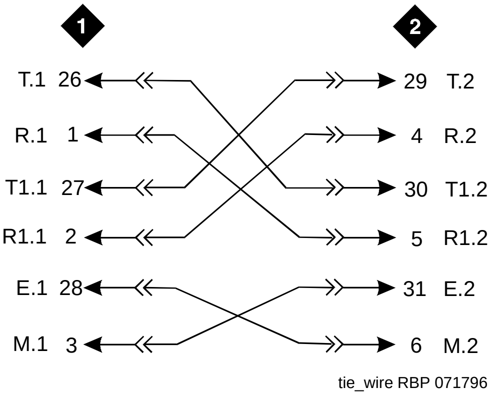


Figure Notes

1. External Trunk or Adapter
2. TN760 Tie Trunk Circuit Pack (Position 1C05)

Figure 5-5. Analog Tie Trunk Wiring

1. Set the option switches on the port circuit pack (TN760) as described in Appendix B, "Option Switch Settings".
2. Install cross-connect jumpers to connect the named pins from the tie trunk circuit pack to the appropriate leads on the external tie trunk. Names of the tie trunk leads must be determined from the manufacturer or supplier of the external trunk circuit. The example in Figure 5-5 shows a DEFINITY System tie trunk connected to a DEFINITY System tie trunk.
3. Administer on the Trunk Group screen of the management terminal. See *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide* for more details.

Digital Tie Trunk Example

This example shows how to connect digital tie trunk wiring from one DEFINITY System to another DEFINITY System. See Figure 5-6.

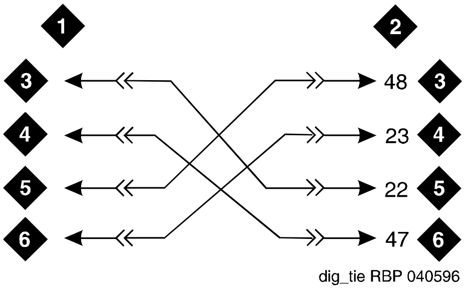


Figure Notes

1. External Trunk
2. Digital Trunk Circuit Pack (Position 1C06)
3. LO
4. LO (Balanced Output Pair)
5. LI
6. LI (Balanced Input Pair)

Figure 5-6. Digital Tie Trunk Wiring

1. Install cross-connect jumpers to connect the named pins from the digital trunk circuit pack to appropriate pins on the manufacturer's or supplier's external digital trunk.
2. Set option switches on the port circuit pack (TN464F Digital Trunk) according to Appendix B, "Option Switch Settings".
3. Administer on the DS1 and Trunk Group screens of the management terminal. See *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide* for more details.

DS1 Tie Trunk Example

DS1 tie trunks provide a 1.544 Mbps digital data service between 2 collocated systems or between the system and a data network using T1 carrier facilities. DS1 tie trunk circuit packs provide connection capability to the DS1 facility.

The following cables can be used to connect DS1 tie trunk circuit packs to DS1 digital facilities:

- C6C connector cable (comcode 104307327) — 50-foot (15.24 m) shielded cable equipped with a 50-pin male connector on 1 end and a 15-pin male connector on the other end. Use this cable to connect a DS1 tie trunk circuit pack to a Channel Service Unit (CSU).
- C6D connector cable (comcode 104307376) — 50-foot (15.24 m) shielded cable equipped with a 50-pin male connector on each end. Use this cable to connect a DS1 tie trunks in collocated Single-Carrier Cabinets.
- C6E connector cable (comcode 104307434) — 100-foot (30.48 m) shielded cable equipped with a 50-pin male connector on 1 end and a 50-pin female connector on the other end. Use this cable as an “extension” cable between the DS1 tie trunk circuit pack and other connector cables.
- C6F connector cable (comcode 104307475) — 50-foot (15.24 m) shielded cable equipped with a 50-pin male connector on 1 end and a 3-inch (7.62 cm) stub on the other end. Use this cable to connect the DS1 tie trunk circuit pack to channel multiplexers requiring hardwired connections. See Table 5-1 for a pinout of the C6F cable.

Table 5-1. Pinout of C6F Cable

Wire Color	Lead Designation	Pin Number
White/Green	LI (High Side)	47
Green	LI	22
White/Brown	LO	48
Brown	LO (High Side)	23
White/Slate	LBACK2	49
Slate	LBACK1	24

Collocated DS1 Tie Trunks

Connection to 2 TN722B DS1 Tie Trunk circuit packs in collocated systems can include a C6D cable for distances up to 50 feet (15.24 m). For distances over 50 feet (15.24 m) and up to 1310 Feet (399.3 m) maximum, use C6E cables.

DS1 Tie Trunks Using Channel Service Unit

Figure 5-7 shows an example of the connections required to connect a DS1 tie trunk to an external T1 Channel Service Unit (CSU) or Integrated Channel Service Unit (ICSU). The ICSU is used to interface the DS1 tie trunks with the 1.544 Mbps digital facility.

Contact your Lucent Technologies representative for maximum cabling distances.

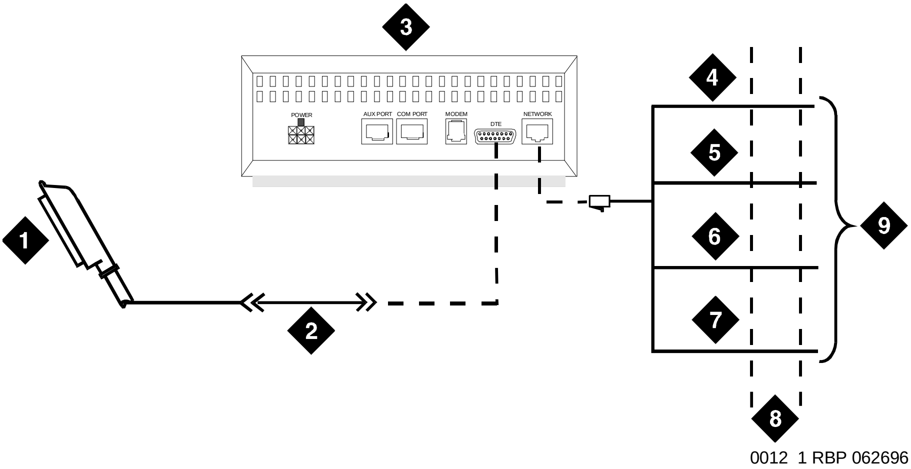


Figure Notes

1. To TN722B DS1 Tie Trunk Circuit Pack
2. C6C Cable (For Distances Over 50 Feet (15.24 m), Use C6E Cables)
3. CSU or ICSU (3150 Shown)
4. T (Tip)
5. R (Ring)
6. T1 (Tip 1)
7. R1 (Ring 1)
8. 1.544 Mbps Digital Service Interface
9. To T1 Carrier

Figure 5-7. Typical Connections to Channel Service Unit

Auxiliary Connector Outputs

The control carrier output cable pinouts are shown in Table 5-2. The control carrier AUX connector outputs include the following:

- Alarm monitoring for the auxiliary cabinet.
- Seven -48 VDC power sources for emergency transfer units.
- Three -48 VDC power sources for remotely powering 3 attendant consoles or telephone adjuncts.
- The remote management terminal interface trunk connection location.
- Access to a relay contact is available to actuate a customer-provided light, bell, or similar alarm device. Administer the system to make contact when a major, minor or warning alarm condition occurs in the system. The circuitry required for this feature is customer-provided. The device connected to the alarm leads must not exceed a rating of 30 VAC RMS or 60 VDC at 0.75 Amps. See Table 5-2 for the pinouts for an external alarm.

A 25-pair connector labeled AUX is provided on the rear of the control carrier. Connect a cable to this connector and route to a connecting block on the trunk/auxiliary field.

Table 5-2. Auxiliary Lead Appearances at AUX Connector

Color [1,2]	Pin Number	AUX Connector Outputs
W-BL BL-W	26 1	Major[3]
W-O O-W	27 2	Minor[3]
W-G G-W	28 3	GRD
W-BR BR-W	29 4	GRD
W-S S-W	30 5	GRD
R-BL BL-R	31 6	GRD
R-O O-R	32 7	GRD
R-G G-R	33 8	Not Connected
R-BR BR-R	34 9	Not Connected
R-S S-R	35 10	Not Connected

Continued on next page

Table 5-2. Auxiliary Lead Appearances at AUX Connector — *Continued*

Color[1,2]	Pin Number	AUX Connector Outputs	
BK-BL	36	-48	Emergency Transfer Relay Power ↓
BL-BK	11	GND	
BK-O	37	-48	
O-BK	12	GND	
BK-G	38	-48	
G-BK	13	GND	
BK-BR	39	-48	
BR-BK	14	GND	
BK-S	40	-48	
S-BK	15	GND	
Y-BL	41	-48	
BL-Y	16	GND	
Y-O	42	-48	
O-Y	17	GND	
Y-G	43	Not Connected	
G-Y	18		
Y-BR	44	GND	AUX Power
BR-Y	19	-48	
Y-S	45	GND	
S-Y	20	-48	
V-BL	46	GND	
BL-V	21	-48	
V-O	47	Not Connected	
O-V	22		
V-G	48	Ext Alarm A[3]	
G-V	23	Ext Alarm Return	
V-BR	49	Not Connected	
BR-V	24		
V-S	50	INADS Tip	
S-V	25	INADS Ring	

---

1. Color designation is the main wire color followed by the color of the stripe.
2. The following wire colors apply in Table 5-2:

W	White
BL	Blue
O	Orange
G	Green
BR	Brown
S	Slate (Grey)
R	Red
BK	Black
Y	Yellow
V	Violet

3. External alarm with signal incoming to system.

Table 5-3 provides port circuit pack and telephone pin designations.

Table 5-3. Port Circuit Pack and Telephone Pin Designations

Pin on Modular plug	**4-wire; 302C, 8403, 8410, 8411B/D, 8434, 603E, 9403, 9434**	**2-wire; 302C, 8403, 8410, 8411B/D, 8434, 603E, 9403, 9410, 9434**	**8510T Basic Rate Interface (BRI) (with adjunct speaker phone)**	**Analog Station, Modem**	**NT1**	**Z3A1 & Z3A2 Asynchronous Data Units (ADU), Data Modules**
1	TXT					TXT
2	TXR			T		TXR
3	PXT		TXT	R		PXT
4		T	PXR		T	
5		R	PXT	No Connection (4-pin modular jack)	R	
6	PXR		TXR			PXR
7	-48VDC	(-48VDC)	(-48VDC)		-48VDC	
8	GRD	GRD	GRD		GRD	
Circuit Pack	**TN754 4-wire digital (8 port)**	**TN2181 2-wire digital (16 port) TN2224 2-wire digital (24 port)**	**TN556, ISDN-BRI Line**	**TN2183 Analog line (16 port)**	**TN2198 2-wire Basic Rate Interface line**	**TN726 Data Line**

PX private branch exchange transmitTTip (A)
TX Terminal transmit R Ring (B)

Three-Pair and Four-Pair Modularity

Figure 5-8 shows 3-pair and 4-pair modularity from the port circuit pack to the terminal pins at the information outlet (modular jack). Most terminals connect to an information outlet installed at the work location.

Make the connections from the port circuit pack to the modular jacks. Then, plug the terminal into the modular jack.

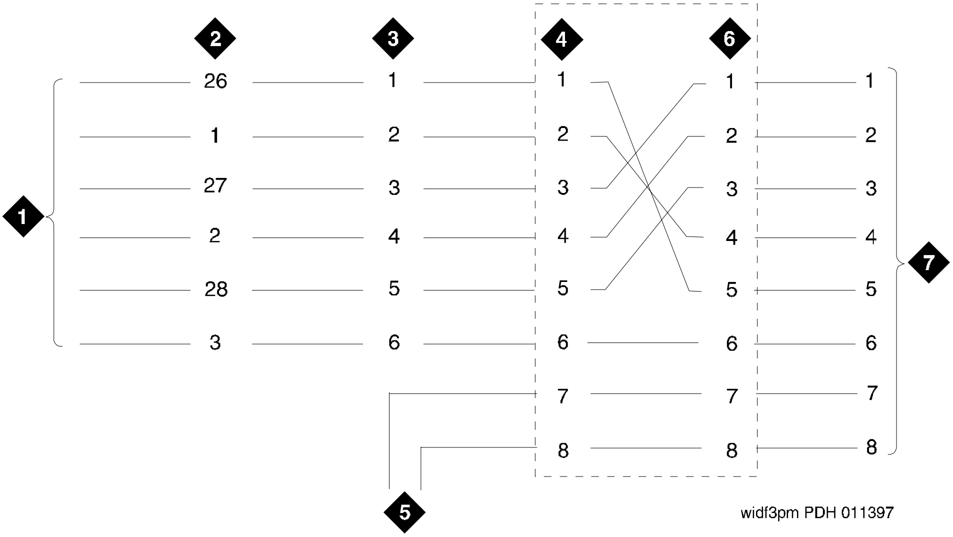


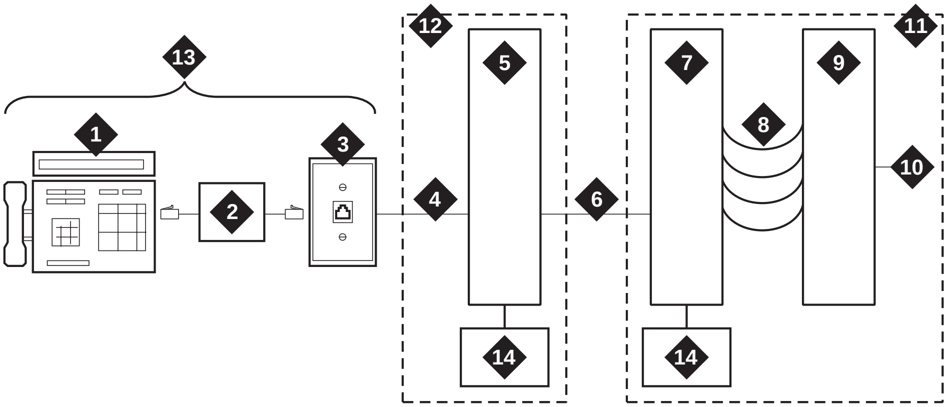
Figure Notes

1. Port Circuit Pack
2. System Cabinet Connector Pins (3-Pair Modularity)
3. Main Distribution Frame (MDF) Pins (3-Pair Modularity)
4. Input to Information Outlet (4-Pair Modularity)
5. Adjunct Power
6. Output From Information Outlet (4-Pair Modularity)
7. Voice Terminal

Figure 5-8. 3-Pair and 4-Pair Modularity

Adjunct Power Connections

Figure 5-9 shows 3 typical connection locations for adjunct power. Adjunct power for station equipment may be supplied from the equipment room, satellite location, or the work location.



cydfadjn KLC 020599

Figure Notes

1. Typical Display Telephone
2. Adjunct Power Supply (Such as 1151A1 or 1151A2 shown in Figure 5-25)
3. Information Outlet
4. 4-Pair D-Inside Wire (DIW) Cable
5. Satellite Site or Adapter Location
6. 25-Pair D-Inside Wire (DIW) Cable
7. Station Side of Main Distribution Frame
8. 100P6A Patch Cord or Jumpers
9. System Side of MDF
10. 25-Pair Cable to System Cabinet Analog Line Circuit Pack
11. Equipment Room
12. Satellite Location
13. Work Location
14. Power From Bulk Power Source (Such as 1145B shown in Figure 5-22 and Figure 5-23)

Figure 5-9. Example Adjunct Power Connections

For Figure 5-9, the following example is used:

a. If 25 telephones connect to the system and all 25 telephones need adjunct power, install the adjunct power supply in the equipment room.

b. If only 10 of the telephones need adjunct power, install the adjunct power supply at the satellite location.

c. If only 1 telephone needs adjunct power, install the adjunct power supply at the work location.

Local and Phantom Power

A console's maximum distance from the system is limited. See Table 5-4.

Table 5-4. Attendant Console Cabling Distances

Enhanced Attendant Console (302C1)	24 AWG Wire (0.26 mm^2) Feet	Meters	26 AWG Wire (0.14 mm^2) Feet	Meters
With Selector Console				
Phantom powered	800	244	500	152
Locally powered	5000	1524	3400	1037
Without Selector Console				
Phantom powered	1400	427	900	274
Locally powered	5000	1524	3400	1037

Auxiliary Power

CAUTION:
Do not use the 329A power unit for the attendant console.

The non-essential functions of an attendant console and its optional selector console derive their power from an auxiliary power source. Up to 3 consoles can use system power from through the auxiliary cable located in the trunk/auxiliary field. Provide auxiliary power for a primary attendant console through this cable so the console remains fully operational during short power outages.

NOTE:
For a console to realize the longest nominal battery holdover, the console's TN754B or TN413 Digital Line circuit pack should reside in an EPN's expansion control carrier.

An attendant console can also derive auxiliary power from either:

- Individual 1151A1 or 1151A2 power supply
- 258A-type adapters
- Bulk power supplies such as the 1145B

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

- 800 feet (244 m) for a 302A1
- 350 feet (107 m) for a 301B1 and 302C1

Attendant Console

1. Install the attendant console and connect the modular cord to the information outlet.
2. Install labels per the attendant console form and display module form assignments.
3. Install a TN754B or TN413 Digital Line circuit pack in the assigned carrier slot (if an additional circuit pack is required).
4. Administer forms listed under “Attendant Console” in *DEFINITY Enterprise Communications Server Release 8 Administrator’s Guide*.

Hard-Wire Bridging

Analog type hard-wire bridging is not allowed for 4-wire (only) DCP endpoints. This is because hard-wire bridging has no way of combining the digital output of 2 bridged DCP sets. Also, bridged endpoints cause an added load that degrades the DCP signal. 2-wire DCP interfaces require twice the spectrum of 4-wire interfaces.

⚠ **CAUTION:**

Bridging or paralleling these endpoints can cause electrical damage to the consoles or cause the circuit pack to remove power from the consoles.

Dual Wiring of Two-Wire and Four-Wire Endpoints

A 2-wire and 4-wire endpoint cannot be simultaneously wired to the same equipment location in an MDF, 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.

26B1 Selector Console

1. Connect the supplied 3-foot (0.9 m) D8AC cable to the modular jack on the bottom of the 26B1 Selector Console. Route the cable to the attendant console and connect to the DXS/BLF jack.
2. Attach labels according to the attendant console form.
3. Administer the console using *DEFINITY Enterprise Communications Server Release 8 Administrator’s Guide*.

Connect External Alarm Indicators

Alarm Input

Alarms can be generated on adjunct equipment, sent to the DEFINITY System, and recorded and reported as "external alarms." A typical major alarm *input* is from an Uninterruptible Power Supply (UPS).

1. Connect 1 major and 1 minor alarm *input* pair to the trunk/auxiliary field from the AUX connector. See Table 5-5.

Table 5-5. Alarm Inputs at AUX Connector

Color	AUX Connector
White-Blue	AP1 (Pin 26) Major Alarm Input
Blue-White	Ground (Pin 1)
White-Orange	AP2 (Pin 27) Minor Alarm Input
Orange-White	Ground (Pin 2)

Alarm Output

The system provides a relay contact that can operate a customer-provided alarm, such as a light or bell. The circuitry and power source are customer-provided. The alarm device must not exceed a rating of more than 30 VAC RMS or 60 VDC at 0.75 Amp.

1. Connect an external alarm *output* through pins 48 and 23 of the AUX connector. See Table 5-6.
2. Note which device connects to which alarm and give this information to your Lucent Technologies representative for troubleshooting purposes.

Table 5-6. Alarm Output at AUX Connector

Color	AUX Connector
Violet-Green	EXTALMA (Pin 48) Alarm Output
Green-Violet	EXTALMB (Pin 23) (Ground) Alarm Output

Emergency Transfer and Auxiliary Power

Connect emergency transfer power and auxiliary power as shown in Table 5-7. Auxiliary power includes power to an attendant console or adjunct device.

Table 5-7. Emergency Transfer and Auxiliary Power

Color	AUX Connector
Black-Green	XFER48 (Emergency Transfer) (Pin 36)
Green-Black	Ground (Pin 11)
Black-Slate	ACC48A (Adjunct -48 VDC) (Pin 19)
Slate-Black	Ground (Pin 44)

Connect Power Distribution Unit External Alarm Wires

The external alarm plug should already be connected to the J58890CH-1 Power Distribution Unit. The pinout for the connector is shown in Table 5-8.

Table 5-8. External Alarm Connector Pinout

Pin	Designation	Definition
26	Not Used	
1	Not Used	
27	Not Used	
2	Not Used	
28	Not Used	
3	Not Used	
29	Not Used	
4	Not Used	
30	Not Used	
5	Not Used	
31	Not Used	
6	Not Used	
32	Not Used	
7	Not Used	
33	RFA2 +	Rectifier Failure (positive)
8	RFA2 -	Rectifier Failure (negative)
34	ACF2 +	AC Failure (positive)
9	ACF2 -	AC Failure (negative)
35	BIF2 +	Battery Interface Failure (positive)
10	BIF2 -	Battery Interface Failure (negative)
36	BOD2 +	Battery On Discharge (positive)
11	BOD2 -	Battery On Discharge (negative)
37	Not Used	
12	RXD	Receive Data
38	TXD	Transmit Data

Continued on next page

Table 5-8. External Alarm Connector Pinout — *Continued*

Pin	Designation	Definition
13	DTR	Data Terminal Ready
39	RS-232 GRD	RS-232 Ground
14	DSR	Data Set Ready
40	RTS	Request To Send
15	Not Used	
41	Not Used	
16	Not Used	
42	Not Used	
17	Not Used	
43	Not Used	
18	Not Used	
44	Not Used	
19	Not Used	
45	Not Used	
20	Not Used	
46	Not Used	
21	Not Used	
47	Not Used	
22	Not Used	
48	Not Used	
23	Not Used	
49	Not Used	
24	Not Used	
50	Not Used	
25	Not Used	

NOTE:
RS-232 alarms (RXD, DTR, DSR, TXD, RS-232 GRD, and RTS) are not supported on the BU3200A Battery Interface Unit.

1. Choose an alarm to connect (such as Battery Interface Failure).
2. Choose the port circuit pack to use and its carrier and slot number (from Table 5-3). For example TN2183 Analog Line, Cabinet 1, Carrier C, Slot 1.
3. Choose a port circuit on the port circuit pack, for example Port 3.
4. Install cross-connect jumpers to connect the named pins from the alarm wires to the appropriate pins on the port circuit pack.

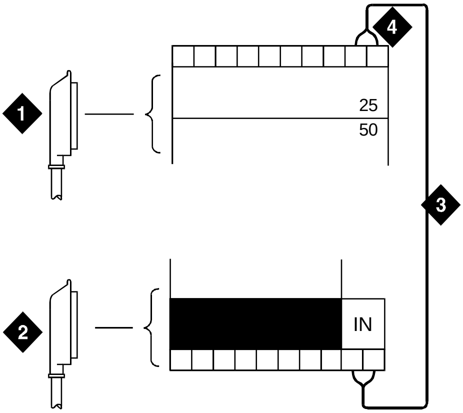
   NOTE:
   It is recommended that the RFA, ACF, and BIF alarm leads be connected to the major alarm device and the BOD alarm leads be connected to the minor alarm device.

5. Connect the major and minor alarm devices to the appropriate cross-connect pins on the MDF.
6. Administer the alarms using *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.

Remote Network Interface

The Remote Network Interface (formerly Initialization and Administration System (INADS)) provides a 9600 bps modem connection for the remote management terminal. The network interface trunk should appear on the twenty-fifth pair of a RJ21X network interface jack. The trunk is a 2-way, rotary dial, loop start trunk that connects to a TN731 Maintenance circuit pack, the processor circuit pack, or the TN1648 System Access/Maintenance circuit pack through the network interface terminals at the trunk/auxiliary Main Distribution Frame (MDF). Figure 5-10 shows a typical network interface trunk installation.

1. Determine the network interface trunk appearance at the green trunk/auxiliary field of the MDF.
2. Label the terminals for the trunk appearance.
3. Install jumpers between the trunk appearance on the green field and the Remote Network Interface terminals on the purple field.



r758482b RBP 062696

Figure Notes

1. To Network Interface Facility
2. To Control Carrier Auxiliary Connector
3. One Pair of Wires
4. Twenty-fifth Pair of RJ21X Network Interface Jack

Figure 5-10. Connections at Trunk/Auxiliary Field

TN1654 DS1 Converter (R8r Only)

The TN1654 DS1 converter circuit pack supports from 1 to 4 T1 (24 channel) or E1 (32 channel) facilities.

Set Circuit Pack Switches

The configuration switches on the TN1654 must be set before the circuit pack is installed. The TN1654 can be configured for either T1 or E1 operation. All 4 facilities on the circuit pack are configured as a group. It is not possible to have T1 and E1 facilities supported on the same circuit pack at the same time.

The T1 line impedance is fixed at 100 ohms, and the T1 framing is selectable for ESF (Extended Super Frame) or D4 for each facility. The E1 facility line supports termination impedances of 120 ohms for twisted-pair and 75 ohms for coax wiring.

Figure 5-11 shows the location of the switches. Table 5-9 and Table 5-10 show the switch-setting functions and positions, respectively.

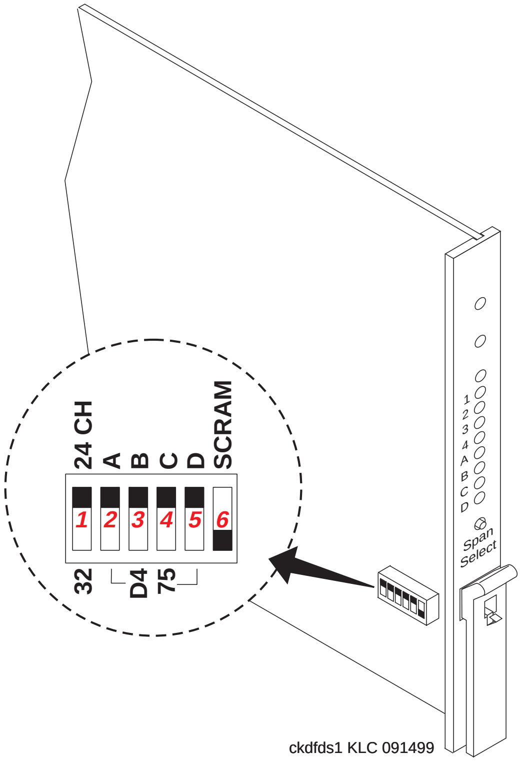


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Figure 5-11. DS1 Converter Circuit Pack Switches

Table 5-9. TN1654 DS1 Converter Switch Functions

Switch	**Function**
1	Type of Facility
2	Span A Line Impedance (E1 Only) Span A Framing (T1 Only)
3	Span B Line Impedance (E1 Only) Span B Framing (T1 Only)
4	Span C Line Impedance (E1 Only) Span C Framing (T1 Only)
5	Span D Line Impedance (E1 Only) Span D Framing (T1 Only)
6	Force Fiber Data-Stream Scrambling

Table 5-10. TN1654 DS1 Converter Switch Settings

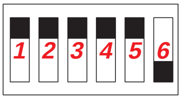
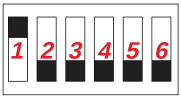
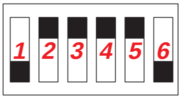
	1	**2**	**3**	**4**	**5**	**6**
up	T1	120 ohms ESF	120 ohms ESF	120 ohms ESF	120 ohms ESF	Enabled
down	E1[1]	75 ohms D4	75 ohms D4	75 ohms D4	75 ohms D4	Disabled

---

[1] Although the TN1654 circuit pack supports 75 ohms, use the 127A BALUN to convert the 120 ohms to 75 ohms rather than the switch settings (see''75-ohm E1 Interface Cabling'' on page 5-31).

1. Set the configuration switches on the TN1654 as required per site.
2. Set Switch 6 down (disabled). Switch 6 may not be present (or active) on all TN1654 DS1 Converter circuit packs.
3. Set Switch 1 up for T1 facilities. All subsequent facility switch settings (Switches 2-5) reflect T1 framing on each of the 4 facilities. See Table 5-11 for examples.
4. Set Switch 1 down for E1 facilities. All subsequent facility switch settings (Switches 2-5) reflect E1 impedance on each of the 4 facilities. See Table 5-11 for examples.

Table 5-11. Examples of typical settings

Switch Settings	Description
 swdft1es KLC 092799	T1 ESF Span A through D Framing set for ESF
 swdft1d4 KLC 092799	T1 D4 Span A through D Framing set for D4
 swdfe1es KLC 092799	E1 120 ohms ESF Span A through D Line Impedance set for ESF

Install the Circuit Pack and Cabling (T1 Only)

The following installation instructions are provided as examples only.

NOTE:
Be sure to label all of the cables as they are installed.

Port Carrier

1. Install the TN1654 circuit pack in any slot in a Port Carrier close to a TN570C Expansion Interface circuit pack.
2. On the backplane, connect a 14-inch (35.56 cm) Y cable from the TN1654 circuit pack to the TN570C circuit pack. See Figure 5-12.

CAUTION:
The Y cable used with the TN1654 is different than the Y cable used with the TN574. These cables are NOT interchangeable.

3. Connect an H600-348 Quad cable to the other side of the double-headed Y cable.
4. Skip to "Channel Service Unit Cabling".

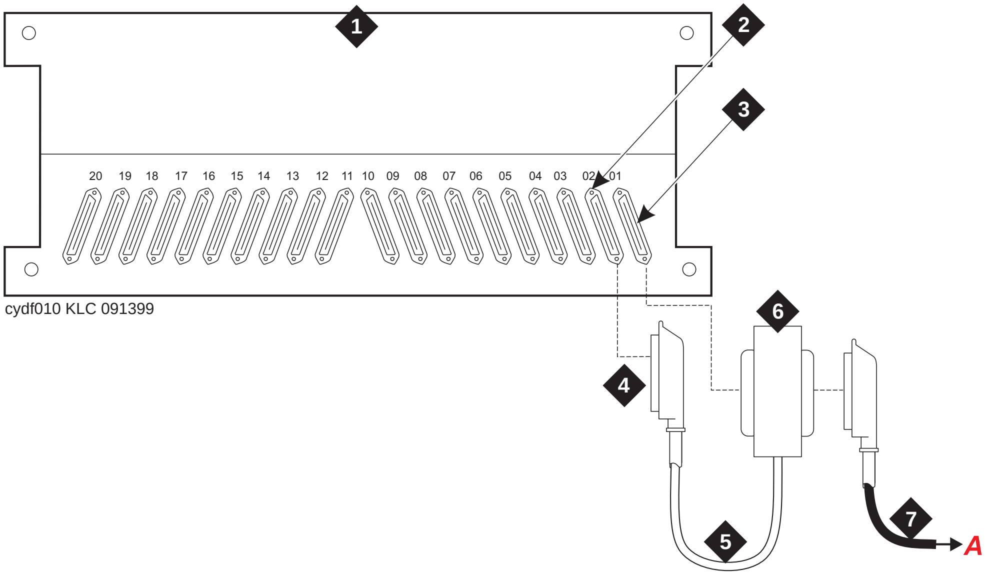


Figure Notes

1. Port cabinet
2. Backplane connector for TN570C EI
3. Backplane connector for TN1654 DS1 Converter
4. 50-pair female connector to EI connector
5. 14-in. (35.6 cm) Y cable
6. 50-pin male/50-pin female double-headed connector
7. H600-348 Quad Cable (with 50-pin male connector), which connects the Y cable to the 4 CSUs.

Figure 5-12. DS1 Converter Connections — Part 1

Switch Node Carrier

You can install up to 2 TN1654 circuit packs in a Switch Node Carrier.

1. Install the TN1654 circuit pack in either slot 1 or 21 of the Switch Node Carrier close to a TN573B SNI circuit pack.

   ⚠ **CAUTION:**
   Install the TN1654 circuit pack in either slot 1 or slot 21. Installing it in any other slots can damage the circuit pack and the system. Do ***not*** *do it.*

2. On the backplane, connect a 14-inch (35.56 cm) Y cable from the TN1654 circuit pack to the TN573B circuit pack. See Figure 5-12.

   ⚠ **CAUTION:**
   The Y cable used with the TN1654 circuit pack is different than the Y cable used with the TN574 circuit pack. These cables are NOT interchangeable.

3. Connect an H600-348 Quad cable to the other side of the Y cable.
4. Skip to "Channel Service Unit Cabling".

Port Carrier to Switch Node Carrier

When the TN1654 circuit pack is in a Port Carrier and the TN 573B SNI circuit pack is in the Switch Node Carrier, connect the two circuit packs with a 70-in. (178 cm) Y Cable.

⚠ **CAUTION:**
The Y cable used with the TN1654 circuit pack is different than the Y cable used with the TN574 circuit pack. These cables are NOT interchangeable.

1. Connect an H600-348 Quad cable to the other side of the Y cable.

Channel Service Unit Cabling

Figure 5-13 shows a typical connection for a T1 line.

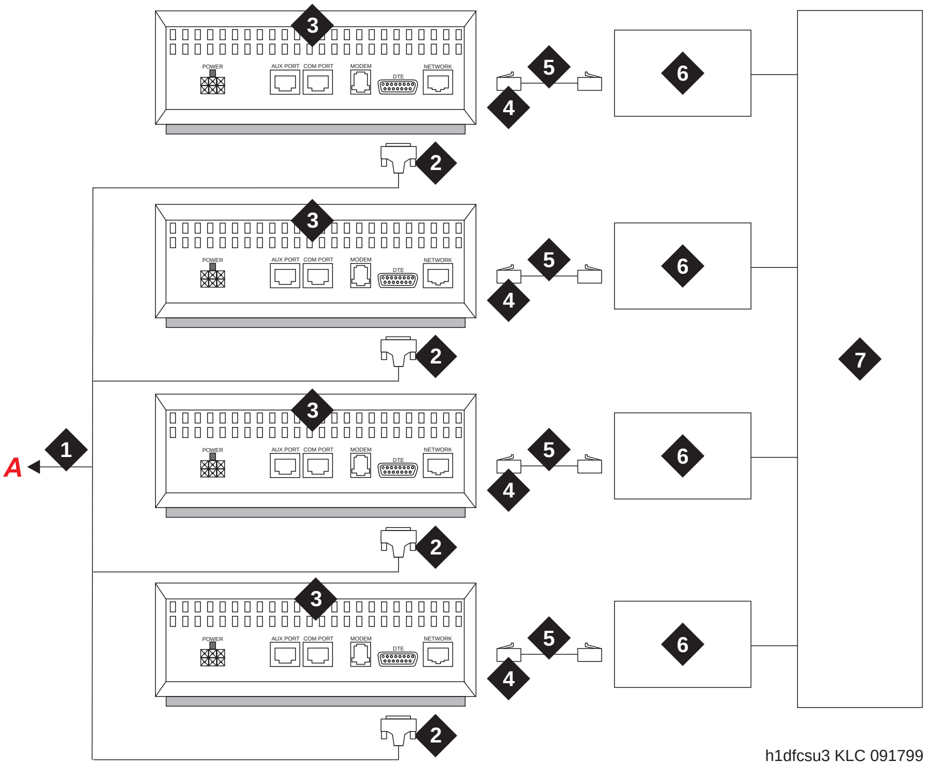


Figure Notes

1. H600-348 Quad Cable
2. 15-Pin Male D Connectors (to DTE Jacks on CSU)
3. Channel Service Unit (CSU)
4. H600-383 Cable (RJ-48C to RJ-48C
5. Network Interface
6. Smart Jack
7. Cables

Figure 5-13. DS1 Converter Connections for T1 Service — Part 2

1. Connect the H600-348 Quad Cable to the DTE jacks on each of the 4 CSUs.

NOTE:
You may need an adapter cable to connect the H600-348 cable to the CSU (see Table 5-12)

2. Connect one end of the H600-383 cable to the network jack on the CSU and the other end to the smart jack.

Table 5-12. Adapter Descriptions

Type	Color	Description	Comcode
Straight through	Black	Cable with a DB15 connector on one end and an RJ48 connector on the other	848402830
Rollover	Gray	Cable with a DB15 connector on one end and an RJ48 connector on the other	848402848
Null	Black	A DB15M to DB15F rollover/null adapter.	407790500

Connection to the remote-located system is the same as that shown in Figure 5-12 and Figure 5-13.

Table 5-13 shows the Y cable lengths and associated comcode numbers.

Table 5-13. Y Cable Lengths

Length	Description	Comcode
14 in. (35.6 cm)	TN1654 circuit pack to adjacent EI circuit pack or TN573B SNI circuit pack in same carrier	847245750
70 in. (178 cm)	TN1654 circuit pack to EI circuit pack or SNI circuit pack in another carrier	847245768
14 in. (35.6 cm)	TN1654 circuit pack to fiber optic transceiver (DC-powered cabinets only). This cable is for intercabinet cabling only.	847245776

NOTE:
The distinction between facility types is important when using TN1654 circuit packs. The facility used to carry control channel messages between the pair of DS1 converter circuit packs and all packet traffic is known as the primary facility. The facility used to backup and takeover for the primary facility in the event of primary facility failure is known as the secondary facility. The TN1654 allows either facility, A or B, to be a primary channel. The control channel is restricted to only the A or B facilities. This permits full 24-channel access (T1) or 31-channel access (E1) for facilities C and D to support user traffic.

Customer-provided CSU Cabling

For certain markets with 120-ohm E1 service, the service provider provides a unit comparable to the CSU. Figure 5-14 shows a typical connection from the H600-348 Quad Cable customer-provided network-interface equipment.

1. Connect the H600-348 Quad Cable to the DTE jacks on the network-interface equipment.

NOTE:
You may need an adapter cable to connect the H600-348 cable to the customer-provided network-interface equipment (see Table 5-12).

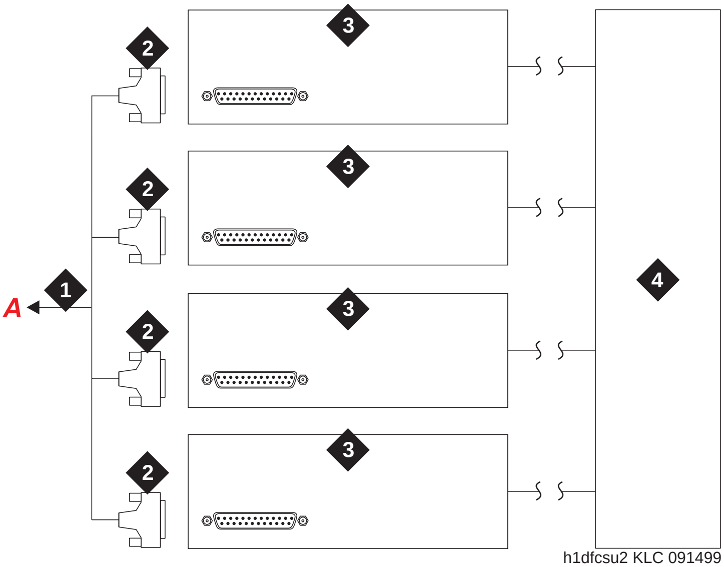


Figure Notes

1. H600-348 Quad Cable
2. 15-pin male D connectors (to DTE jacks on customer-provided network-interface equipment)
3. Customer-provided network-interface equipment
4. Network interface

Figure 5-14. DS1 Converter Connections for 120-ohm E1 Service — Part 2

75-ohm E1 Interface Cabling

For certain markets with 75-ohm E1 service, the DS1 converter requires an adapter to convert the 120 ohms to 75 ohms. Figure 5-15 shows the 127A BALUN coaxial adapter.

NOTE:
Although the TN1654 DS1 converter supports 75 ohms, use the 127A BALUN to convert the 120 ohms to 75 ohms rather than the switch settings.

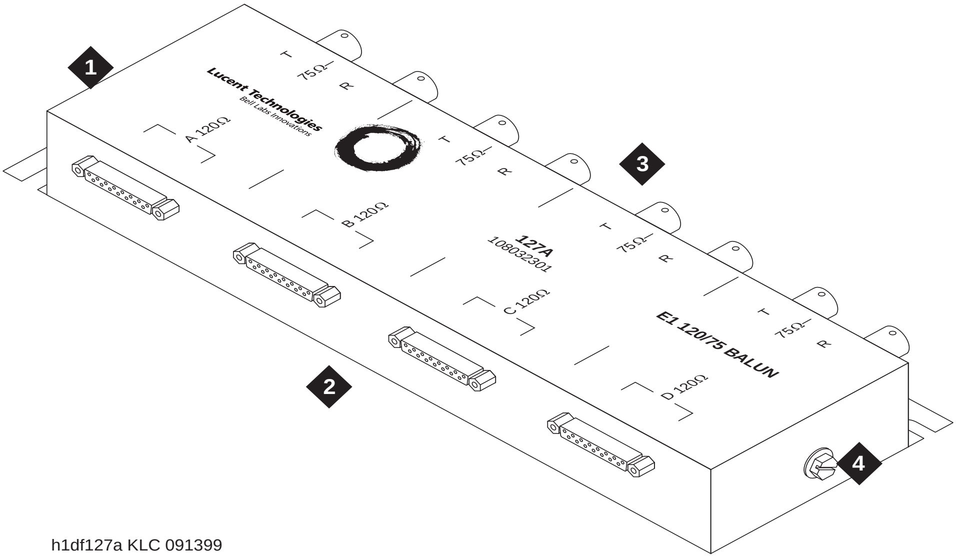
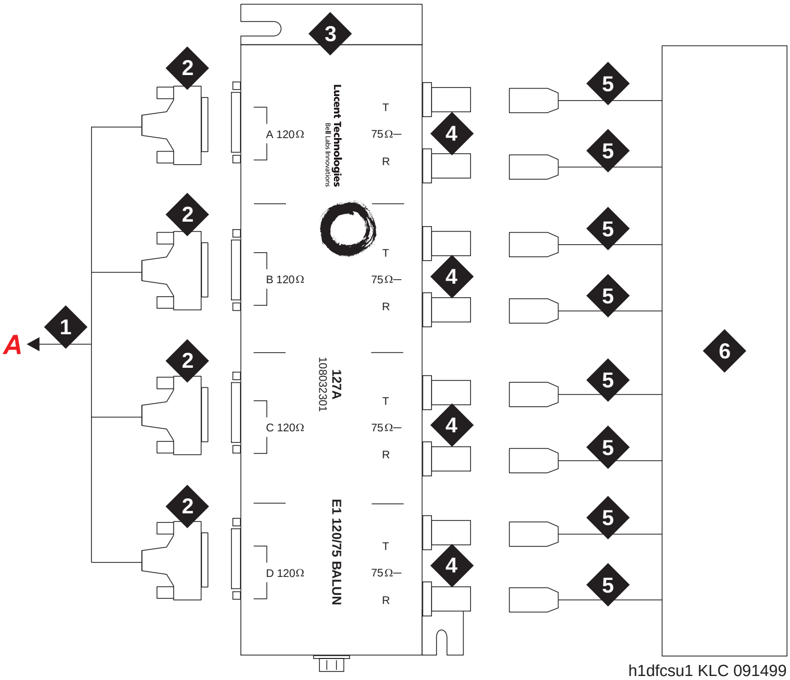


Figure Notes

1. 127A BALUN coaxial adapter
2. Connect to quad cable (H600-348 or similar)
3. BCN Connections to E1 network equipment
4. Single-point ground connection

Figure 5-15. 127A BALUN Coaxial Adapter

Figure 5-16 shows a typical connection.



h1dfcsu1 KLC 091499

Figure Notes

1. H600-348 quad cable
2. 15-pin male D connectors
3. 127A BALUN coaxial adapter
4. BNC connectors (transmit/receive) corresponding to each facility
5. E1 network connection
6. Network interface

Figure 5-16. DS1 Converter Connections for E1 75-ohm Service — Part 2

1. Connect the H600-348 Quad Cable to the 4 DB-15 connectors provided on the 127A adapter.
2. Connect the transmit connectors to the connectors marked T and the receiver connectors to the connectors marked R.
3. Connect the other end of the cables to whatever connects to the network.

Off-Premises Station Wiring

The cabling outside the building for off-premises stations is provided by the local telephone company. The off-premises stations can appear on any of the RJ21X network interfaces provided for the Central Office (CO) trunks.

⚠ **CAUTION:**

Only an FCC-approved (or equivalent) analog type telephone, for example, a 2500-type, can be used as an off-premises station. The TN746B and TN2183 Analog Line circuit packs can be used for off-premises stations.

1. Connect an A25D cable between the RJ21X network interface and a sneak fuse panel. See "Install Sneak Fuse Panels" in Chapter 2, "Install Telecommunications Cabling".
2. At the MDF, connect jumper wires between 1 row/connecting block in the green field and up to 3 rows/connecting blocks in the purple field to concentrate the analog line pairs.
3. Connect an A25D cable between the sneak fuse panel and the 110-type terminal block connector associated with the green row in Step 2.
4. Install a green label on the 110-type terminal block to identify the remote location.
5. Administer per *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.

Off-Premises or Out-of-Building Stations

Out-of-building campus stations are those telephones/voice terminals not physically located in the same building as the equipment room but are located on the same property.

Analog Off-Premises Stations

Figure 5-17 shows the connections for 1 to 8 off-premises analog telephones. Only analog telephones connected to TN742, TN746B, TN2183, or TN769 Analog Line circuit packs can be installed out-of-building.

The maximum distance from the system cabinet to the out-of-building voice terminal is 6000 feet (1828.8 meters) using 24 AWG (#5) (0.26 mm^2)wire.

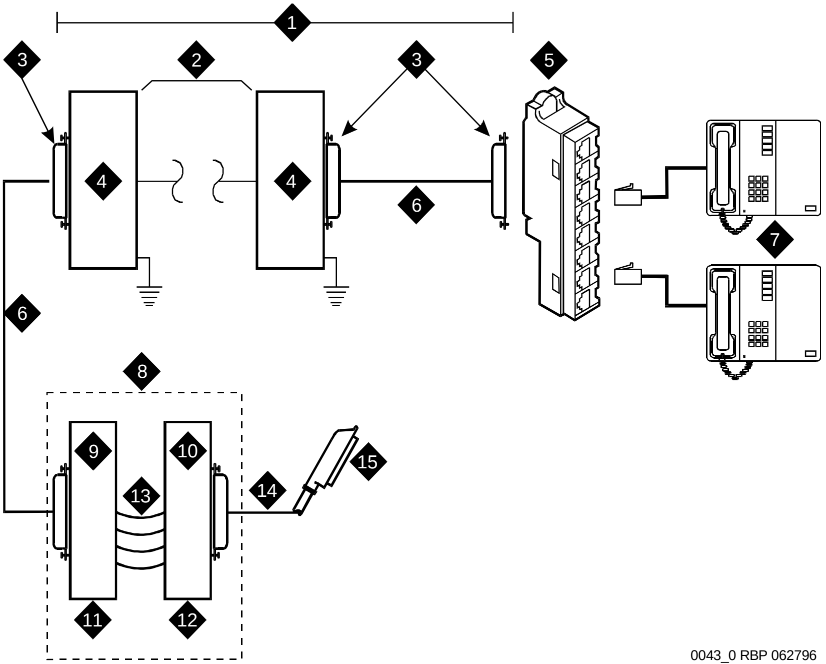


Figure Notes

1. Locally Engineered Cables and Equipment
2. Out-of-Building Wiring
3. 25-Pair Connector
4. Multi-Pair Protector Units (Primary Protectors with Heat Coils or Equivalent with Sneak Current Protection)
5. 356A Adapter
6. B25A Cable
7. Out-Of-Building Analog Telephones
8. Part of MDF
9. Station Side
10. System Side
11. White Field
12. Purple Field
13. Cross-Connect Jumpers
14. Tip and Ring Wires
15. To Analog Line Circuit Pack

Figure 5-17. Connections for Up to 8 Out-of-Building Analog Telephones

Figure 5-18 shows the connections for up to 24 off-premises analog telephones. Concentrations of analog line pairs are used at both buildings to minimize the off-premises wiring required. At the MDF, connect jumpers between 1 row/connecting block in the white field and up to 3 rows/connecting blocks in the purple field. At the station location, a WP-90929, List 1 Concentrator Cable is used. There are 8 station appearances on each of the 3 fingers of the concentrator cable.

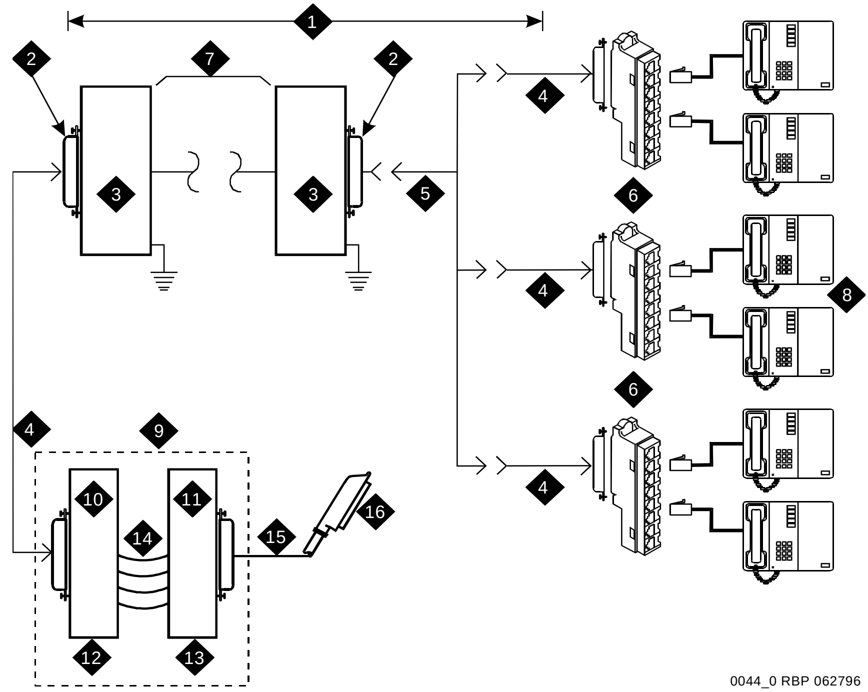


Figure Notes

1. Locally Engineered Cables and Equipment
2. 25-Pair Connector
3. Multi-Pair Protector Units (Primary Protectors with Heat Coils or Equivalent with Sneak Current Protection)
4. B25A Cable
5. Concentrator Cable (WP90929 List 1)
6. 356A Adapter
7. Out-of-Building Wiring
8. Out-Of-Building Analog Telephones
9. Part of Main Distribution Frame (MDF)
10. Station Side
11. System Side
12. White Field
13. Purple Field
14. Cross-Connect Jumpers
15. Tip and Ring Wires
16. To Analog Line Circuit Pack

Figure 5-18. Connections to 24 Out-of-Building Telephones

Carbon block, or equivalent protection is required at both building entrances. Also sneak current protection is required. Protection can be provided by a 4-type protector or a 3-type protector plus a separate sneak current protector. The 4-type protector is equipped with a heat coil.

The 4-type protector is the preferred device. For installations not using primary protection, 4-type protectors should always be used. When the 3-type protector is already installed, a separate sneak current protector is required. The multi-pair protector units and the off-premises cabling must be locally engineered. Connectorized multi-pair protector units (female 25-pair connector) are recommended. Table 5-14 shows the recommended protectors.

Table 5-14. Analog Line Circuit Protectors

Protectors		
Primary[1]	**Primary (with heat coil)**	**Sneak Current Protectors**[2]
3B1A (carbon)	4B1C (carbon)	220029 Fuse
3B1E-W (wide gap gas tube)	4B1E-W (wide gap gas tube)	SCP-1
3C1S (solid state)	4C1S (solid state)	

---

1. The 3-type protectors should only be used if they are already part of the existing protection system. A sneak current protector is always required when a 3-type primary protector is used.
2. A sneak current protector is always required when a 3-type primary protector is used.

The maximum range of out-of-building analog telephones (500-, 2500-, or 7100-types) connected to an analog line circuit pack should be such that the maximum loop resistance does not exceed 1300 ohms.

The following voice terminals/telephones cannot be installed in an exposed environment:

- 7300-type voice terminals connected to TN762 Hybrid Line circuit packs
- Multi-button Electronic Telephone (MET) sets connected to TN735 MET Line circuit packs
- Analog telephones connected TN746 Analog Line circuit packs

Protector Ordering Information

Description	Comcode
3B1A (Carbon Block)	102381779
3B1E-W (Wide Gap Gas Tube)	104410147
3C1S (Solid State)	105514756
4B1C (Carbon Block with Heat Coil)	102904893
4B1E-W (Wide Gap Gas Tube w/Heat Coil)	104401856
4C1S (Solid State with Heat Coil)	104386545
SCP-110 Sneak Current Protector	406948976
220029 Fuse (sneak current protector)	407216316

Digital Out-of-Building Voice Terminals

Protection is required at both building entrances for digital out-of-building voice terminals. There are 2 different types of protectors that can be used to protect digital voice terminals and digital line circuit packs in an out-of-building environment. The 2 enhanced protectors to use are the 4C3S-75 and the ITW Linx. These units provide primary and sneak current protection. For sneak current protection, the 4C3S-75 is equipped with a heat coil and the ITW Linx is equipped with replaceable fuses.

The 4C3S-75 may only be used with Vintage 14 or newer TN754 circuit packs. The 4C3S-75 can be used on all vintages of the TN754B circuit packs. The ITW Linx may be used on all vintages of the TN754 and TN754B circuit packs. Table 5-15 lists the approved protectors.

Table 5-15. Digital Voice Circuit Protectors

Circuit Pack	Enhanced Primary Protector (With Sneak Current Protection)
TN754 V13 or earlier	ITW Linx Only
TN754 V14 or later	4C3S-75 or ITW Linx
TN754B all vintages	4C3S-75 or ITW Linx
TN2181 all vintages	4C3S-75 or ITW Linx
TN2224 all vintages	4C3S-75 or ITW Linx

When possible, all new and reused wiring installations should use blocks that accept the standard 5-pin plug-in 4C3S-75 protector. However, there are reused wiring installations where this may not be cost effective. For these installations, the ITW Linx protector may be installed. An example of this is where screw-type carbon block protectors (or other non plug-compatible types) are in place and it is too costly to re-terminate the outside plant cable on a 5-pin mounting block for only a few out-of-building terminals.

The ITW Linx Enhanced Protector may be installed in series with existing primary protection. The 4C3S-75 protector cannot be installed in series with other types of primary protection. It must be installed as the only protection on the line entering the building. For the 4C3S-75 protector there are a variety of 25-, 50-, and 100-pair protector panels equipped with 110-type connecting blocks and/or RJ21X connectors. The ITW Linx Enhanced Protector mounts directly on connecting blocks and requires a separate ground bar.

The maximum range for out-of-building digital voice terminals is 3400 feet (1036 m) when using 24 AWG (#5) (0.26 mm^2) wire and 2200 feet (670 m) when using 26 AWG (#4) (0.14 mm^2) wire. The range can be extended to 5000 feet (1524 m) using 24 AWG (#5) (0.26 mm^2) wire or 4000 feet (1219 m) using 26 AWG (#4) (0.14 mm^2) wire with the use of a Data Link Protector (DLP). The DLP is an isolating transformer used to remove phantom power on the system side and re-introduce it on the terminal side. When a protector is used, the voice terminal must be locally powered by an external power supply or through the AC power cord provided with some of the 7400-type voice terminals. The protector is installed on the equipment side of the protection in both buildings.

Protector and Data Link Protector Ordering Information

Description	Comcode
4C3S-75 (Solid State with Heat Coil)	105581086
ITW LINX (Gas Tube, Avalanche Suppress)	406144907
ITW Linx Ground Bar (used with above)	901007120
ITW Linx Replacement Fuse	406304816
Data Link Protector (1 circuit)	103972758
Data Link Protector (8 circuits)	103972733

Emergency Transfer Units and Associated Telephones

Emergency transfer capability is provided by a transfer unit mounted next to the trunk/auxiliary field. Analog telephones connected to the transfer panel can be used. The 500-and 2500-type telephones can also be used as normal extensions. Emergency transfer capability may be provided on analog Central Office (CO) and Wide Area Telecommunications Service (WATS) trunks.

The 808A Emergency Transfer Panel provides emergency trunk bypass or power-fail transfer for up to 5 incoming CO trunk loops to 5 selected station sets. The 808A equipment’s Ringer Equivalency Number (REN) is 1.0 Amp.

At the MDF, the unit is controlled by a connection to a yellow terminal row/connecting block in the trunk/auxiliary field. The unit is controlled by -48 VDC from the **EM TRANS RELAY PWR** terminals. There are 7 **EM TRANS RELAY PWR** terminal pairs that allow powering of up to 7 transfer units.

Should power be restored to the relays while a call connected through the 808A is in progress, the 808A maintains the connection until the user goes on-hook. Each 808A can handle up to 5 CO trunks.

808A Emergency Transfer Panel

Figure 5-19 shows a typical 808A Emergency Transfer Panel. The 808A is connected to the MDF with a B25A or A25B cable.

The following procedures are provided as a typical installation example.

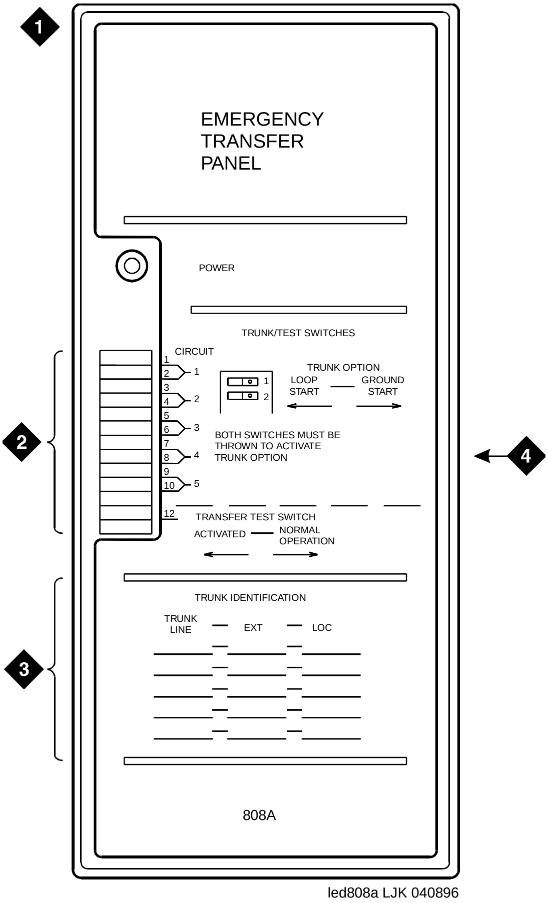


Figure Notes

1. 808A Emergency Transfer Panel
2. Circuit Start Selection Switches
3. Trunk Identification Label
4. 25-Pair Male Connector

Figure 5-19. 808A Emergency Transfer Panel

NOTE:
Install the 808A in a location that can be accessed only by authorized personnel. In addition, the location must meet standard environmental considerations such as temperature, humidity, and so forth.

6. Install the panel on any mounting frame in either a vertical or horizontal position. The housing has ears for screw-mounting and cutouts for snap-mounting the unit in an 89-type mounting bracket. Verify dial tone is present at each trunk circuit.
7. Locate the circuit start selection switches. See Figure 5-19. These are the first 10 two-position switches on the left side of the panel. They are used to set each of the 5 incoming trunk lines to either loop start or ground start. Two switches are used for each circuit; switches 1 and 2 are used for circuit 1, switches 3 and 4 are used for circuit 2, and so forth. See Table 5-16. For loop start, set the switches to the **left**. For ground start, set the switches to the **right.**

.

Table 5-16. Trunk/Test Switches

Switch Number	Circuit Number
1	1
2	1
3	2
4	2
5	3
6	3
7	4
8	4
9	5
10	5
11	Not Used
12	Test Switch

8. Connect a 25-pair cable between the male RJ21 25-pair connector on the Emergency Transfer Panel and the yellow field of the MDF. See Figure 5-20. Table 5-17 shows the pin assignments.
9. Make cross-connections for each emergency trunk/emergency station pair. See Figure 5-21 and Table 5-17.

Table 5-17. Pin Assignments for 25-Pair Connector

Pin	Color	Designation	Connector/Description
26	W-BL	TTC1	Tip-PBX Trunk Circuit 1
1	BL-W	RTC1	Ring-PBX Trunk Circuit 1
27	W-O	TTK1	Tip-CO Trunk Circuit 1
2	O-W	RTK1	Ring-CO Trunk Circuit 1
28	W-G	TLC1	Tip-PBX Line Port 1
3	G-W	RLC1	Ring-PBX Line Port 1
29	W-BR	TST1	Tip-Emergency Terminal 1
4	BR-W	RST1	Ring-Emergency Terminal 1
30	W-S	TTC2	Tip-PBX Trunk Circuit 2
5	S-W	RTC2	Ring-PBX Trunk Circuit 2
31	R-BL	TTK2	Tip-CO Trunk Circuit 2
6	BL-R	RTK2	Ring-CO Trunk Circuit 2
32	R-O	TLC2	Tip-PBX Line Port 2
7	O-R	RLC2	Ring-PBX Line Port 2
33	R-G	TST2	Tip-Emergency Terminal 2
8	G-R	RST2	Ring-Emergency Terminal 2
34	R-BR	TTC3	Tip-PBX Trunk Circuit 3
9	BR-R	RTC3	Ring-PBX Trunk Circuit 3
35	R-S	TTK3	Tip-CO Trunk Circuit 3
10	S-R	RTK3	Ring-CO Line Port 3
36	BK-BL	TLC3	Tip-PBX Line Port 3
11	BL-BK	RLC3	Ring-PBX Line Port 3
37	BK-O	TST3	Tip-Emergency Terminal 3
12	O-BK	RST3	Ring-Emergency Terminal 3
38	BK-G	TTC4	Tip-PBX Trunk Circuit 4
13	G-BK	RTC4	Ring-PBX Trunk Circuit 4
39	BK-BR	TTK4	Tip-CO Trunk Circuit 4
14	BR-BK	RTK4	Ring-CO Trunk Circuit 4
40	BK-S	TLC4	Tip-PBX Line Port 4
15	S-BK	RLC4	Ring-PBX Line Port 4

Continued on next page

Table 5-17. Pin Assignments for 25-Pair Connector — *Continued*

Pin	Color	Designation	Connector/Description
41	Y-BL	TST4	Tip-Emergency Terminal 4
16	BL-Y	RST5	Ring-Emergency Terminal 4
42	Y-O	TTC5	Tip-PBX Trunk Circuit 5
17	O-Y	RTC5	Ring-PBX Trunk Circuit 5
43	Y-G	TTK5	Tip-CO Trunk Circuit 5
18	G-Y	RTK5	Ring-CO Trunk Circuit 5
44	Y-BR	TLC5	Tip-PBX Line Port 5
19	BR-Y	RLC5	Ring-PBX Line Port 5
45	Y-S	TST5	Tip-Emergency Terminal 5
20	S-Y	RST5	Ring-Emergency Terminal 5
46	V-BL	COM1	Common 1 Relay Contact
21	BL-V	NO1	Normally Open 1 Contact
47	V-O	NC2	Normally Closed 2 Contact
22	O-V	NC1	Normally Closed 1 Contact
48	V-G	COM2	Common 2 Relay Contact
23	G-V	NO2	Normally Open 2 Contact
49	V-BR		
24	BR-V		
50	V-S	GRD	Ground From PBX
25	S-V	-48PX	-48V from Alm Panel

10. On the trunk identification label at the bottom of the panel, record the trunk line, extension, and location for each circuit.
11. Attach a label identifying each voice terminal designated as an emergency terminal. The labels are provided with the unit.
12. Check the system for normal operation:

    — Set the test switch (switch 12) to NORMAL OPERATION.

    — Ensure the power supply is providing -48 VDC at 80 mA maximum.

    — The power LED should be ON.

    — Verify there is dial tone on all emergency transfer sets.

    If all of the above conditions are not met, replace the panel.

13. Check the system for transfer operation as follows:
    - — Place the test switch (switch 12) in the ACTIVATED position.
    - — The power LED should be OFF.
    - — Verify there is dial tone on all emergency transfer sets.

    If all of the above conditions are not met, replace the panel.

The 808A connect to the MDF with a B25A cable. Figure 5-20 shows the connections at the trunk/auxiliary field for a telephone used only for emergency transfer.

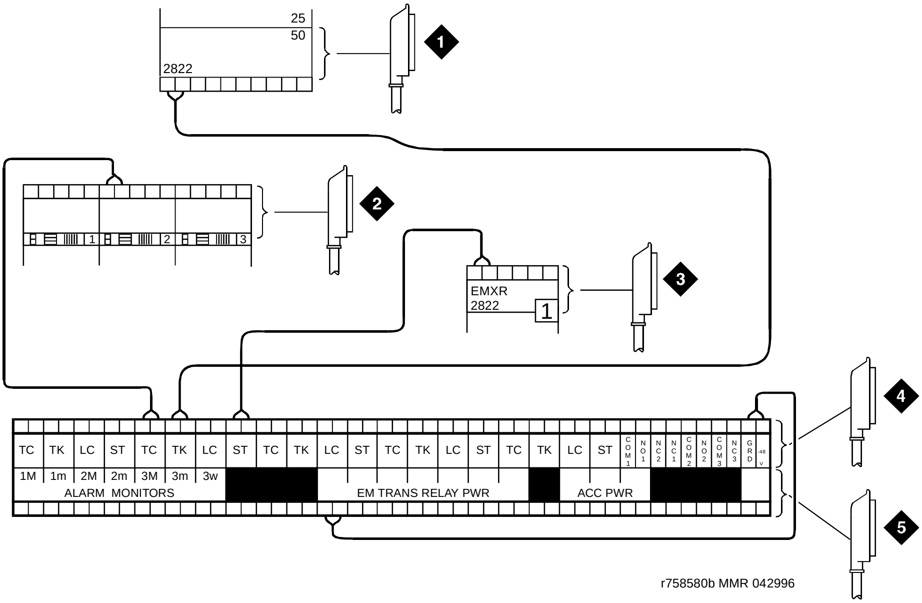


Figure Notes

1. To Network Interface Circuitry
2. To TN747 (or Equivalent) CO Trunk Circuit Pack
3. To Blue or White Station Distribution Field
4. To Power Transfer Unit
5. To Control Carrier AUX Connector

Figure 5-20. Connections for Telephone Used for Emergency Transfer

Figure 5-21 shows the connections at the trunk/auxiliary field for a telephone used for emergency transfer as well as a normal extension.

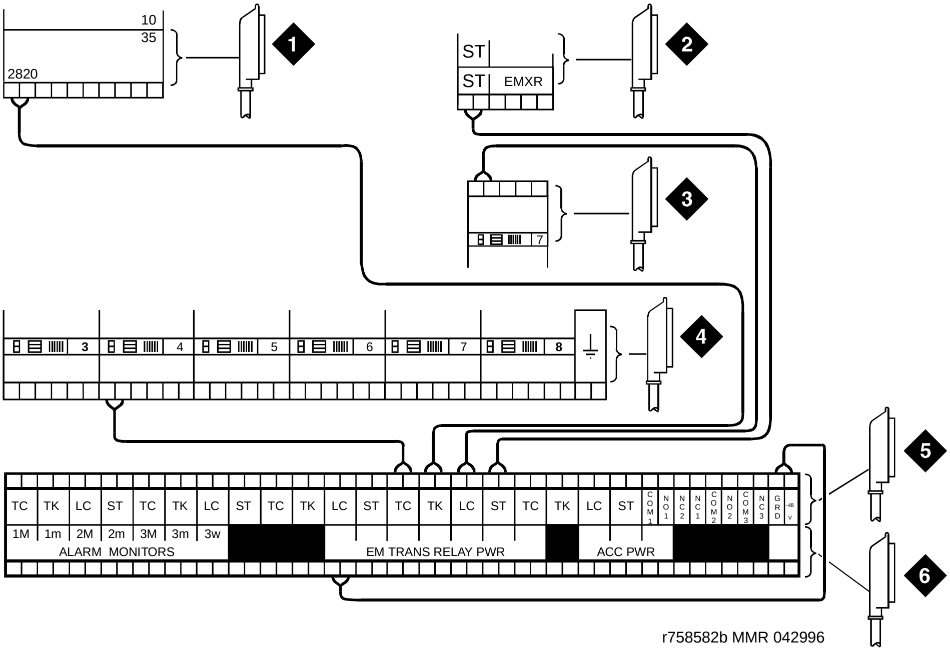


Figure Notes

1. To Network Interface Facility
2. To Blue or White Station Distribution Field
3. To TN742, TN746B, or TN769 (or Equivalent) Analog Line Circuit Pack
4. To TN747 (or Equivalent) Central Office Trunk Circuit Pack
5. To Power Transfer Unit
6. To Control Carrier AUX Connector

Figure 5-21. Connections for Telephone Used for Emergency Transfer and as Normal Extension

Install Telephone for Power Transfer Unit

Trunk/Auxiliary Field: Telephone Used Only for Emergency Transfer

1. Connect a pair of wires between the **-48V** and **GRD** terminals on the yellow emergency transfer row/connecting block and the **EM TRANS RELAY PWR** terminal. See Figure 5-20.
2. Connect CO trunk leads from the purple field to **TC** terminals on the yellow emergency transfer row/connecting block for each trunk.
3. Connect CO trunk leads from the green field to **TK** terminals on the yellow emergency transfer row/connecting block for each trunk.
4. Connect **ST** leads on the yellow emergency transfer row/connecting block for each emergency transfer telephone to the **ST** terminal appearance in the yellow trunk/auxiliary field. The **ST** terminal leads should be terminated on the following pairs: 1, 4, 7, 10, 13, 16, 19, or 22 (the first pair of any 3-pair group).
5. Connect the **ST** leads from the terminal in Step 4 to the assigned terminal in the blue or white station distribution field.

Trunk/Auxiliary Field: Telephone Used for Emergency Transfer and as Normal Extension

1. Connect a pair of wires between the **-48V** and **GRD** terminals on the yellow emergency transfer row/connecting block to the **EM TRANS RELAY PWR** terminal. See Figure 5-21 on page 5-45.
2. Connect CO trunk leads from the purple field to **TC** terminals on the yellow emergency transfer row/connecting block for each trunk.
3. Connect CO trunk leads from the green field to **TK** terminals on the yellow emergency transfer row/connecting block for each trunk.
4. Connect telephone leads from the purple analog line board row/connecting block to the **LC** terminals on the yellow emergency transfer row/connecting block for each telephone.
5. Connect **ST** leads on the yellow emergency transfer row/connecting block for each emergency transfer telephone to the **ST** terminal appearance in the purple trunk/auxiliary field.
6. Connect the **ST** leads from the terminal in Step 4 to the assigned terminal in the blue or white station distribution field.

Telephone Installation

Install telephone assigned to emergency transfer as follows:

1. Connect telephone to the information outlet.
2. Install patch cords/jumper wires between the system side and the station side of the station distribution field on the MDF.

External Ringing

Connections for external ringing provided by a device, such as a gong, chime, or bell, are at an information outlet. The system side of the MDF connects to a TN2183 or equivalent analog line circuit pack located in a port carrier. The circuit packs contain 16 ports each.

NOTE:
A maximum of 3 devices can connect to 1 TN2183 circuit pack port.

1. Wire the ringing device to the information outlet as shown in Figure 5-8 and Figure 5-9.
2. Administer per *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.

Queue Warning Indicator

The connections for the queue warning indicator are the same as external ringing. An AC indicator (lamp) such as a 21C49 can be used in a Uniform Call Distribution/Direct Departmental Calling (UCD/DDC) queue.

The lamp connects to an information outlet. The system side of the MDF connects to an analog line circuit pack in a port carrier.

1. Wire the queue warning indicator to the information outlet as shown in Figure 5-8 and Figure 5-9.
2. Administer per *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.

1145B Power Supply

The 1145B closet power arrangement provides an uninterruptible -48 VDC power source with battery and 1146B distribution unit for ISDN/DCP, terminal equipment, adjuncts, and other customer-supplied equipment. During AC power interruptions, batteries automatically provide power to the load.

A manual switch on the distribution unit allows the user to redirect reserve power to outputs 1 through 32 so all outputs are provided battery reserve power.

NOTE:
The switch must be set to the 1-32 position.

The 1145B/1146B is a -48V power supply with 275 Watts total output. Each output circuit is current limited by a Polymer Positive Temperature Coefficient Resistance Device (PTC) that limits the maximum output to 12 Watts. Each 1146B output has an LED to indicate the status of the PTC. If the LED is on, the PTC has a short on that power pair.

Not all outputs can simultaneously provide 12 Watts. The average power per output cannot exceed 8.6 Watts (275/32 = 8.6). The 1145B is designed to power one ISDN terminal or DCP adjunct per output. The maximum number of terminals or adjuncts is 32. The 1145B is required for installations outside the United States.

Auxiliary power (local or bulk) is always required for the following:

- Attendant Console 302C
- Any 8520 terminal
- Any 7500- or 8500-series terminal with an asynchronous data module
- Any 7500-series terminal whether in passive bus, or point to point (1 per BRI port)
- Any 8510 terminal in passive bus or with an asynchronous data module (unless the 8510 will not be used to support data or video)
- PassageWay adapter interface
- Any 8400-series terminal
- Any 7400-series terminal

Figure 5-22 shows how the standard power supply and wall-mounting plates fit together. Figure 5-23 shows the expanded power supply components (power distribution unit and “T” cable).

Wall-Mounting Plates

The top plate is used for mounting the back-up battery. The bottom plate is used to mount the power supply and distribution units. The plates can be rack-mounted using standard rack-mounting brackets.

1. Locate 1 plate directly below the other such that the AC power cord (6.5 feet or 2 meters) reaches the electrical outlet from a power supply mounted on the bottom plate. Both plates should be located so the raised letters are right side up.

   NOTE:
   A maximum of 4 power supplies can be powered from 1 dedicated 110 VAC, 20 amp (or 230 VAC, 15 amp) feeder. Use only unswitched receptacles (receptacles not connected to a wall switch).

2. Secure the wall mounting plates to a standard 3/4 inch (2 cm) thick plywood mounting board. Each mounting plate comes with four #10 x 1/2-inch wood screws.
3. The 1145B Power Supply is snap-fit onto the bottom wall mounting plate without tools.
4. An installer-provided insulated ground wire, 16 AWG (1.5 mm^2) or greater, is required to connect the power supply frame ground lug to an approved ground. The frame ground screw is located next to the AC receptacle, to the left of the unit.
5. Mark the Unit Number and Connectivity information on the front label next to the LEDs.

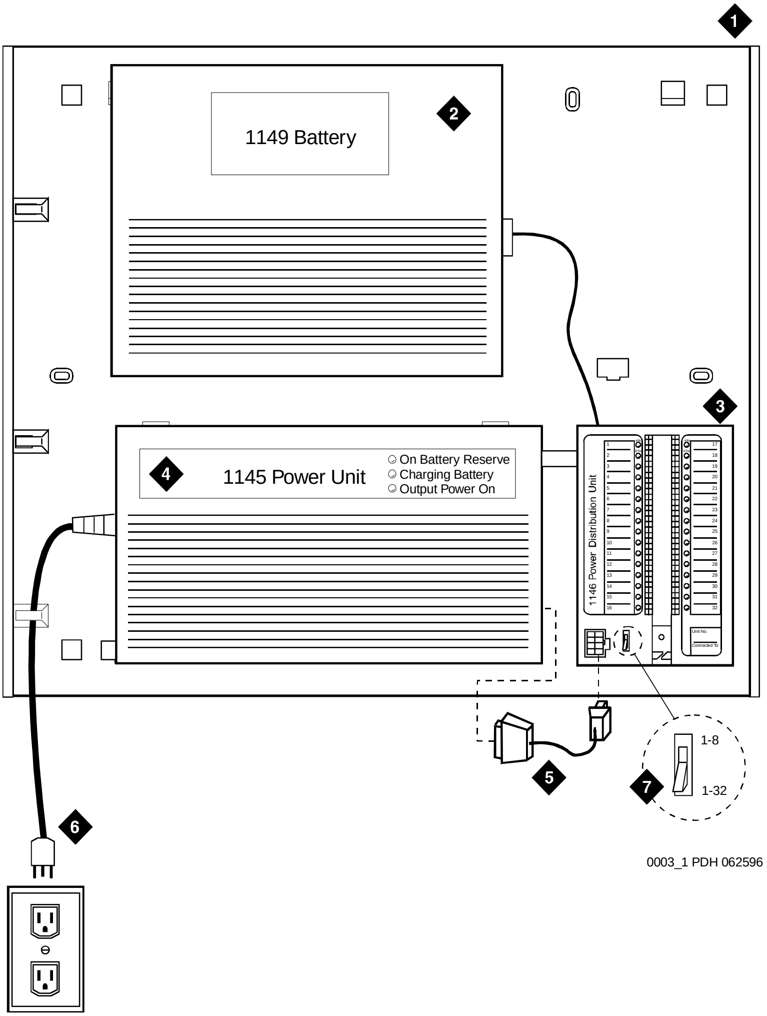


Figure Notes

1. Wall Mounting Plate
2. Battery (1149B Shown)
3. 1146B Power Distribution Unit
4. 1145B Power Unit
5. Power Cable
6. Unswitched Outlet (120 VAC, 20 Amp or 230 VAC, 15 Amp)
7. Battery Backup Switch Setting

Figure 5-22. 1145B/1146B Mounting Arrangement

Mount the 1146B Power Distribution Unit

1. Insert and securely tighten the 2 supplied #8-32 x 1/2-inch shoulder screws into the top holes designated for 1146B Power Distribution Unit on the bottom plate. Mount the unit on these 2 shoulder screws, using the key holes on the back of the unit.
2. Secure the unit by inserting the #8-32 x 1 inch screw through the bottom of the unit (just above the wire clips) into the plate and tighten.
3. Set the battery back-up switch option to the 1-32 (down) position to provide battery back-up to all outputs.
4. Connect the power distribution unit to the power supply with the power cable. Refer to the power supply's right-hand label to locate the output power connection.

Battery Mounting/Wiring

Three types of back-up batteries are used; the 1148B, the 1149B, and the 1147B. Table 5-18 provides the rating and PEC code of each battery.

Table 5-18. Back-Up Battery PEC Codes

Battery	Rating	PEC Code
1148B	2.5 Amp Hour (AH)	24700
1149B	5 Amp Hour (AH)	24701
1147B	8 Amp Hour (AH)	24703

1. Loosely thread two #10-32 x 1/2-inch shoulder screws into the top designated battery holes on the wall mounting plate.
2. Place the keyhole slots in the battery bracket on these 2 screws. The battery cord exits from the right of the bracket. Make sure the label on the battery is visible. Tighten the screws securely.
3. Plug the battery cord into the power supply's right rear receptacle. The rear receptacle is indicated on the right label.

Install the Expanded Power Distribution Unit

A second power distribution unit can be installed to provide power to additional 8400-series and 8500-series terminals.

⚠ **CAUTION:**

Total power cannot exceed 275 Watts. The maximum ISDN terminal mixture is twenty four 7500-series and twenty four 8500-series terminals.

The maximum DCP terminal mixture is twenty four 7400-series and twenty four 8400-series or sixty four 8400-series terminals.

The following items are supplied with each expanded power distribution unit kit:

- One 1146B Power Distribution Unit (comcode 107250995)
- One “T” Cable (comcode 847529872)
- Two #8-32 x 1/2-inch Shoulder Screws
- One #8-32 x 1 inch Screw
- One Spacer Bracket (comcode 847554441)

Refer to Figure 5-23 while installing the power distribution unit.

1. Set the spacer bracket onto the mounting plate and secure with the #8-32 x 1/2-inch shoulder screws. The spacer bracket is not shown in Figure 5-23 but is installed behind the top power distribution unit.
2. Slide the keyhole slots in the power distribution unit over the shoulder screws.
3. Insert the #8-32 x 1 inch screw through the distribution unit, through the spacer bracket, and into the plate. The mounting hole is located just above the wire clip. Tighten the screw securely.
4. Set the battery back-up switch to the 1-32 (down) position.
5. Power-down the 1145B unit as described on the label on the side of the unit.
6. Remove the output power cable between the 1145B and the 1146B units. The cable will not be reused.
7. Connect the P1 connector end of the “T” cable to the bottom power distribution unit. Connect the P2 connector to the top distribution unit. Connect the P3 connector to the 1145B.
8. Power-up the 1145B as described on the label on the side of the unit.

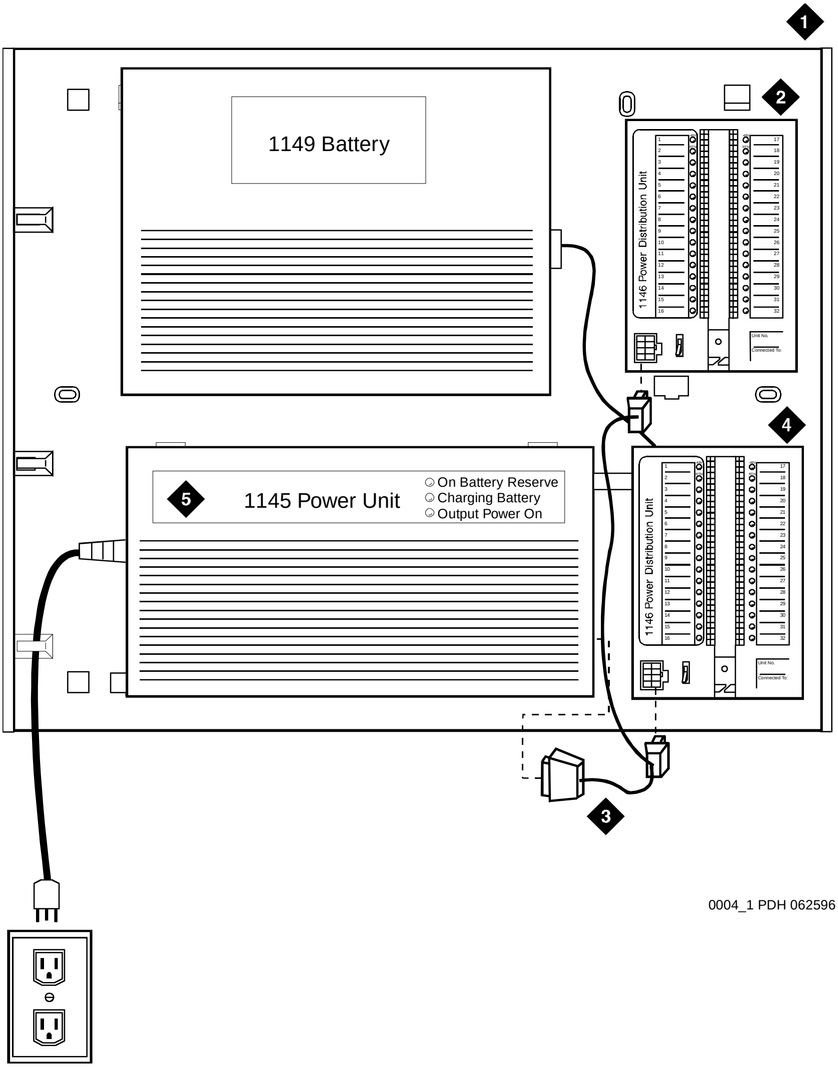


Figure Notes

1. Wall-Mounting Plate
2. Second 1146B Power Distribution Unit
3. “T” Cable (H600-347-G7)
4. First 1146B Power Distribution Unit
5. 1145B Power Unit

Figure 5-23. Expanded Power Distribution Unit

Power Up and Test

1. Connect the AC power cord to the power supply and route the cord to an appropriate AC outlet using the clips provided on the unit.

   NOTE:
   A maximum of 4 power supplies can be powered from either a dedicated 100V - 120V, 50/60 Hz, 20 Amp feeder or a 200V - 240V, 50/60 Hz, 10 Amp feeder. Use only unswitched receptacles.

2. Plug the cord into the outlet. This powers up the power supply.
3. Check AC operation of the 1145B Power Supply by monitoring the LEDs:

   PASS: Green and yellow LEDs at the front of the unit should be lit together. Green means the power supply is providing power. Yellow means the battery is being charged. After the battery reaches full charge (maximum of twenty hours), the yellow LED should go out.

   FAIL: If either green or yellow LED is not lit after powering up, check the connections. Test the AC outlet. If power is available and the AC power cord and connections are good, replace the power unit.

4. Disconnect the AC plug on the power supply, this activates the DC supply.
5. Check DC (battery back-up) operation of the 1145B Power Supply by monitoring the LEDs:

   PASS: The red and green LEDs should be lit together. Red means the power supply is on battery back-up.

   FAIL: If either green or red LED is not lit after disconnecting AC power, check the connections. If the connections are good, replace the power unit or batteries.

6. Reconnect AC power to the power supply.

Wire the 1146B Power Distribution Unit

Wire endpoints to the 1146B while power from the 1145B is on. A red LED lights if its associated circuit is connected to shorted wiring or to a shorted terminal.

1. Install cross-connect jumpers to wire from the unit (the label shows polarity) to pins 7 and 8 of the appropriate information outlet. Route the wires through the clip provided on the unit. If a red LED is on, see "Reset LEDs on Power Distribution Unit". See Figure 5-24.
2. Mark lead destinations on the label next to each connector. Also mark the Unit Number and Connectivity information on the label.

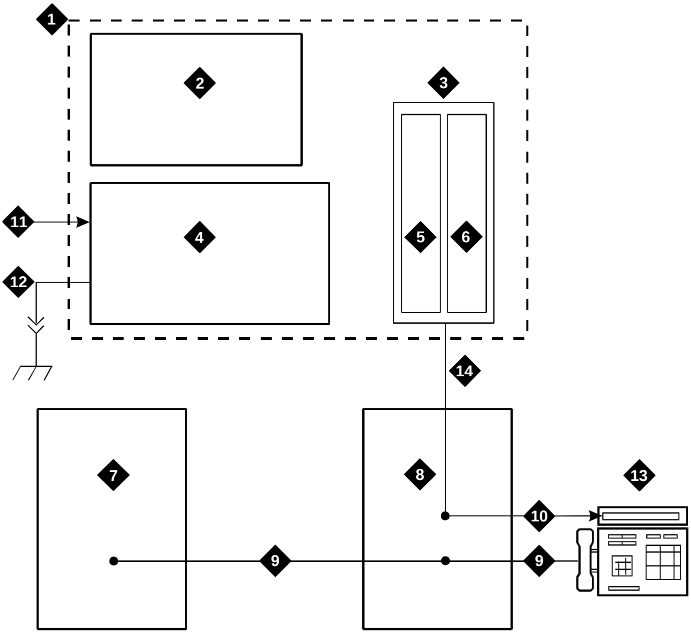


Figure Notes

1. Power Supply Kit	8. Main Distribution Frame
2. 2.5, 5.0, or 8.0 Amp Hour Battery	9. Modular Cord
3. 1146B Distribution Unit	10. Pins 7 and 8 (Display Terminal Power)
4. 1145B Power Supply	11. AC Input
5. Circuits 1-16	12. Installer-Provided Ground Wire
6. Circuits 17-32	13. ISDN/ Display System Protocol Terminal
7. Port Circuit	14. Circuits 1-32

Figure 5-24. Typical Wiring to a Terminal

Reset LEDs on Power Distribution Unit

A red LED next to any of the 32 power output connectors indicates a short circuit in the building wiring or the terminal equipment. To reset the LED:

1. Disconnect the terminal equipment from the wall jack.
2. If the LED goes off, the terminal equipment is faulty and must be replaced. If the LED is still lit, find and repair the short circuit in the building wiring.
3. Reconnect the terminal equipment to the wall jack and re-test terminal equipment operation.

⚠ **WARNING:**

Important Safety Instructions follow.

When operating this equipment, basic safety precautions must be followed to reduce the risk of fire, electric shock and personal injury, including the following:

- Read and understand all instructions.
- Do not attach the power supply cord to building surfaces.
- For continued back-up protection and battery reliability, replace batteries every 4 years.
- Follow all warnings and instructions marked on the products.
- Clean products only with a dry rag.
- Do not use this product near water.
- For mounting security, follow all installation instructions when mounting product.
- Openings on top and bottom of power unit are provided for ventilation. Do not block or cover these openings. Do not exceed recommended environmental temperatures.
- Operate these products only from the type of power source indicated on the product labels.
- The power unit is equipped with a 3 wire grounding type plug; a plug having a third (grounding) pin. This plug will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace the outlet. Do not defeat the safety purpose of the grounding type plug.
- Do not allow anything to rest on or spill into the products.
- To reduce risk of fire and electrical shock, do not overload power outlets.
- Never push objects of any kind through the power supply or distribution unit slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electrical shock.

- To reduce risk of electric shock, do not disassemble these products. Return them for repair when needed. Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect reassembly can cause electric shock when the products are subsequently used.
- Power down the power unit (see label on power unit on how to do this) and refer servicing under the following conditions:
  - If liquid has been spilled into any of the products.
  - If any of the products have been exposed to water.
  - If any of the products do not operate normally.
  - If any of the products have been dropped or damaged.
  - If any of the products exhibits a change in performance.
- Do not attempt to recharge batteries on your own. The batteries may leak corrosive electrolyte or explode. The 1145B power unit recharges the batteries safely.
- Remove the batteries if the power unit will not be used for a long period of time (several months or more) since during this time the battery may leak.
- Discard discharged batteries as soon as possible. Discharged batteries are more likely to leak.
- Do not store batteries in high temperature areas. Batteries stored in a cold environment should be protected from condensation during storage and warming. Batteries should be stabilized at room temperature prior to use after cold storage. Do not install batteries if the manufacturing date on the label indicates that the batteries are more than 6 months old.

1151A1 Power Supply

The 1151A1 and 1151A2 Power Supplies comply with the UL Standard UL 1950, second edition. Safety instructions follow the table of certifications.

Complies	UL 1950
Certified	CSA 22.2
Approved	EN6950
Approved	CE

Important Safety Instructions

Please read the following helpful tips. Retain these tips for later use.

When using this power supply, the following safety precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons.

- Read and understand all instructions.
- Follow all warnings and instructions marked on this power supply.
- This product can be hazardous if immersed in water. To avoid the possibility of electrical shock, do not use it near water.
- To reduce the risk of electric shock, do not disassemble this product except to replace battery.
- This product should be operated only from the type of AC power source indicated on the label. If you are not sure of the type of AC power being provided, contact a qualified service person.
- Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by persons walking on it.
- Do not overload wall outlets and extension cords as this can result in the risk of line or electric shock.
- Disconnect the cords on this product and refer servicing to qualified service personnel under the following conditions:
  - When the power supply cord or plug is damaged or frayed.
  - If liquid has been spilled into the product.
  - If the product has been exposed to rain or water.
  - If the product was dropped or the housing has been damaged.
  - If the product exhibits a distinct change in performance.
  - If the product does not operate normally by following the operating instructions.

The 1151A1 and 1151A2 Power Supplies

The 1151A1 and 1151A2 Power Supplies can be used to supply local power to ISDN-T 65xx, 75xx, 84xx, and 85xx series voice terminals connected to a system and to the DCP 7444 voice terminal or 302C Attendant Console that need auxiliary power for its display. The unit can supply power to adjunct equipment such as S201A and CS201A speakerphones or a 500A Headset Adapter attached to any currently manufactured analog, DCP, or ISDN-T voice terminal equipped with an adjunct jack.

⚠ **CAUTION:**

The power supply can be used ***only*** *with telecommunications equipment, indoors, and in a controlled environment.*

The power supply has a single output of -48 VDC, 0.4 Amps, and can operate from either a 120 VAC 60 Hz power source (105 to 129 VAC) or a 220/230/240 VAC 50 Hz power source (198 to 264 VAC). Input voltage selection is automatic. The output capacity is 19.2 Watts.

The power supply can be placed on a flat surface such as a desk. For wall-mounting, keyhole slots are provided on the bottom of the chassis.

⚠ **CAUTION:**

Do not locate the unit within 6 inches (15.2 cm) of the floor.

Connect the 1151A1 or 1151A2 Power Supplies

The 1151A1 is a standard (no battery backup) power supply unit. The 1151A2 is a battery backup version of the 1151A1. Either power supply can support 1 telephone with or without an adjunct. The maximum loop range is 250 feet (76 meters). Two modular jacks are used. Power is provided on the PHONE jack, pins 7 and 8 (- and +, respectively).

The PHONE and LINE jacks are 8-pin female non-keyed 657-type jacks that can accept D4, D6, and D8 modular plug cables. Figure 5-25 shows an 1151A1/2 Power Supply.

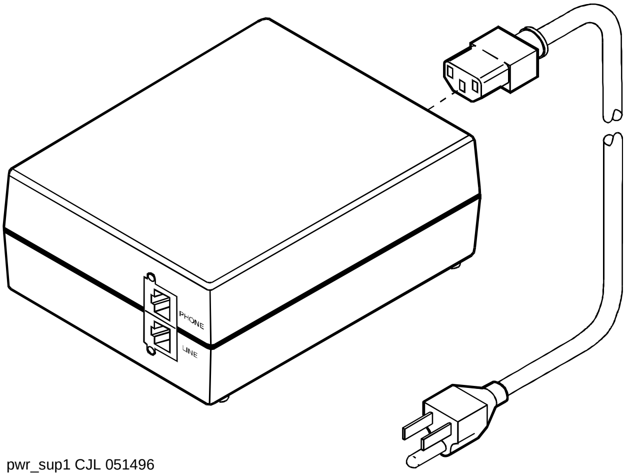


Figure 5-25. 1151A1/2 Power Supply — Front

BRI Terminating Resistor

The resistors balance the cable plant between the receiver and the transmitter on the interface. When using the TN2198 ISDN-BRI 2-Wire U Interface circuit pack, an NT1 is required. A terminating resistor is always required near the terminal when the BRI S-type interface circuit pack (TN556 BRI 4-Wire S-NT Line circuit pack) is used (see *#5ESS Switch Integrated Services Digital Network Customer Premises Planning Guide*, 533-700-100).

The resistor is built into the NT1 and can be 1 of 3 values, depending on the configuration and the distance from the NT1 to the ISDN terminal. The resistor value is controlled from the NT1. A terminating resistor adapter may be needed near the terminal and can be placed in the satellite closet or work location.

NOTE:
The 440A4 terminating resistor and 110RA1-12 terminating resistor block are UL listed. Most new installations are the 110RA1-12 terminating resistor block. The following installation instructions should be observed.

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

Terminating Resistor Adapter

Figure 5-26 shows an 8-pin 440A4 terminating resistor adapter. The adapter is 3 inches (7.6 cm) long with an 8-wide plug at 1 end, a short cord, and an 8-wide jack at the opposite end.

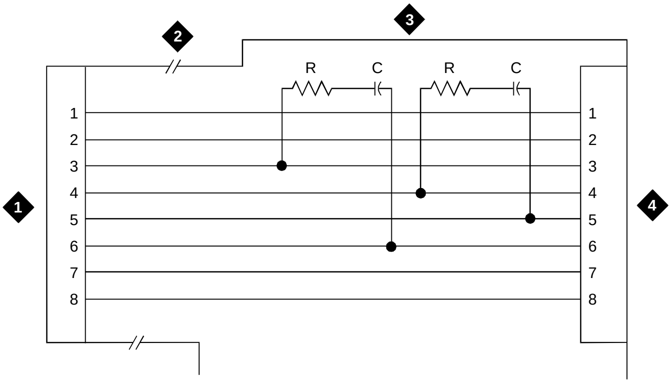


Figure Notes

1. 8-Wide Plug
2. Cord
3. Plastic Housing
4. 8-Wide Jack

Figure 5-26. 8-Wide Terminating Resistor Adapter (440A4)

Closet Mounted (110RA1-12)

The 110RA1-12 terminating resistor block is designed to mount in the telecommunications wire closet. It consists of twelve 2-pair circuits and provides the 100 Ohm termination used for ISDN-BRI circuits.

Figure 5-27 shows the wiring of the 110RA1-12. Three rows of 110D-4 connector blocks are mounted on a printed wire board along with circuit resistors and capacitors. The bottom row is designated as the input row and the top and middle rows are designated as the output rows. The circuit assembly is mounted on a standard 110A-100 pair mounting base. The 110RA1-12 is shipped with preprinted designation strips to simplify circuit identification and installation.

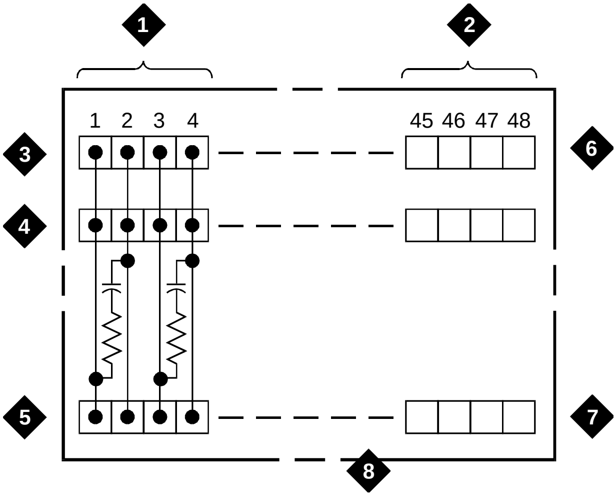


Figure Notes

1. Circuit 1
2. Circuit 12
3. Output Row “A”
4. Output Row “B”
5. Input Row “C”
6. Only First Circuit Shown to All 12 Circuits (2APR) Per Block
7. 110D-4 Connector Block
8. Printed Circuit Board Mounted on Standard 110A or 100APR Block

Figure 5-27. Terminating Resistor Block (110RA1-12)

Figure 5-28 shows the wiring connections for the 110RA1-12 terminal block. The TN556 Basic Rate Interface (BRI) switch port is terminated to bottom row C.

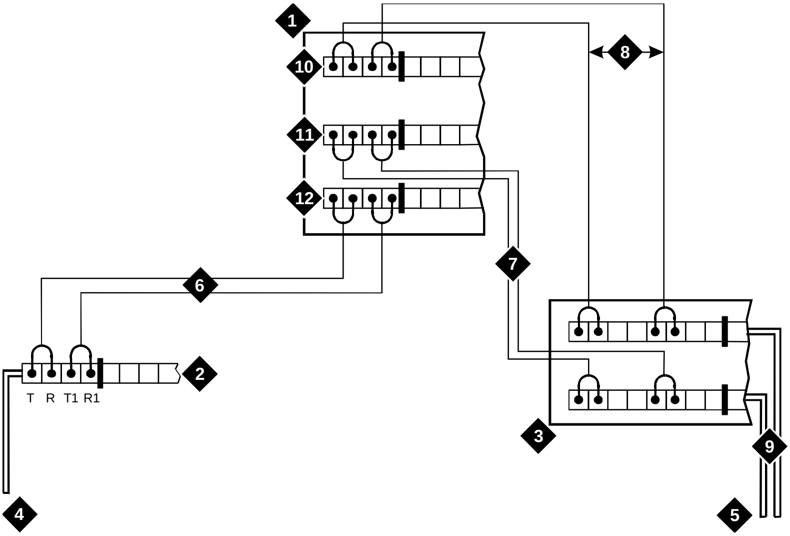


Figure Notes

1. Part of Terminating Resistor Block
2. White or Purple Field
3. Part of 4-Pair Blue Field
4. From ISDN T-interface Circuit (2-Pair)
5. To ISDN S/T-interface terminals
6. 2-Pair Cross-Connect
7. Basic Multi-point Option
8. 2-Pair Cross-Connect
9. 4-Pair Horizontal Cables
10. Row “A”
11. Row “B”
12. Row “C”

Figure 5-28. Typical Installation of Terminating Resistor Block (110RA1-12)

For point-to-point wiring, the top row connects to the blue station field. The pair connects from the 110RA1-12 to the standard 4-pair circuit. Pair 1 from the 110RA1-12 connects to Pair 1 of the station field, and Pair 2 connects to Pair 3 of the station field.

Two terminal basic multipoint applications are accommodated by connecting row B (output) to the second terminal common to the multipoint circuit.

Multi-point Adapters

Multi-point Adapters are used to provide signal fanout of the T-interface. Fanout can be performed at the work station by the BR851-B or the 367A. These adapters support more than one ISDN terminal per horizontal 4-pair D-inside wire (DIW). To support multiple horizontal runs, perform fanout in the satellite closet by an MDF with multiple common rows. The 110RA1-12 provides fanout for 2 horizontal runs and contains the 100 Ohm terminating resistor. This can be used for Basic Multi-point or point-to-point with terminating resistor in the closet. Other fanout blocks include the 110AB1-025M and the 110AB1-050M.

BR851-B Adapter (T-Adapter)

The BR851-B supports 2 terminals on 1 multi-point BRI at the work station. It is a T-shaped device used to fanout transmission and power. The BR851-B is an 8-pin device with a single plug and 2 jacks. See Figure 5-29.

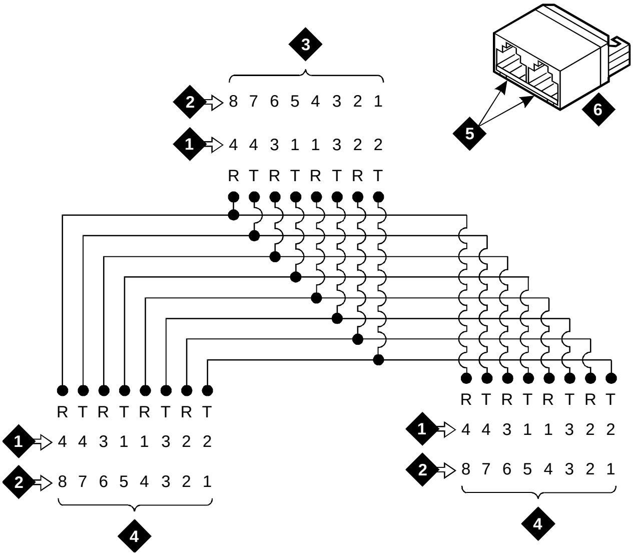


Figure Notes

1. Wire Pairs
2. Pin Numbers
3. Modular Plug (Male)
4. Female
5. Two 8-pin Modular Jacks
6. T-Type Adapter

Figure 5-29. Wiring Diagram of BR851-B

367A Adapter

The 367A adapter provides fanout. See Figure 5-30. It can provide inputs to up to 7 terminals. The 367A is an 8-conductor adapter and can be is used at the work location for bridging 3 to 7 terminals.

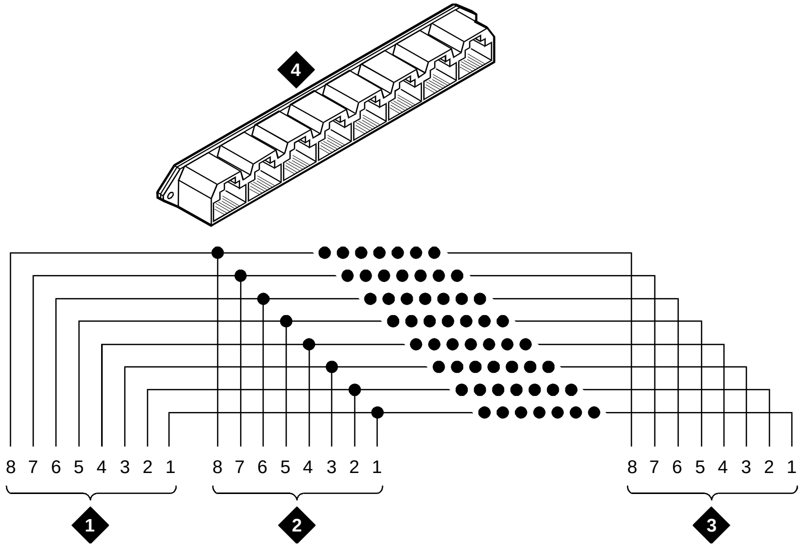


Figure Notes

1. Jack 1
2. Jack 2
3. Jack 8
4. 367A Adapter

Figure 5-30. Wiring Diagram of 367A

Basic Multipoint Installation Distances

Figure 5-31 provides cabling information for fan-out of ISDN-BRI multi-point installations. The terminating resistor is generally located in the satellite closet. All distances assume 24 AWG (#5) (0.26 mm^2) D-Inside Wire (DIW).

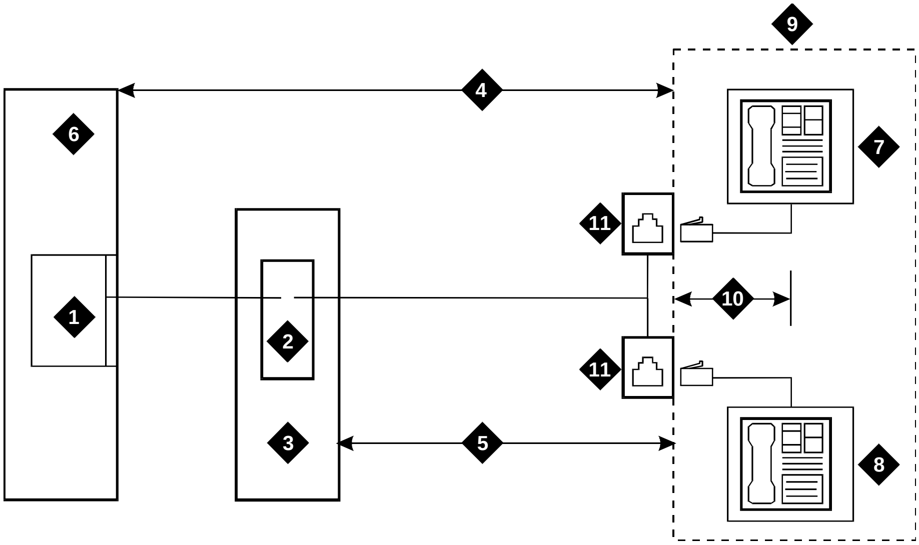


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Figure Notes

1. S-Interface Source (TN556)
2. Terminating Resistor
3. Satellite Closet
4. Maximum Distance from S-Interface Source to Work Location (1600 Feet) (488 m)
5. Maximum Distance From Satellite Closet to Work Location (250 Feet) (76 m)
6. System Cabinet
7. Terminating Endpoint 1
8. Terminating Endpoint 2
9. Work Location
10. Maximum Distance from Information Outlet to Terminating Endpoint (33 Feet) (10 m)
11. Information Outlet (Bridged Tap)

Figure 5-31. Basic Multi-point with 1 Work Location

Add Circuit Packs

When installing additional features or equipment, it may be necessary to install additional port circuit packs. See Table 5-19 for a list of circuit packs. This is a general procedure to use when adding features or equipment that require adding circuit packs.

CAUTION:

The control circuit packs with white labels cannot be removed or installed when the power is on. The port circuit packs with gray labels (older version circuit packs had purple labels) can be removed or installed when the power is on.

1. Log onto the system and answer **y** to the *Suppress Alarm Origination* question during login.
2. Install the circuit pack into the carrier.
3. Log off the system after the addition (and any required administration) is complete.

NOTE:

If North American and non-United States circuit packs appear in the same row of a table, those circuit pack codes ordinarily used in North America appear in bold font to help distinguish these circuit packs from their non-United States counterparts. If only circuit packs commonly used for non-United States applications appear in a row of a table, the circuit-pack codes are enclosed in parentheses. If only circuit packs commonly used in North America appear in a row of a table, the circuit pack codes are enclosed in square brackets.

For information about connecting and administering non-United States circuit packs, refer to the Application Notes in *DEFINITY Enterprise Communications Server Release 8 Administrator’s Guide*.

List of Circuit Packs

Table 5-19 lists the circuit packs sorted by apparatus code, including circuit packs used in non-United States installations. For more information on the circuit packs and other equipment, refer to *DEFINITY Enterprise Communications Server Release 8 System Description Pocket Reference*.

Table 5-19. Circuit Packs and Circuit Modules

Apparatus Code	Name	Type
631DA1	AC Power Unit (MCC) (+5V, 60A)	Power
631DB1	AC Power Unit (MCC) (-48V/-5V,8A)	Power
644A1	DC Power Unit (MCC) (+5V, 60A)	Power
645B1	DC Power Unit (MCC) (-48V, 8A)	Power
649A	DC Power Unit (MCC) (-5, +5, -48V)	Power
982LS	Current Limiter for si only (PPN)	Power
CFY1B	Current Limiter for r only	Power
CPP1	Memory Expansion	Control
ED-1E546-70 (TN2169) (TN2170) (TN566) (TN567)	DEFINITY AUDIX R3 (Circuit-Pack Assembly) (being replaced by ED-1E568	Application
ED-1E546-70 (TN2208) (TN2170)	CallVisor ASAI/DEFINITY LAN Gateway R1 (Circuit-Pack Assembly)	Application
J58890MA-1 (TN801)	Multi Application Platform DEFINITY (Circuit Pack Assembly) List 2 for Call Visor, ASAI, LAN Gateway R2 List 10 for IP Trunk List 20 for CV ASAI, CentreVu Computer Telephony, BCMS Vu List 30 for IP Solutions	Application
TN417	Auxiliary Trunk (replaced by TN763D)	Trunk
TN419B	Tone-Clock (Italy, Australia and the United Kingdom, replaced by TN2182B)	Control

Continued on next page

Table 5-19. Circuit Packs and Circuit Modules — *Continued*

Apparatus Code	Name	Type
TN420B/C	Tone Detector (replaced by TN2182B or TN744D)	Service
TN429/B	Direct Inward/Outward Dialing (DIOD) Trunk (Japan)	Port
TN429C/D	Analog Central Office Trunk (with CAMA)	Port
TN429D	Analog DIOD Trunk - Analog Loop Start	Port
TN433	Speech Synthesizer (Italian)	Service
TN436B	Direct Inward Dialing Trunk (Australia)	Port
TN437	Tie Trunk (Australia, replaced by TN760D)	Port
TN438B	Central Office Trunk (Australia)	Port
TN439	Tie Trunk (Australia and Japan)	Port
TN447	Central Office Trunk	Port
TN457	Speech Synthesizer, British English	Service
TN458	Tie Trunk for the United Kingdom (replaced by TN760D)	Port
TN459B	Direct Inward Dialing Trunk for the United Kingdom	Port
TN464C/D/E/F	DS1 Interface - T1, 24 Channel - E1, 32 Channel	Port
TN465/B/C	Central Office Trunk (Multi-Country, 16-kHz PPM)	Port
TN467	Analog Line for the United Kingdom and Australia (replaced by TN2183)	Port
TN468B	Analog Line for the United Kingdom and Australia (replaced by TN2183) (16 ports)	Port
TN479	Analog Line (16 ports)	Port
TN497	Tie Trunk - Italy	Port
TN553	Packet Data Line	Port
TN556/B/C/D	ISDN Line (12-BRI-S-NT)	Port
TN570/B/C	Expansion Interface	Port
TN572	Switch-Node Clock for r only	Control
TN573B	Switch-Node Interface for r only	Control
TN574	DS1 Converter (replaced by TN1654) (G3rV2 and later)	Port

Continued on next page

Table 5-19. Circuit Packs and Circuit Modules — *Continued*

Apparatus Code	Name	Type
TN722B	DS1 Tie Trunk (replaced by TN767B/C/D/E) (24 ports)	Trunk
TN725B	Speech Synthesizer, United States English	Service
TN726B	Data Line (8 ports)	Line
TN735	MET Line (4 ports)	Line
TN742	Analog Line (8 ports) (replaced by TN746B)	Line
TN744B/C/D	Call Classifier Tone Detector, Multi-Country	Service
TN746B	Analog Line (US and Canada Offer A Only) (16 ports)	Line
TN747B	Central Office Trunk(8)	Trunk
TN748B/C/D	Tone Detector (replaced by TN2182B)	Service
TN750B/C	Announcement	Service
TN753B	Direct Inward Dialing Trunk (8 ports)	Trunk
TN753/B	Direct Inward Dialing Trunk	Port
TN754/B/C	Digital Line 4-Wire DCP	Port
TN755/B	Neon Power Unit	Power
TN756	Tone Detector/Generator (XE) (replaced by TN2182B)	Service
TN758	Pooled Modem (2 ports)	Port
TN760D/E	Tie Trunk (4 ports)	Trunk
TN762B	Hybrid Line (8 ports)	Line
TN763B/C/D	Auxiliary Trunk (4 ports)	Trunk
TN767B/C/D/E	DS1 Interface - T1, 24 Channel	Port
TN768	Tone-Clock (replaced by TN2182B)	Control
TN769	Analog Line (8 ports) (Neon)	Line
TN771B/C/D	Maintenance Test	Service
TN773	Processor	Control
TN775/B/C	Maintenance (EPN)	Service
TN776	Expansion Interface (si only)	Port
TN780	Tone Clock (all models except csi, Stratum 3)	Control

Continued on next page

Table 5-19. Circuit Packs and Circuit Modules — *Continued*

Apparatus Code	Name	Type
TN787F/G/H/J/K	Multimedia Interface	Service
TN788B	Multimedia Voice Conditioner	Service
TN789	Radio Controller	Control
TN790B	Processor (R7 si and later)	Control
TN791	Analog Guest Line (16 Port)	Line
TN792	Duplication Interface (for TN790B Processor Circuit Packs, si only)	Control
TN793B	24-Port Analog Line	Line
TN794	Network Control/Packet Interface for si only	Control
TN799B	Control-LAN (C-LAN)	Port
TN800	Multi-Application Platform for DEFINITY (MAPD)	Port
TN801	Multi-Application Platform for DEFINITY (MAPD)	Port
TN802B	IP Interface Assembly	Port
TN1648/B	System Access/Maintenance (SYSAM)	Control
TN1650B	Memory (32MB) for r only	Control
TN1654	DS1 Converter - T1, 24 Channel/E1, 32 Channel	Port
TN1655	Packet Interface	Control
TN1657	Disk Drive	Control
TN2135	Analog Line	Port
TN2136	Digital Line 2-Wire DCP	Port
TN2138	Central Office Trunk (Italy, Loop Start)	Port
TN2139	Direct Inward Dialing Trunk (Italy)	Port
TN2140/B	Tie Trunk (Hungary, Italy)	Port
TN2144	Analog Line (The Netherlands, replaced by TN2183) (16 port)	Port
TN2146	Direct Inward Dialing trunk (Belgium and The Netherlands)	Port
TN2147/C	Central Office Trunk (without PPM, replaces TN447)	Port

Continued on next page

Table 5-19. Circuit Packs and Circuit Modules — *Continued*

Apparatus Code	Name	Type
TN2149	Analog Line for Belgium (replaced by TN2183) (16 port)	Port
TN2180	Analog Line	Port
TN2181	Digital Line (16-ports DCP-2-Wire)	Port
TN2182/B	Tone-Clock -Tone Detector and Call Classifier	Control
TN2183	Analog Line, Multi Country with DSLAC	Port
TN2184	DIOD Trunk (Germany)	Port
TN2185B	ISDN (4-Wire S/T-TE Interface, 8 ports)	Port
TN2198	ISDN Line (4-Wire BRI-U-NT, 8 ports)	Port
TN2199	Central Office Trunk (Russia)	Port
TN2202	50-Hz Ring Generator (France)	Power
TN2207	DS1 Interface - T1, 24 Channel - E1, 32 Channel	Port
TN2209	Tie Trunk (Russia)	Port
TN2210	Tone Generator (1780 Hz)	Service
TN2211	Optical Drive (replaces TN1656)	Control
TN2214B	Digital Line, 24-Port, 2-Wire DCP - Category B	Port
TN2215	Analog Line, 16-Port, 2-Wire - Category B	Port
TN2224/B	Digital Line, 24-Port, 2-Wire DCP	Port
TN2301	Logic Switch (for r only, Survivable Remote EPN)	Switch
TN2305	DEFINITY ATM Interface (Multi-Mode fiber, Port Network Connectivity, CES Trunk)	Port
TN2306	DEFINITY ATM Interface (Single-Mode Fiber, Port Network Connectivity, CES Trunk))	Port
TN2464	DS1 Interface - T1, 24 Channel - E1, 32 Channel	Port
TN2793	Analog Line 24-Port - Category B	Port
UN331B	Processor	Control
UN332C	MSS Network Control (for r only; used with the TN2211 Optical Drive)	Control

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 1 port of either an 8-port TN747 or to 1 of an assortment of non-United States CO Trunk circuit packs.

Installation

1. Determine the port assignment of the trunk from Trunk Group screen. For example:

3	A	07	01
Cabinet (Port Network)	Carrier	Slot Number	Port Number

2. See “Off-Premises Station Wiring” on page 5-33 and install a TN747 or a non-United States CO trunk circuit pack in the assigned carrier slot (if an additional circuit pack is required).
3. Administer the forms listed under CO, FX, WATS, or PCOL Trunk Group in *DEFINITY Enterprise Communications Server Release 8 Administrator’s Guide*.

Add DID Trunks

Requirements

Each Direct Inward Dial (DID) trunk connects to 1 port of an 8-port TN753 or to 1 of an assortment of non-United States DID trunk circuit packs.

Installation

1. Determine the port assignment of the trunk from Trunk Group form. For example:

3	A	07	01
Cabinet (Port Network)	Carrier	Slot Number	Port Number

2. See“Off-Premises Station Wiring” on page 5-33 and install a TN753 or a non-United States 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 8 Administrator’s Guide*.

Add Tie Trunks

Requirements

Each tie trunk connects to 1 port of a 4-port TN760 or to an assortment of non-United States tie trunk circuit packs.

Installation

1. Determine the port assignment of the trunk from Trunk Group form

3	A	07	01
Cabinet (Port Network)	Carrier	Slot Number	Port Number

2. Install a TN760 or a non-United States tie trunk circuit pack in the 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 5-32 and Table 5-20 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 *DEFINITY Enterprise Communications Server Release 8 Administrator’s Guide*.

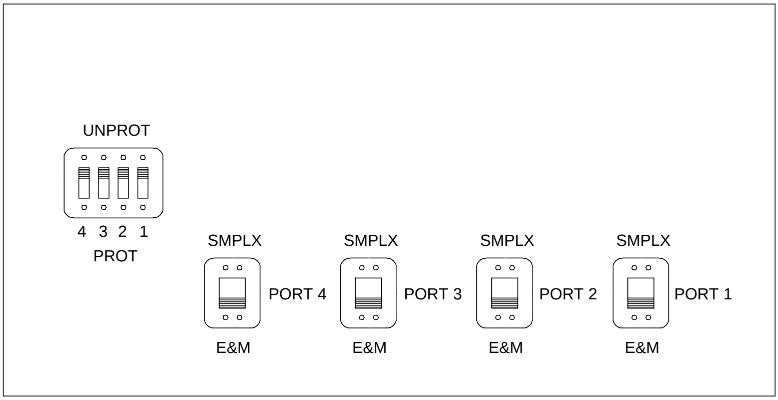


Figure 5-32. Tie Trunk Circuit Packs (Component Side)

Table 5-20. Tie Trunk Option Switch Settings and Administration

Installation Situation		**Preferred Signaling Format**		**E&M/SMPLX Switch**	**Prot/Unprot Switch**	**Administered Port**
Circumstance	**To**	**System**	**Far-End**			
Co-Located	DEFINITY	E&M Type 1 Compatible	E&M Type 1 Standard	E&M	Unprotected	Type 1 Compatible
Inter-Building	DEFINITY	Protected Type 1 Compatible	Protected Type 1 Standard Plus Protection Unit	E&M	Protected	Type 1 Compatible
Co-Located	Net Integrated	E&M Type 1 Standard	Any PBX	E&M	Unprotected	Type 1

Add DS1 Tie and OPS

The TN722B DS1 Tie Trunk, TN767C (or later) DS1 Interface, and TN464C DS1 Interface circuit packs provide connections to a 1.544 Mbps or 2.08 Mbps DS1 facility as 24 independent 64 kbps trunks. When upgrading from a TN722 to a TN767C:

1. Remove all TN722 trunk members from affected trunk groups.
2. Type **remove ds1 PCSS** (PCSS is the slot containing the TN722).
3. Remove the TN722 circuit pack.
4. Put the TN767C circuit pack into the same slot.
5. 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.
6. If the red LED stays on, reseat the board and repeat this step.
7. Type **add ds1 PCSS**.
8. 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.

Disable Alarm Origination

1. Type **change system-parameters maintenance** and press Enter.
2. Set the `Alarm Origination Activated` field to **n**.

> ⚠ **WARNING:**
> *If you do not disable Alarm Origination, the system may generate alarms, resulting in unnecessary trouble tickets.*

3. For some releases of software, disable `Cleared Alarm Notification` and `Restart Notification` before submitting the form.

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the "active/standby" mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation card or removable media.
3. If the system contains a TN750/B Announcement circuit pack, type **display announcements** and press Enter. If administered recorded announcements are listed, type **list configuration software-version** press Enter. Check Page 2 of this form to see when the announcements were last saved. To save the current announcements, type **save announcements** and press Enter.

Shut Down DEFINITY LAN Gateway 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.

⚠ **CAUTION:**

Save the system parameters if you plan to reuse the current system.

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

Shut Down DEFINITY AUDIX System

⚠ **WARNING:**

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

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

Power Down System

NOTE:
Power down the PPN only if the existing Tone-Clock is being replaced in a standard reliability system.

1. At the PPN, set the main circuit breaker to OFF.
2. At each EPN, set the main circuit breaker to OFF.

Add Circuit Packs

1. Determine the port assignments of the circuit packs to be added.
2. Install the TN722B DS1 Tie Trunk, the TN767C DS1 Interface, or TN464C DS1 Interface circuit pack in assigned carrier slot.
3. Replace an existing TN756 Tone Detector/Generator circuit pack with:
   a. TN768, TN780, or a non-United States TN419B Tone-Clock
   b. TN748B or a non-United States TN420B Tone Detector

Install Cables

Install H600-307 cable from the cabinet to a Channel Service Unit (CSU) and install cables from the CSU to the MDF as required.

Power Up System

1. At each EPN, set the main circuit breaker to ON.
2. At the PPN, set the main circuit breaker to ON.
3. The system performs the level 4 rebooting process, loading the system translations from the translation card or removable media. Rebooting takes 8 to 11 minutes.
4. 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 Tie Trunk Service” in *DEFINITY Enterprise Communications Server Release 8 Administrator’s Guide*.

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the “active/standby” mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation card or removable media.
3. If the PPN contains a TN750 Announcement circuit pack, type **list configuration software-version** and press Enter.

   If Page 2 of this form shows that recorded announcements were saved, these announcements can be restored using the restore announcements command. Type **restore announcements** and press Enter.

Resolve Alarms

Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 8 Maintenance R8si*.

Enable Customer Options and Alarm Origination to INADS

1. Get the DOSS order number of the upgrade from the project manager and ask the regional Customer Software Administration to complete the steps in the shaded box. See “Where to Call for Technical Support” on page xvii for telephone numbers.

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

2. When administration is completed, log in as **craft** at the `Login:` prompt.

Administration:

1. Log in as **init** at the `Login:` prompt.
2. Type **change system-parameters customer-options** and press Enter to verify that the customer options are properly set.
3. Go to screen 6, QSIG Optional Features, and set the `Basic Call Setup` field to **y** if the customer was using Supplementary Services Protocol b or d on an ISDN-PRI trunk group before the upgrade.
4. Type **change system-parameters offer-options** and press Enter.
5. Set the `Activate Offer` field to **y** and press Tab. A warning message lets you know the offer category along with the model to determine the system capacities (limits) and allowable hardware.
6. Press Enter to effect the changes.
7. When done, contact the field technician.
8. Contact the requester when done.

Add Speech Synthesis

The Speech Synthesizer circuit pack is required when the Voice Message Retrieval, Automatic Wakeup, or Do Not Disturb features are activated. The circuit pack does not require administration.

1. Determine the port assignment of the Speech Synthesizer circuit pack to be added.
2. Install the TN725B Speech Synthesizer circuit pack in the designated carrier slot.

Add Code Calling Access

The tones for the Code Calling feature are generated by the Tone-Clock circuit packs in the port networks.

1. Install a TN763 (or a non-United States TN417) Auxiliary Trunk circuit pack or a TN457 Speech Synthesizer circuit pack and connect for Loudspeaker Paging. The Code Calling Access feature shares the same ports as Loudspeaker Paging. An Auxiliary Trunk circuit pack provides 4 ports for Loudspeaker Paging and Code Calling Access.
2. Administer the form listed under “Code Calling Access” in *DEFINITY Enterprise Communications Server Release 8 Administrator’s Guide*.

Add Pooled Modem

Modem Pooling supports 2 kinds of conversion resources: integrated and combined.

The integrated type requires a TN758 Pooled Modem circuit pack for each 2 conversion resources provided.

The combined type requires a port on a TN754B Digital Line circuit pack and a port on either an 8-port TN742, TN769; a 16-port TN746B; or a 24-port TN793/B, TN2793/B Analog Line circuit pack for each conversion resource provided.

The pooled modem requires a Lucent WP90110 **L7** power supply. Although an integrated conversion resource can use either the L5 or L7, the combined only works with an L7.

⚠ **CAUTION:**

The L5 and L7 power supplies look identical. Check the list number on the power supply before installing.

1. Determine the port assignment of the circuit packs to be added (if required).
2. Install the appropriate circuit packs in assigned carrier slot (if required).
3. For Paradyne 3800 Series modems:
    a. Type **AT&F&D2&S4\D3S2=128x7V2S7=60S85=1** and press Enter.
    b. Type **ATY0S10=100S78=2M0E0\N1&W** and press Enter.
4. For other types of modems, refer to the vendor’s documentation.

Settings for Modem Connected to Data Module

1. Type **add data-module next** and press Enter.
2. Type **pdm** in the `Type` field.
3. Type **x** in the `Port` field.
4. Type **dte** in the `Connected to` field and press Enter.
5. Type **add station next** and press Enter.
6. Type **2500** in the `Type` field.
7. Type **x** in the `Port` field.
8. Type **n** in the `Tests` field and press Enter.
9. Type **add modem-pool next** and press Enter.
10. Type **combined** in the `Group Type` field.
11. Type **5** in the `Hold Time (min)` field.
12. Type **two-way** in the `Direction` field.
13. Type **9600** in the `Speed` field.
14. Type **Full** in the `Duplex` field.
15. Type **async** in the `Synchronization` field.
16. Type the port pair assignments in the `Analog` and `Digital` fields and press Enter.

Settings for Modem Connected to the Data Terminal Equipment (DTE)

1. Type **add station next** and press Enter.
2. Type **2500** in the `Type` field.
3. Type the port assignment in the `Port` field and press Enter.

Add External Modem to EPN

U.S. Robotics Model USR 33.6 EXT External Modem

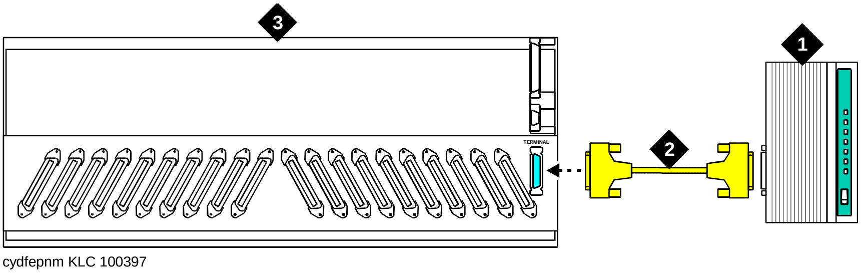


Figure Notes:

1. U.S. Robotics External Modem
2. RS-232 Cable
3. Expansion Port Network

Figure 5-33. Connect External Modem to EPN

1. Connect an RS-232 cable to the modem. See Figure 5-33.

   NOTE:
   In the following steps, a PC with Windows 95 or Windows NT 4.0 may be substituted for the dumb terminal. Use the Hyperterminal (terminal emulation) application.

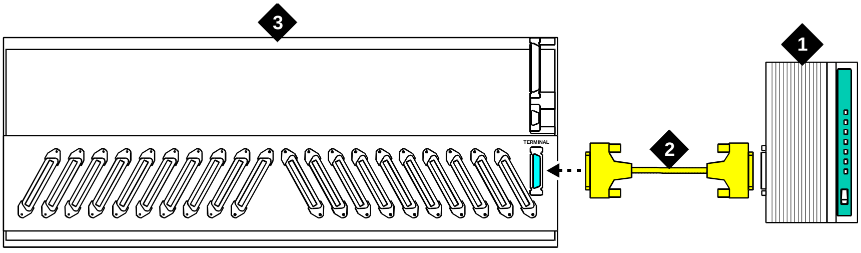
2. Connect the opposite end of the RS-232 cable to a dumb terminal.
3. Set the dumb terminal to full duplex mode.
4. Type **AT&N6** to set the baud rate to 9600.

   NOTE:
   The modem connects at 9600 baud but throughput is at 1200 baud.

5. Type **AT&W0** to save the setting into non-volatile RAM.
6. Set Switch 5 to the OFF (up) position to disable auto answer.
7. Disconnect the RS-232 cable from the terminal and connect it to the TERMINAL connector on the rear of the system cabinet.

Add External Modem to PPN

U.S. Robotics Model USR 33.6 EXT External Modem



cydfepnm KLC 100397

Figure Notes:

1. U.S. Robotics External Modem
2. RS-232 Cable
3. Processor Port Network

Figure 5-34. Connect External Modem to PPN

1. Connect an RS-232 cable to the modem. See Figure 5-34.

   NOTE:
   In the following steps, a PC with Windows 95 or Windows NT 4.0 may be substituted for the dumb terminal. Use the Hyperterminal (terminal emulation) application.

2. Connect the opposite end of the RS-232 cable to a dumb terminal.
3. Set the dumb terminal to full duplex mode.
4. Type **AT&N6** to set the baud rate to 9600.

   NOTE:
   The modem connects at 9600 baud but throughput is at 1200 baud.

5. Type **AT&W0** to save the setting into non-volatile RAM.
6. Set Switch 5 to the OFF (up) position to disable auto answer.
7. Disconnect the RS-232 cable from the terminal and connect it to the TERMINAL connector on the rear of the system cabinet.

Add External Modem to TN1648B

Use a type approved external modem.

Unpack and Inspect

1. Verify the equipment received. See Figure 5-35. Actual equipment may vary in appearance and may ship in separate packages.
2. See Table 5-21 for a list of part comcodes.

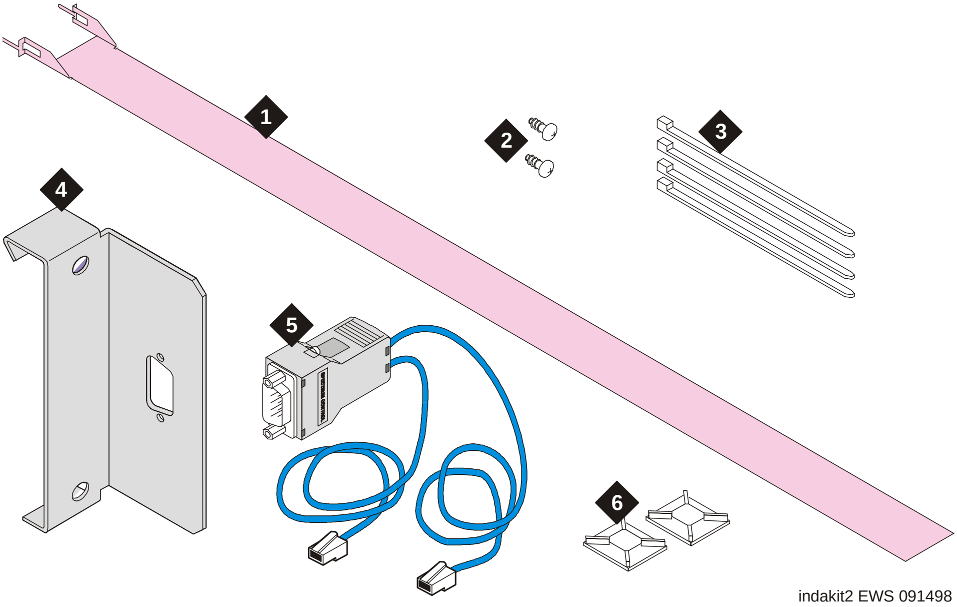


Figure Notes

1. Pass-thru Tool	4. Panel Adapter Bracket
2. Machine Screw	5. Cable Assembly
3. Cable Tie	6. Cable Tie Mount

Figure 5-35. External Modem Pass-Thru Kit Equipment

Table 5-21. Parts List

Quantity	Description	Comcode
1	External modem pass-thru kit Kit includes: pass-thru tool, cable ties, panel adapter bracket, machine screws, and cable tie mounts.	848239596
1	Cable Assembly	H600-497

Cabinet Preparation

1. Open the front door.

   NOTE:
   Administration may be required before removing the circuit pack in the following step.

2. Determine which slot will contain the new circuit pack. Remove the circuit pack or the apparatus blank from this slot.
3. Install the new circuit pack.
4. From the front, remove the fan cover. See Figure 5-36.

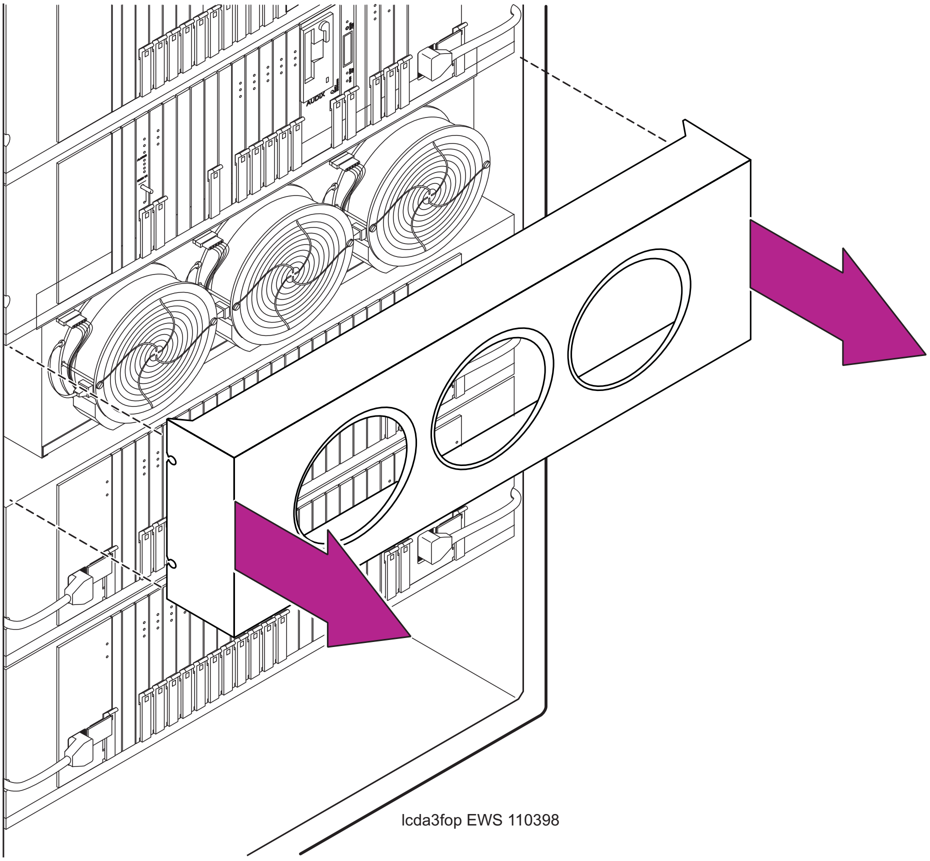
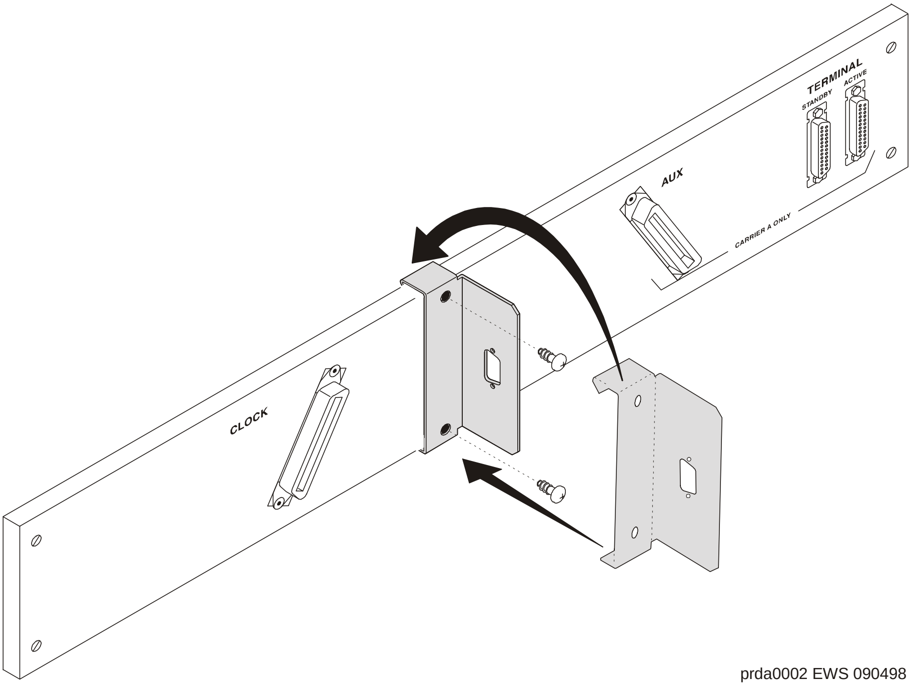


Figure 5-36. Remove the Fan Cover

Install the Pass-thru Kit

1. Open the rear door.
2. Attach the panel adapter bracket. See Figure 5-37.
3. Insert the cable assembly. See Figure 5-38.



prda0002 EWS 090498

Figure 5-37. Attach the Panel Adapter Bracket

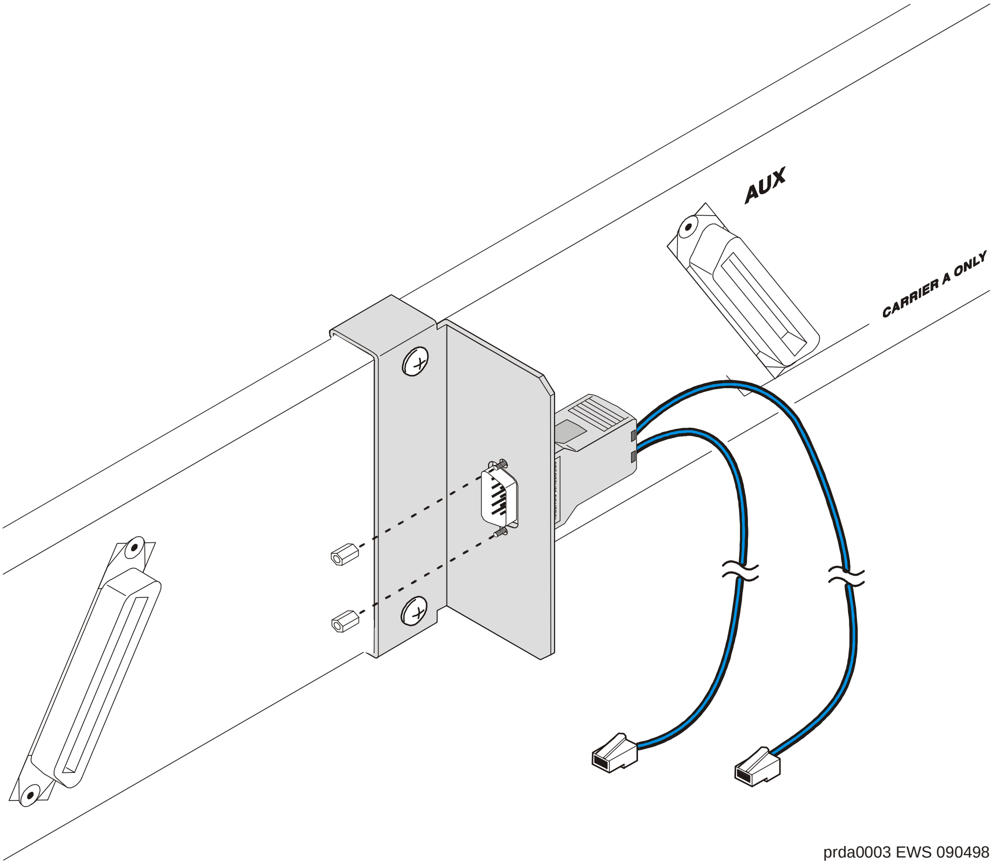


Figure 5-38. Attach the Cable Assembly to the Bracket

4. Connect the external modem cable to the cable assembly.
5. Attach the RJ45 (telephone plug) to the pass-thru tool using a tie wrap. See Figure 5-39. If you are using only one RJ45, bundle the other one and tie wrap it near the body of the cable assembly.

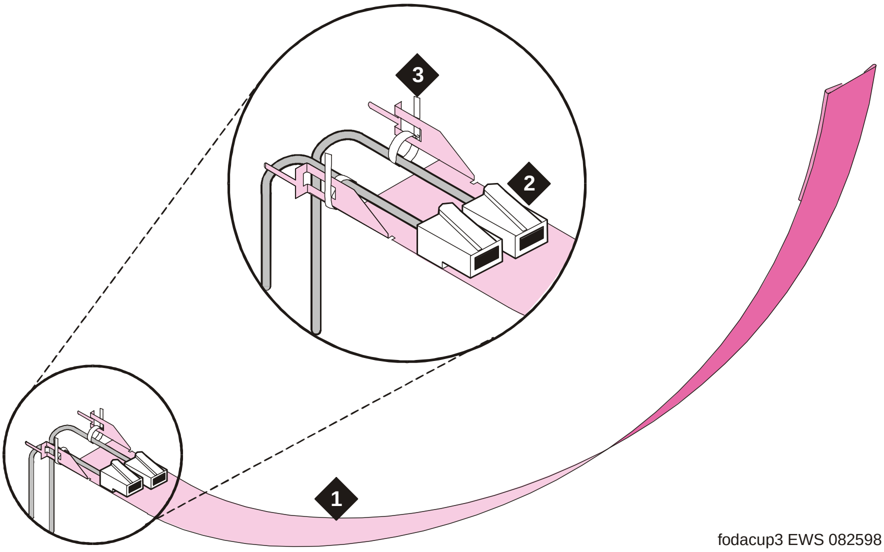
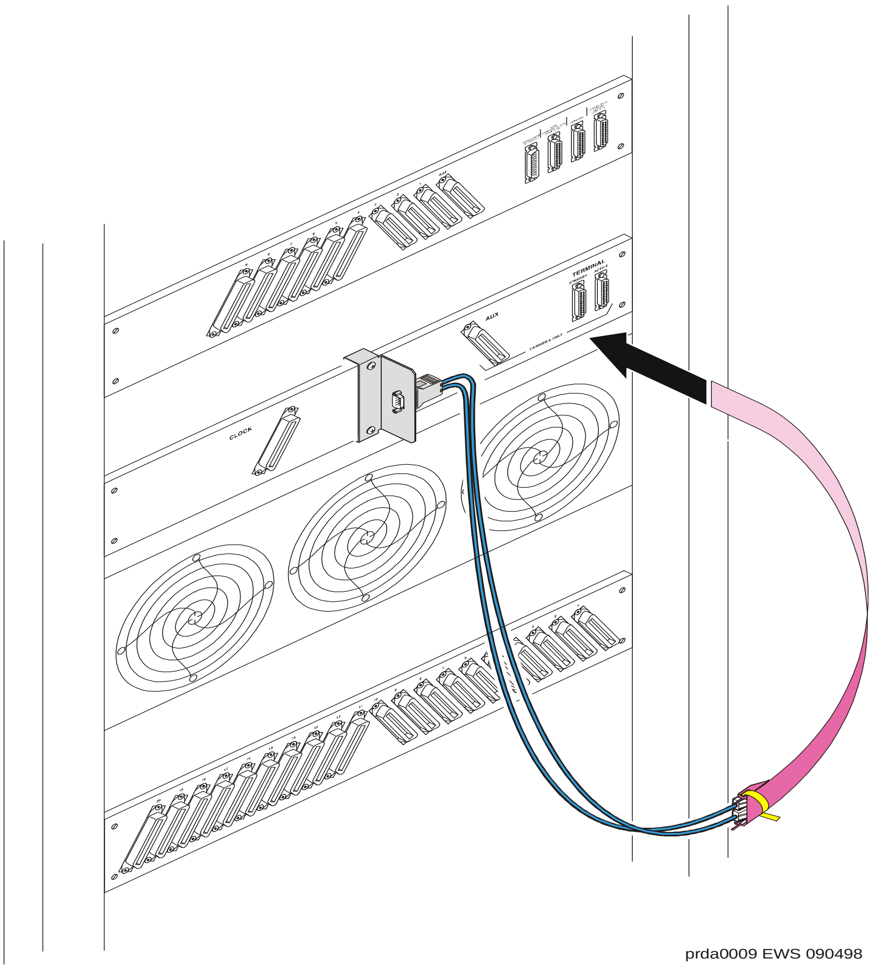


Figure Notes

1. Pass-thru Tool
2. RJ45 (Telephone Plug)
3. Tie Wrap

Figure 5-39. Attach the Cable to the Pass-Thru Tool

6. Slide the tool to the front of the cabinet. See Figure 5-40.
7. Pull the tool (with adapter and cable attached) out through the front of the cabinet.
8. Close the rear door.
9. Replace the fan cover. See Figure 5-41.



prda0009 EWS 090498

Figure 5-40. Insert the Pass-thru Tool

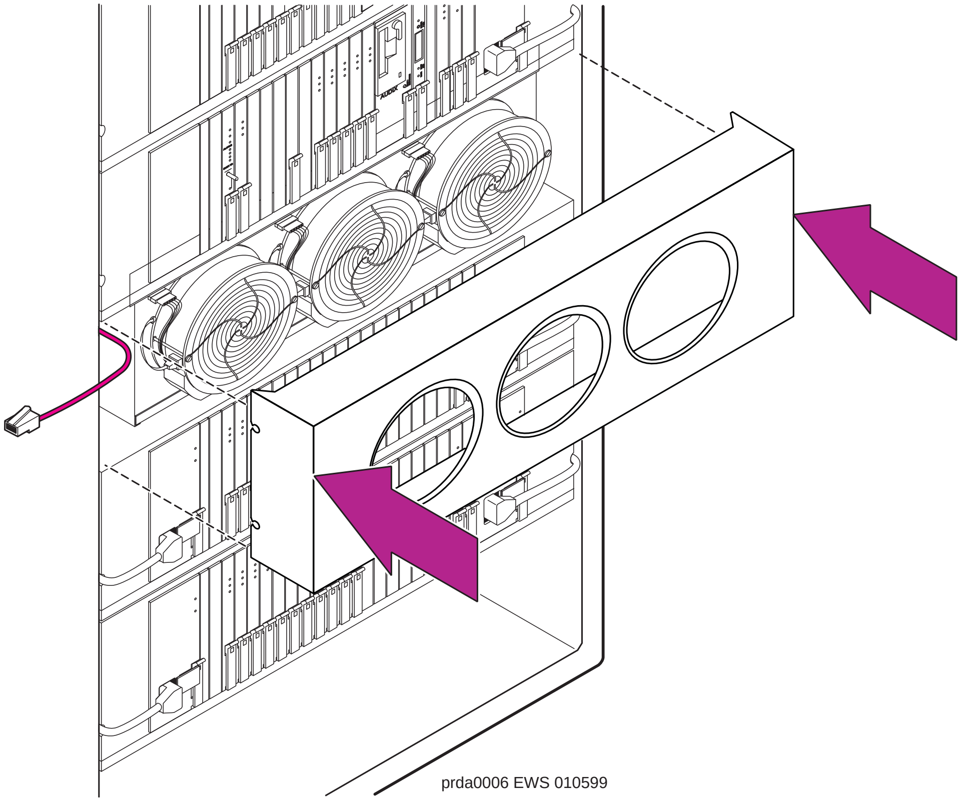


Figure 5-41. Replace the Fan Cover

10. Connect the cable to the front of the TN1648B circuit pack. See Figure 5-42.

    NOTE:
    Dress the cable straight down the front of the circuit pack. Do not allow the cable to cross in front of another circuit pack.

11. Attach the cable mount to the cabinet and secure the cable. See Figure 5-42.

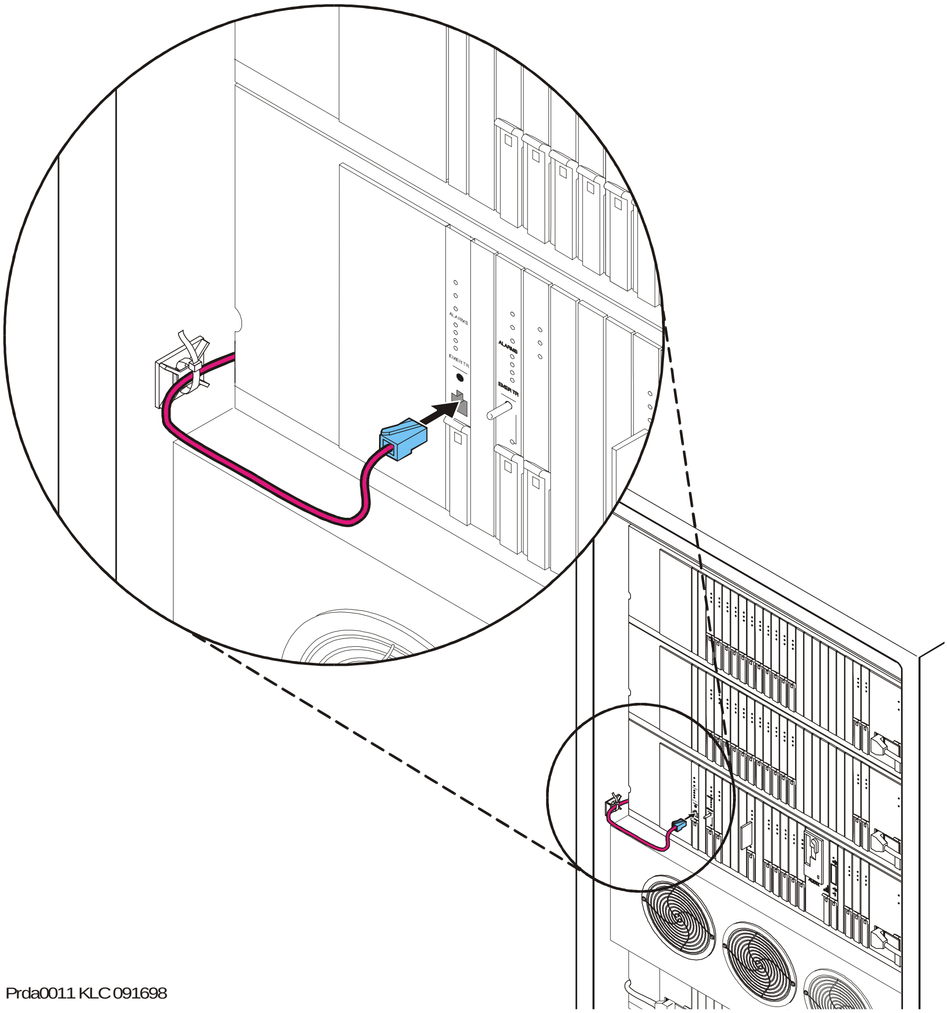


Figure 5-42. Connect the Cable to the TN1648B Circuit Pack

12. Close the front door.
13. Discard the pass-thru tool.

Test the Installation

1. Login to the management terminal.
2. Administer the system by referring to the *Installation and Test for Adjuncts and Peripherals, 555-230-125*.
3. Type **list configuration all** and press Enter to determine if the new circuit pack appears in the correct slot and that there are no circuit pack conflicts.

Add DCS Interface

Systems in a Distributed Communications System (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 provide the voice-communications interface.

Meanwhile, the data link interface (between the processor and the physical signaling link) is provided by (or through) a TN799 Control-LAN circuit pack. In some configurations, the TN799 passes the signaling information over a separate 10BaseT TCP/IP network (usually via a hub). For use with 10BaseT, connect the appropriate pins of the I/O field to the hub. For pinouts and diagrams, refer to the end of this chapter. In other configurations, the TN799 circuit pack carries signaling over point-to-point protocol (PPP) for subsequent inclusion (via the switching fabric) in the same DS1 bit stream as the DSC voice transmissions.

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.

For further information about DCS, refer to the following documents:

- *AT&T System 75/85 Network and Data Services Reference Manual*, 555-025-201
- *System 75 Application Notes Network Services*, 555-209-002
- *DEFINITY ECS Release 8 Administration for Network Connectivity*, 555-233-501

Add Circuit Packs

A DS1 circuit pack is required for Point-to-Point Protocol (PPP) connections. A TN799 Control-LAN circuit pack is required.

1. Determine the port assignments of the circuit packs to be added. If there are no available port slots in the processor cabinet for the Control-LAN circuit pack, place it in a R8 EPN cabinet port slot. You do not need to power down the cabinet to install the circuit pack.

Install Cables

1. Install cable from the cabinet to a hub or Internet Protocol (IP) Switch as required. Connect the 259A connector to the port slot containing the Control-LAN circuit pack. See Figure 5-43. For a pinout of TN799, see Table 5-22.

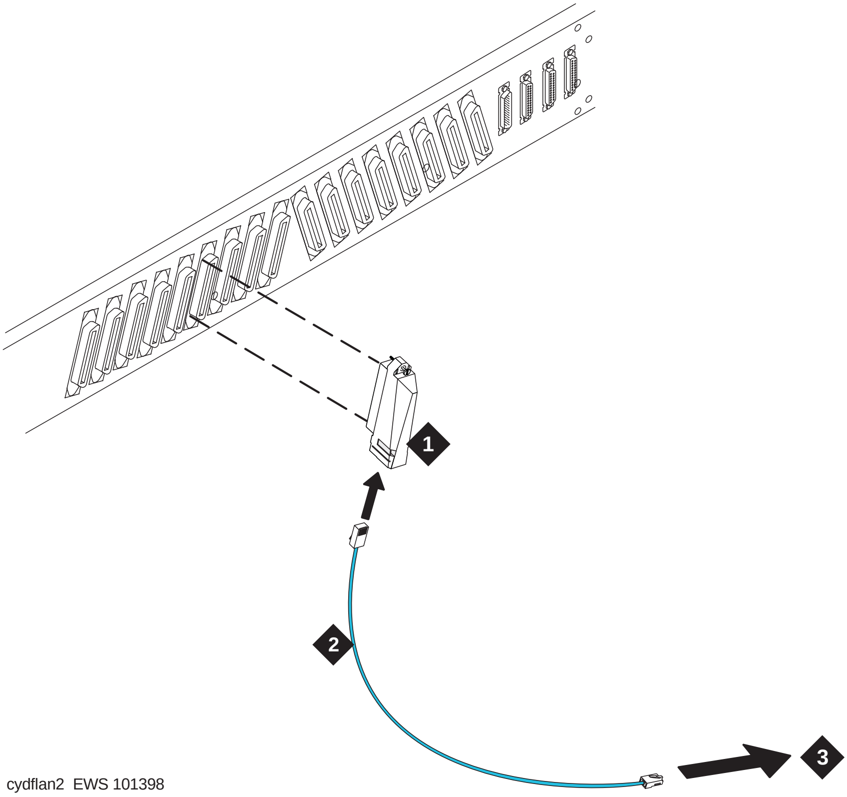


Figure Notes

1. 259A Connector
2. DW8 Cable
3. Hub or IP Switch

Figure 5-43. Cable Connection for Control-LAN

Table 5-22. TN799 Pinout

Backplane Pin	25-Pair Wire Color	Lead Name	Peripheral Connector Pin
103	White/Orange	TD+	27
003	Orange/White	TD-	2
104	White/Green	RD+	28
004	Green/White	RD-	3

Enter Added Translations

1. Get the DOSS order number of the upgrade. Call the regional CSA to perform the steps in this section.
2. To enable DCS, set the `DCS` field on the System Parameters-Customer Options form to **y**.
3. Administer the other required translation data using the forms listed under Distributed Communications System (DCS) in *DEFINITY Communications System Generic 4 V4 Implementation*, 555-230-655.

Save Translations

1. If the system is high- or critical-reliability, type **status spe** and press Enter to verify that the standby SPE is refreshed and that the standby disk is in service.
2. Type **save translation [spe-a or both] disk** and press Enter. This command instructs the system to take all translation information in memory and write it to the disk(s).

Add Multiple Announcement

TN750C Multiple Announcement circuit packs are required if the system has multiple announcement circuit packs. At least 1 TN750C circuit pack is required. A maximum of 10 TN750C Announcement circuit packs are allowed in a system. No more than 1 TN750 or TN750B can reside in the system. The TN750C can install in any port or service (TDM) slot, and need not reside in a control carrier for extra power holdovers.

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 Circuit Pack

The TN750C circuit pack contains on-board 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. 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 replace a TN750 or TN750B circuit pack. 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 for the TN750 or TN750B circuit pack reporting from the mass-storage system.

If a circuit pack already has announcements in its flash memory, the yellow LED flashes as the announcements copy to the Voice RAM.

Save and Restore Recorded Announcements

⚠ **CAUTION:**
If the yellow LED is on, do not remove the circuit pack. This will corrupt the announcement data.

The syntax for saving from any TN750 circuit pack is **save announcements** [from PCSS] and press Enter. Where P is the port network number (1 for PPN, and 2-4 for EPN), C is the carrier designation (A, B, C, D, or E), and SS is the number of the slot in which the circuit pack resides (01 to 21).

The syntax for restoring to a TN750C circuit pack is **restore announcements** [disk | removable media [to PCSS]] and press Enter. Where P is the port network number (1 for PPN, and 2-4 for EPN), C is the carrier designation (A, B, C, D, or E), and SS is the number of the slot in which the circuit pack resides (01 to 21). When executing a restore command and there are existing announcements on the circuit pack, the following warning message appears:

```
WARNING: This restore announcement command will overwrite
         the existing announcements on the specified
         board.
```

After 5 minutes (with no alterations to the announcements), the TN750C automatically copies the announcements from the Voice RAM to the internal flash memory. The yellow LED on the front of the TN750C flashes.

You can only save the announcement contents of 1 circuit pack to mass storage at a time. For the contents of every circuit pack, save to separate translation cards. Label each card to match the circuit pack saved to it.

TN750 and TN750B Announcement Circuit Packs

NOTE:
The following save and restore procedures are only necessary for TN750 and TN750B announcement circuit packs.

The recorded announcements in the system can be saved on the mass-storage system by typing **save announcements spe-active/spe-standby** and pressing Enter. 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 management terminal cannot be used to administer the system until the transfer finishes; 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 translation card by entering the `restore announcements` command.

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 to a TN750C.

NOTE:
Do not copy or restore announcements from a TN750C to a TN750 or TN750B circuit pack, as this may corrupt the announcement data.

1. Save announcements from the TN750/B to the mass-storage system.
2. Insert the TN750C circuit pack into a vacant slot of a carrier.

   NOTE:
   Any carrier is acceptable since power holdover is not a concern.

3. Lift the locking lever upward until the latch pin engages.
4. Administer a new data module on the TN750C circuit pack, as described in *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.
5. Type **restore announcements** and press Enter to the TN750C circuit pack equipment location.
6. Wait until announcements copy from voice RAM to flash memory (yellow LED on the TN750C stops flashing). This may take about 10 minutes.
7. Type **busyout board 01c11** and press Enter for the TN750/B circuit pack, where "**01c11**" is an example circuit pack location.
8. Type **change integrated announcements** and press Enter. 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. Type **release board 01c11** and press Enter for the TN750/B circuit pack, where "**01c11**" is an example circuit pack location.

Add TN750C Circuit Packs

1. Install the TN750C into a vacant slot in a carrier.

   NOTE:
   Any carrier is acceptable since power holdover is not a concern.

2. Administer a new data module on the TN750C circuit pack, as described in *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.
3. Administer new announcements to that TN750C slot by typing **change announcements** and press Enter. Fill in the "designated board location" field for the circuit pack's location.
4. Record the announcements, as described in *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.
5. Wait until the announcements copy from voice RAM to the on-board flash memory (the yellow LED on the TN750C starts and then stops flashing). This may take about 10 minutes.

Move a Single Announcement from 1 Announcement Circuit Pack to Another

1. Type **change announcements** and press Enter to change the circuit pack locations of a particular announcement. You may also change the compression rate at this time.
2. Rerecord the announcement, as described in *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.

Add ISDN — PRI

North American

1. Use a TN767E (or later) DS1 or a TN464F DS1/E1 circuit pack for a signaling link and up to 23 ISDN — PRI Trunk Group members.
2. Install a TN768, TN780, or TN2182B Tone-Clock circuit pack to provide synchronization for the DS1 circuit pack.

If a TN464 is used, packet bus support has not been added, and more than 8 PRI signaling groups are required, then see "Add Packet Bus Support" on page 5-105 for installing additional circuit packs for packet bus support.

As an option to the TN768 or TN2182B Tone-Clock, a TN780 Tone-Clock (installed in the PPN) can interface external Stratum 3 synchronization for DS1.

International

1. Install a TN464C (or later) DS1/E1 circuit pack for the assignment of the 2 signaling channels and up to 30 ISDN — PRI Trunk Group members. Each E1 span provides 32 ports.
2. Install a TN780, TN2182B, or TN419B Tone-Clock circuit pack to provide synchronization for the DS1/E1 circuit pack.

If packet bus support has not been added and more than 8 PRI signaling groups are required, then see "Add Packet Bus Support" on page 5-105 for installing additional circuit packs for packet bus support.

As an option to the TN2182B or TN419B Tone-Clock, a TN780 Tone-Clock (installed in the PPN) can interface external Stratum 3 synchronization for DS1.

Service Interruption

1. If packet bus support for G3si must be added and TN750s must be installed as part of that support, then adding ISDN — PRI requires a service interruption. Notify the customer in advance as to when the addition will be carried out. See "Add Packet Bus Support" on page 5-105 for further information.

Add Packet Bus Support

1. If packet bus support is not already installed, see "Add Packet Bus Support" on page 5-105 and perform the steps.

Add Circuit Packs

1. Determine port assignment of circuit packs to be added.
2. Install the DS1 Interface circuit pack in the assigned carrier slot.
3. Install a TN748B (or later) (or the international TN420B/C) Tone Detector circuit pack if required.

Install Cables

1. Install cables from cabinet to MDF as required.

Enter Added Translations

1. Administer the forms listed under “Integrated Services Digital Network — Primary Rate Interface” in *DEFINITY Enterprise Communications Server Release 8 Administrator’s Guide*.

Resolve Alarms

1. Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the “active/standby” mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation cards.
3. Update backup cards, if necessary.

Add Packet Bus Support

NOTE:
This procedure is valid for G3si systems only. It does not apply to G3r systems.

Standard Reliability

Service Interruption

1. If packet bus support for G3si must be added and TN750s must be installed as part of that support, then adding Packet Bas Support requires a service interruption. Notify the customer in advance as to when the addition will be carried out.

Disable Alarm Origination

1. Type **change system-parameters maintenance** and press Enter.
2. Set the `Alarm Origination Activated` field to **n**.

CAUTION:
If you do not disable Alarm Origination, the system may generate alarms, resulting in unnecessary trouble tickets.

3. For some releases of software, disable `Cleared Alarm Notification` and `Restart Notification` before submitting the form.

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the “active/standby” mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation card.
3. If the system contains a TN750/B Announcement circuit pack, type **display announcements** and press Enter. If administered recorded announcements are listed, type **list configuration software-version** and press Enter. To save the announcements, type **save announcements** and press Enter.

Power Down Cabinet

1. At the PPN, set the main circuit breaker to OFF.
2. At an EPN, set the main circuit breaker to OFF.

Install Circuit Packs

1. Install the appropriate circuit packs. See Table 5-23.

Table 5-23. Circuit Pack Locations for Packet Bus in R8 PPN

Circuit Pack	Carrier	Quantity	Slot
TN570	Control Carrier A	1 or 2[1]	EXPN INTFC/1 and /2
TN771C	Control Carrier A	1[2]	Any Available Port Slot

---

[1] Quantity of this pack should equal the number of EPNs.

[2] Optional for digital trunk testing.

Power Up System

1. At the EPN, set the main circuit breaker to ON.
2. At the PPN, set the main circuit breaker to ON.
3. The system performs a level 4 reboot, loading the system translations from the translation cards. Rebooting takes about 10 minutes.
4. After all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

Test the Packet Bus and Control-LAN Circuit Pack

1. Type **test packet port-network 1** and press Enter. For more detail about these tests, refer to the test pkt command section in the maintenance book.

Resolve Alarms

1. Examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

Save Translations

1. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation cards.
2. If the system contains a TN750/B/C Announcement circuit pack, type **restore announcements** and press Enter.
3. Update backup cards, if necessary.

Enable Customer Options and Alarm Origination to INADS

1. Get the DOSS order number of the upgrade from the project manager and ask the regional Customer Software Administration to complete the steps in the shaded box. See "Where to Call for Technical Support" on page xvii for telephone numbers.

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

2. When administration is completed, log in as **craft** at the `Login:` prompt.

Administration:

1. Log in as **init** at the `Login:` prompt.
2. Type **change system-parameters customer-options** and press Enter to verify that the customer options are properly set.
3. Go to screen 6, QSIG Optional Features, and set the `Basic Call Setup` field to **y** if the customer was using Supplementary Services Protocol b or d on an ISDN-PRI trunk group before the upgrade.
4. Type **change system-parameters offer-options** and press Enter.
5. Set the `Activate Offer` field to **y** and press Tab. A warning message lets you know the offer category along with the model to determine the system capacities (limits) and allowable hardware.
6. Press Enter to effect the changes.
7. When done, contact the field technician.
8. Contact the requester when done.

High or Critical Reliability

Service Interruption

If no TN570 Expansion Interface circuit packs need to be installed for PktBus support, skip to and perform only the "Install Circuit Packs" section. This procedure does not interrupt service in this case.

Disable Alarm Origination

1. Type **change system-parameters maintenance** and press Enter.
2. Set the `Alarm Origination Activated to OSS Numbers` field to **n**.

   CAUTION:
   If you do not disable Alarm Origination, the system may generate alarms, resulting in unnecessary trouble tickets.

3. For some releases of software, disable `Cleared Alarm Notification` and `Restart Notification` before submitting the form.

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the "active/standby" mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation cards.
3. If the system contains a TN750/B Announcement circuit pack, type **display announcements** and press Enter.
   a. If administered recorded announcements are listed, type **list configuration software-version long** and press Enter.
   b. To save the announcements, type **save announcements** and press Enter.

Power Down Cabinet (Standby Cabinet)

1. At the PPN, set the main circuit breaker to OFF.
2. At an EPN, set the main circuit breaker to OFF.

Install Circuit Packs

1. Install the appropriate circuit packs. See Table 5-24.

Table 5-24. Circuit Pack Locations for Packet Bus in PPN

Circuit Pack	Carrier	Quantity	Slot
TN570	Control Carrier A	1 or 2[1]	EXPN INTFC/1 and /2
	Control Carrier B	1 or 2	EXPN INTFC/1 and /2
TN771C	Control Carrier A	1[2]	Any Available Port Slot

---

[1] Quantity of this pack should equal the number of EPNs.

[2] Required for critical-reliability EPNs and PPN. Optional for digital trunk testing in high-reliability PPN.

Power Up System

1. At the EPN, set the main circuit breaker to ON.
2. At the PPN, set the main circuit breaker to ON.
3. The system performs a level 4 reboot, loading the system translations from the translation cards. Rebooting takes about 10 minutes.
4. After all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

Test the Packet Bus and Control-LAN Circuit Pack

1. Type **test packet port-network 1 long** and press Enter. For more detail about these tests, refer to the “test pkt command” section in the maintenance book.

Resolve Alarms

1. Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si.*

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the "active/standby" mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation cards.
3. If the system contains a TN750/B/C Announcement circuit pack, type **restore announcements** and press Enter.
4. Update backup cards, if necessary.

Enable Customer Options and Alarm Origination to INADS

1. Get the DOSS order number of the upgrade from the project manager and ask the regional Customer Software Administration to complete the steps in the shaded box. See "Where to Call for Technical Support" on page xvii for telephone numbers.

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

2. When administration is completed, log in as **craft** at the `Login:` prompt.

Administration:

1. Log in as **init** at the `Login:` prompt.
2. Type **change system-parameters customer-options** and press Enter to verify that the customer options are properly set.
3. Go to screen 6, QSIG Optional Features, and set the `Basic Call Setup` field to **y** if the customer was using Supplementary Services Protocol b or d on an ISDN-PRI trunk group before the upgrade.
4. Type **change system-parameters offer-options** and press Enter.
5. Set the `Activate Offer` field to **y** and press Tab. A warning message lets you know the offer category along with the model to determine the system capacities (limits) and allowable hardware.
6. Press Enter to effect the changes.
7. When done, contact the field technician.
8. Contact the requester when done.

Add CallVisor ASAI

Service Interruption

1. If adding the packet bus support and TN570s must be installed as part of that support, then adding CallVisor ASAI requires a service interruption. Notify the customer in advance as to when the addition will take place. See "Add Packet Bus Support" on page 5-105 for further information.

Enter Added Translations

1. On the System-Parameters Customer-Options screen, disable the Calling Party Number/Billing Number (CPN/BN) option, and enable the CallVisor ASAI Interface option.
2. See *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*, for details on disabling and enabling these options.

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the "active/standby" mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation cards.

Add Packet Bus Support

1. If packet bus support is not already installed, see "Add Packet Bus Support" on page 5-105 and perform the steps.

Add Circuit Packs

1. Determine port assignment of circuit packs to be added.
2. Install the appropriate circuit packs in assigned cabinet slot (as required). For example:

3	A	07	01
Cabinet (Port Network)	Carrier	Slot Number	Port Number

The TN748B (or later) or TN744/C/D Call Classifier circuit pack is required. The TN744 is required for those customers who desire switch call classification.

A vacant port is required on a TN556/B ISDN—BRI circuit pack.

Install Cables

1. Install cables from cabinet to the MDF as required.

Enter Added Translations

1. Administer the required translation data using the forms listed under “Adjunct/Switch Applications Interface (ASAI)” in *DEFINITY Enterprise Communications Server Release 8 Administrator’s Guide*.

Resolve Alarms

1. Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the “active/standby” mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation cards.
3. Update backup translation cards, if required.

Add ISDN—BRI

Service Interruption

1. If adding the packet bus support and TN570s must be installed as part of that support, adding ISDN—BRI requires a service interruption. Notify the customer in advance as to when the addition will be carried out. See "Add Packet Bus Support" on page 5-105 for further information.

Add Packet Bus Support

1. If packet bus support is not already installed, see "Add Packet Bus Support" on page 5-105 and perform the steps.

Add Circuit Packs

1. Determine port assignment of circuit packs to be added.
2. Install the appropriate circuit packs in assigned cabinet slot (as required). For example:

3	A	07	01
Cabinet (Port Network)	Carrier	Slot Number	Port Number

The TN794 Packet Interface circuit pack and the TN556 *or* TN2198 ISDN BRI circuit pack are required. The TN794 Packet Interface circuit pack should be added first. If an EPN is present, a TN570/B/C Expansion Interface circuit pack is required.

Install Cables

1. Install cables from cabinet to the MDF as required.

NOTE:
BRI requires a 12-port backplane cable terminator (breakout connector). Connect this terminator to the 25-pair cable. This is different from the 8-port connector used for DCP.

Enter Added Translations

1. Administer the required translation data using the forms listed under 7500D voice terminals and 8500 voice terminals in *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.

Resolve Alarms

1. Examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

Save Translations

1. If the system is high or critical reliability, type **status system 1** and press Enter to verify that the system is in the "active/standby" mode.
2. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation cards.
3. If the system contains a TN750/B/C Announcement circuit pack, type **list configuration software-version** and press Enter. To restore these announcements, type **restore announcements** and press Enter.
4. Update backup cards, if required.

CAMA/E911 Installation

Configuration

The CAMA/E911 feature will only work on DEFINITY ECS if TN429C CO circuit packs (or later suffix) is used.

Port Networks (PNs) that include TN429C circuit packs used to interface to CAMA trunks may require some CPTR resources to be either TN744D V2 or TN2182B circuit packs, since TTR/CPTR or General Purpose Tone Receiver (GPTR) resources are selected from the pool available in the PN when needed.

Table 5-25 denotes which of these circuit packs are compatible and which are not affected.

Table 5-25. Compatibility Tone Clock, TTR/CPTR, and GPTR Circuit Packs

Circuit Pack	Description	Compatibility with CAMA Trunks in Same PN	Application	Notes
TN420 TN420B TN420C	Touch Tone Detector / Call Progress Tone Detector	Not Compatible	Not used in the U.S.	4TTR and 2 CPTR ports. Used in combination with the TN780 in many countries initially in versions prior to G3V3.3. Use TN744DV2 if CAMA feature is to be supported.
TN744 TN7744B TN744C TN744DV1	Call Classifier - Detector	Not Compatible	Used globally	8 GPTR/call classification ports. Used for call classification only initially prior to G3V3.3. Becomes a GPTR resource in G3V3.3 and later. Use TN744DV2 if CAMA feature is to be supported.

Continued on next page

Table 5-25. Compatibility Tone Clock, TTR/CPTR, and GPTR Circuit Packs — *Continued*

Circuit Pack	Description	Compatibility with CAMA Trunks in Same PN	Application	Notes
TN744DV2	Call Classifier - Detector	Compatible	Used globally	8 GPTR/call classification ports. Required in PN supporting CAMA trunks if GPTR resources are required in excess of those on the TN2182BV2. Also required (if the TN768 or TN780 tone clocks are used) in place of TN748, TN744, and TN744B and TN744C.
TN748 TN748B TN748C TN748D	Touch Tone Detector / Call Progress Tone Detector	Not Compatible	Used in the U.S. and a few other countries	4 TTR and 2 CPTR ports. Used in combination with the TN756, TN768, or TN780 in many countries initially in versions prior to G3V3.3. Use TN744DV2 if CAMA feature is to be supported.

Continued on next page

Table 5-25. Compatibility Tone Clock, TTR/CPTR, and GPTR Circuit Packs — *Continued*

Circuit Pack	Description	Compatibility with CAMA Trunks in Same PN	Application	Notes
TN756	Tone Detector Generator	Not Compatible	Used in the U.S. and a few other countries	Tone detector/tone clock with 4 TTR and 2 CPTR ports. Used in combination with the TN748 in many countries initially in versions prior to G3V3.3. Used only with SCC/ESCC cabinets with no EPNs, no duplication, no ASAI. Use TN2182BV2 if CAMA feature is to be supported.
TN768	Tone Clock	Not Affected	Used in the U.S. and many other countries	Tone clock only, no TTR/CPTR functionality. Typically found with TN748 circuit packs in the U.S. Use TN7744DV2 instead of TN748 with CAMA.
TN780	Tone Clock	Not Affected	Used in the U.S. (infrequently) for stratum 3 clocking and used in many other countries	Tone clock only, no TTR/CPTR functionality. Typically found with TN748 circuit packs in the U.S. Use TN7744DV2 instead of TN748 with CAMA.

Continued on next page

Table 5-25. Compatibility Tone Clock, TTR/CPTR, and GPTR Circuit Packs — *Continued*

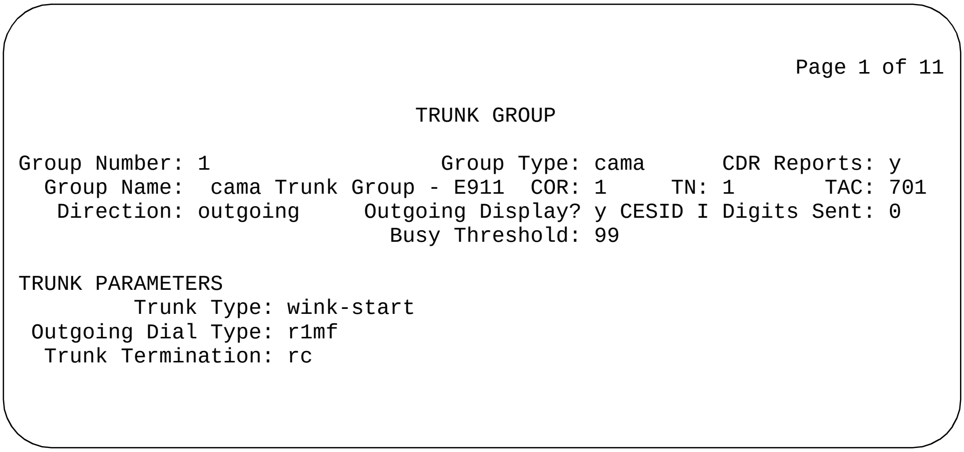
Circuit Pack	Description	Compatibility with CAMA Trunks in Same PN	Application	Notes
TN2182 TN2182B	Tone Clock / Call Classifier - Detector	Compatible	Used globally	Tone clock plus 8 GPTR/call classification ports. Use TN2182B if CAMA feature is to be supported.

Hardware Setup

1. Insert the TN429C CO circuit pack in any available port slot.
2. Wire the TN429C to the MDF (the trunk from the CO). Refer to the pinouts in Table 5-40.

Administration Setup

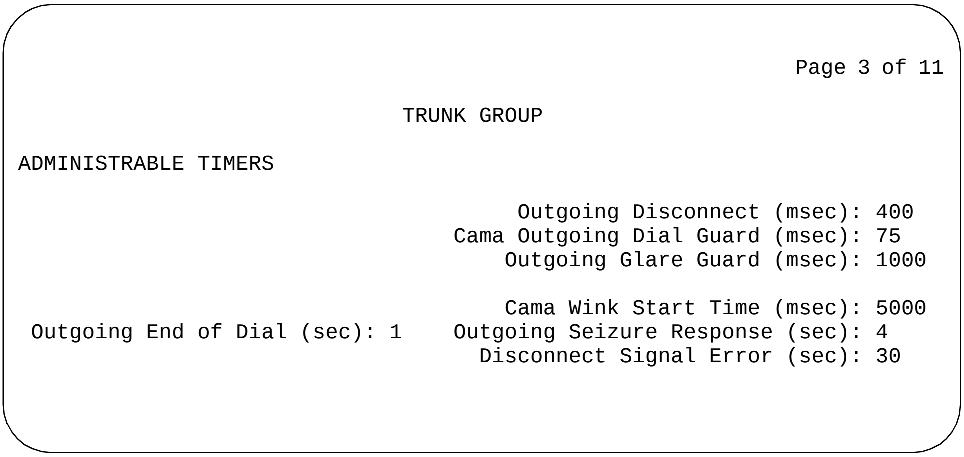
1. At the prompt, type **add trunk next** and press Enter.



```
                                                             Page 1 of 11

                               TRUNK GROUP

Group Number: 1                  Group Type: cama      CDR Reports: y
  Group Name:  cama Trunk Group - E911  COR: 1     TN: 1       TAC: 701
   Direction: outgoing     Outgoing Display? y CESID I Digits Sent: 0
                             Busy Threshold: 99

TRUNK PARAMETERS
         Trunk Type: wink-start
 Outgoing Dial Type: r1mf
  Trunk Termination: rc
```

Screen 5-1. CAMA Trunk Group form (page 1)

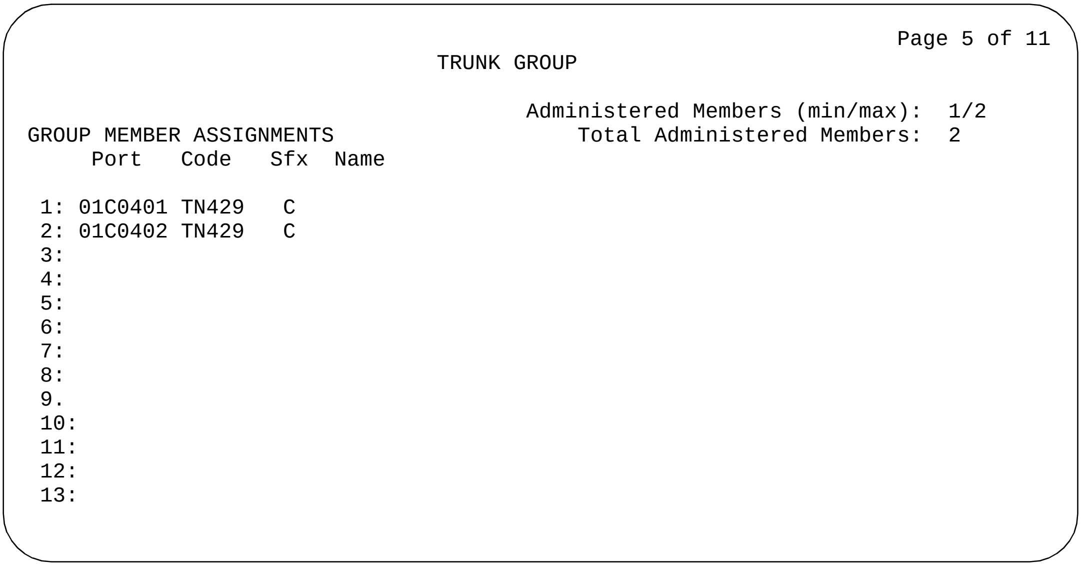
2. On Trunk Group screen (page 1), in the `Group Type:` field, enter **cama**.
3. In the `Group Name:` field, enter the desired name.
4. In the `TAC:` field, enter the desired trunk access code.
5. In the `Outgoing Display:` field, enter **y**.
6. In the `CESID I Digits Sent:` field, enter the number directed by the Central Office (CO) or the Public Safety Answering Point (PSAP).
7. Scroll to page 3 of the form.



```
                                                             Page 3 of 11

                              TRUNK GROUP

ADMINISTRABLE TIMERS

                                       Outgoing Disconnect (msec): 400
                                  Cama Outgoing Dial Guard (msec): 75
                                      Outgoing Glare Guard (msec): 1000

                                      Cama Wink Start Time (msec): 5000
 Outgoing End of Dial (sec): 1    Outgoing Seizure Response (sec): 4
                                    Disconnect Signal Error (sec): 30
```

Screen 5-2. Administrable Timers form (page 3)

8. On the Administrable Timers screen (page 3), you may need to adjust these fields according to your CO. Scroll to page 5.

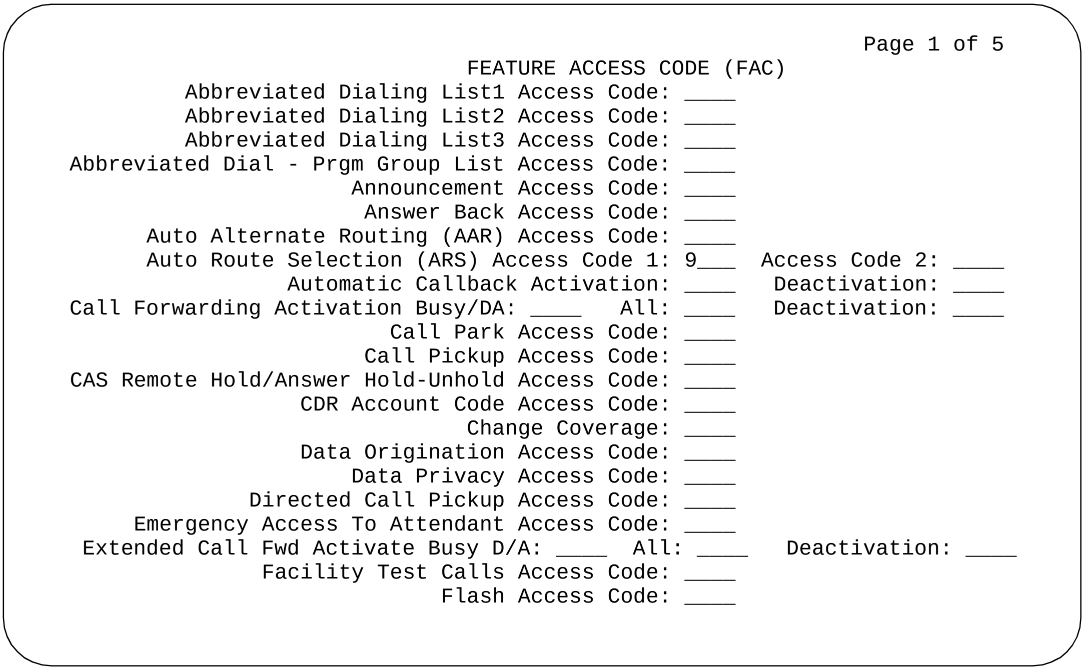


```
                                                                    Page 5 of 11
                                TRUNK GROUP

                                       Administered Members (min/max):  1/2
GROUP MEMBER ASSIGNMENTS                   Total Administered Members:  2
     Port    Code    Sfx  Name

 1: 01C0401 TN429   C
 2: 01C0402 TN429   C
 3:
 4:
 5:
 6:
 7:
 8:
 9.
 10:
 11:
 12:
 13:
```

Screen 5-3. Group Member Assignments form (page 5)

9. On the Group Member Assignments screen, in the `Port` field, add the trunk members and press Enter when finished.

10. At the prompt, type **change feature-access-code** and press Enter.



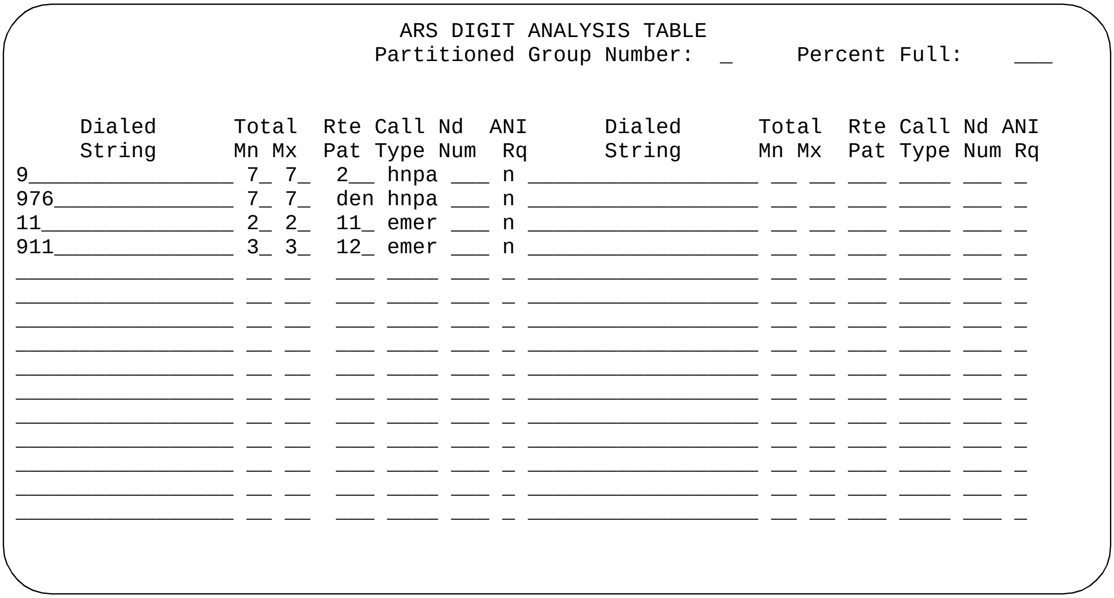
```
                                                              Page 1 of 5
                               FEATURE ACCESS CODE (FAC)
         Abbreviated Dialing List1 Access Code: ____
         Abbreviated Dialing List2 Access Code: ____
         Abbreviated Dialing List3 Access Code: ____
Abbreviated Dial - Prgm Group List Access Code: ____
                      Announcement Access Code: ____
                       Answer Back Access Code: ____
      Auto Alternate Routing (AAR) Access Code: ____
      Auto Route Selection (ARS) Access Code 1: 9___  Access Code 2: ____
                 Automatic Callback Activation: ____   Deactivation: ____
Call Forwarding Activation Busy/DA: ____   All: ____   Deactivation: ____
                         Call Park Access Code: ____
                       Call Pickup Access Code: ____
CAS Remote Hold/Answer Hold-Unhold Access Code: ____
                  CDR Account Code Access Code: ____
                               Change Coverage: ____
                  Data Origination Access Code: ____
                      Data Privacy Access Code: ____
              Directed Call Pickup Access Code: ____
     Emergency Access To Attendant Access Code: ____
 Extended Call Fwd Activate Busy D/A: ____  All: ____   Deactivation: ____
               Facility Test Calls Access Code: ____
                             Flash Access Code: ____
```

Screen 5-4. Feature Access Code (FAC) form (page 1)

11. The Feature Access Code (FAC) screen (page 1) appears.

12. In the `Auto Route Selection (ARS) Access Code 1:` field, administer the ARS access code (in the example above, type **9**) and press Enter (must match dial plan).

13. At the prompt, type **change ars analysis** <**9**> and press Enter.



```
                              ARS DIGIT ANALYSIS TABLE
                            Partitioned Group Number:  _     Percent Full:    ___


     Dialed      Total  Rte Call Nd  ANI      Dialed      Total  Rte Call Nd ANI
     String      Mn Mx  Pat Type Num  Rq      String      Mn Mx  Pat Type Num Rq
9________________ 7_ 7_  2__ hnpa ___ n __________________ __ __ ___ ____ ___ _
976______________ 7_ 7_  den hnpa ___ n __________________ __ __ ___ ____ ___ _
11_______________ 2_ 2_  11_ emer ___ n __________________ __ __ ___ ____ ___ _
911______________ 3_ 3_  12_ emer ___ n __________________ __ __ ___ ____ ___ _
_________________ __ __  ___ ____ ___ _ __________________ __ __ ___ ____ ___ _
_________________ __ __  ___ ____ ___ _ __________________ __ __ ___ ____ ___ _
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```

Screen 5-5. ARS Digit Analysis Table

14. An ARS Digit Analysis Table screen appears. In the `Dialed String` field, in the first empty row, type **11**.
15. In the `Total Mn` field, type **2**.
16. In the `Total Mx` field, type **2**.
17. In the `Rte Pat` field, enter the desired Route Pattern (in the example above the route pattern is 11).

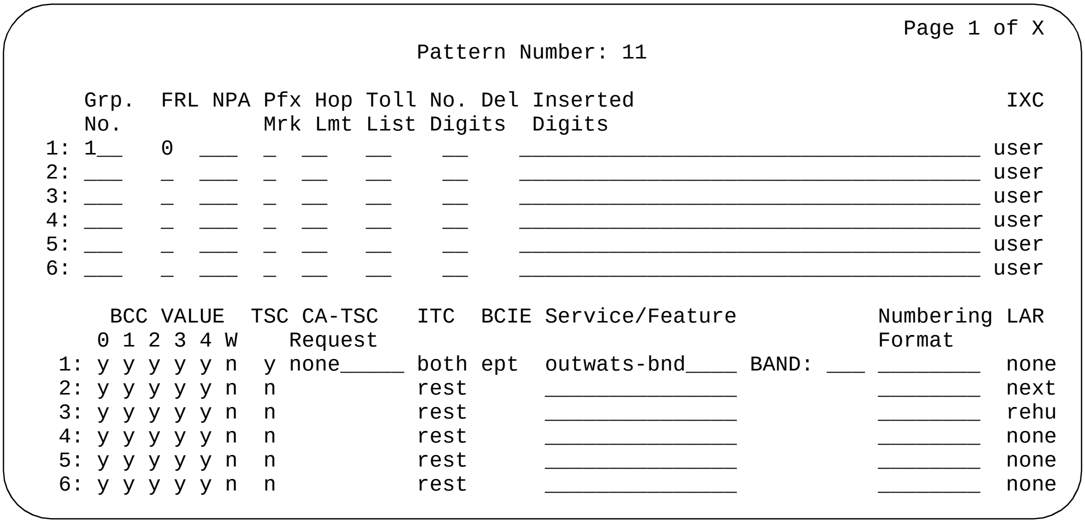
   NOTE:
   For the following step, if you are using the Attendant Crisis Alerting feature, type **alrt** instead of “emer.”

18. In `Call Type` field, type **emer**.
19. On the next empty row, in the `Dialed String` field, type **911**.
20. In the `Total Mn` field, type **3**.
21. In the `Total Mx` field, type **3**.
22. In the `Rte Pat` field, type the desired Route Pattern (in the example above the route pattern is 12).

   NOTE:
   For the following step, if you are using the Attendant Crisis Alerting feature, type **alrt** instead of “emer.”

23. In the `Call Type` field, type **emer** and press Enter.

24. At the prompt, type **change route-pattern** <**number**> (the route pattern to be changed; in the example above, the route pattern is 11) and press Enter.



```
                                                                   Page 1 of X
                             Pattern Number: 11

   Grp.  FRL NPA Pfx Hop Toll No. Del Inserted                             IXC
   No.          Mrk Lmt List Digits  Digits
1: 1__   0  ___  _  __   __    __    ____________________________________ user
2: ___   _  ___  _  __   __    __    ____________________________________ user
3: ___   _  ___  _  __   __    __    ____________________________________ user
4: ___   _  ___  _  __   __    __    ____________________________________ user
5: ___   _  ___  _  __   __    __    ____________________________________ user
6: ___   _  ___  _  __   __    __    ____________________________________ user

     BCC VALUE  TSC CA-TSC   ITC  BCIE Service/Feature           Numbering LAR
    0 1 2 3 4 W    Request                                     Format
 1: y y y y y n  y none_____ both ept  outwats-bnd____ BAND: ___ ________  none
 2: y y y y y n  n           rest      _______________           ________  next
 3: y y y y y n  n           rest      _______________           ________  rehu
 4: y y y y y n  n           rest      _______________           ________  none
 5: y y y y y n  n           rest      _______________           ________  none
 6: y y y y y n  n           rest      _______________           ________  none
```

Screen 5-6. Route Pattern form (Page 1)

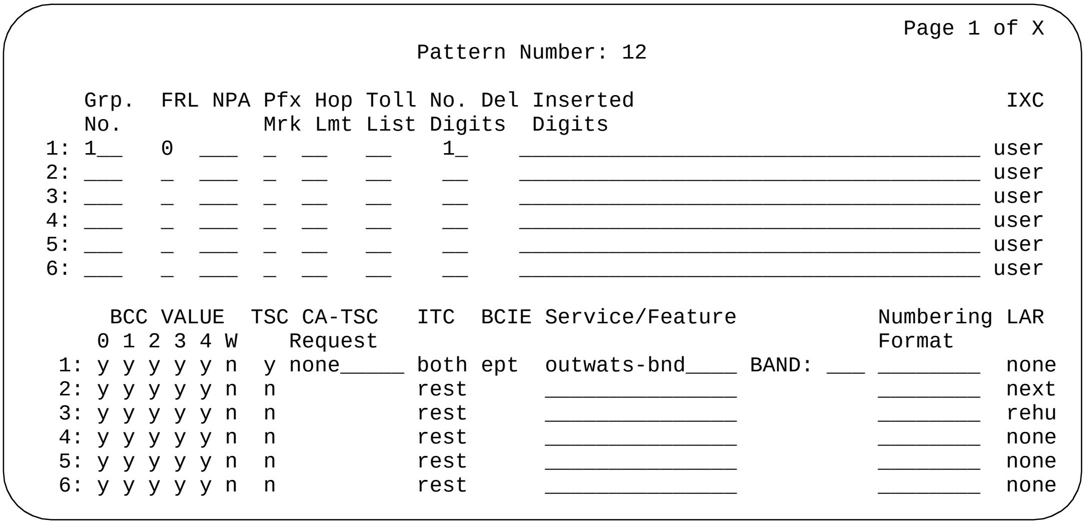
25. On the Route Pattern screen, in `Grp. No.` field, enter the CAMA trunk group number.

26. In the FRL field, type **0**.

NOTE:
For the following step, if the Central Office (CO) wants KP11ST as the dialed digit string, then leave blank. If the CO wants KP911ST, then insert a “9” in the `Inserted Digits` field.

27. Administer the `Inserted Digits` field if needed and press Enter.

28. At the prompt, type **change route-pattern** <**number**> (the route pattern to be changed; in the example above, the route pattern is 12) and press Enter.



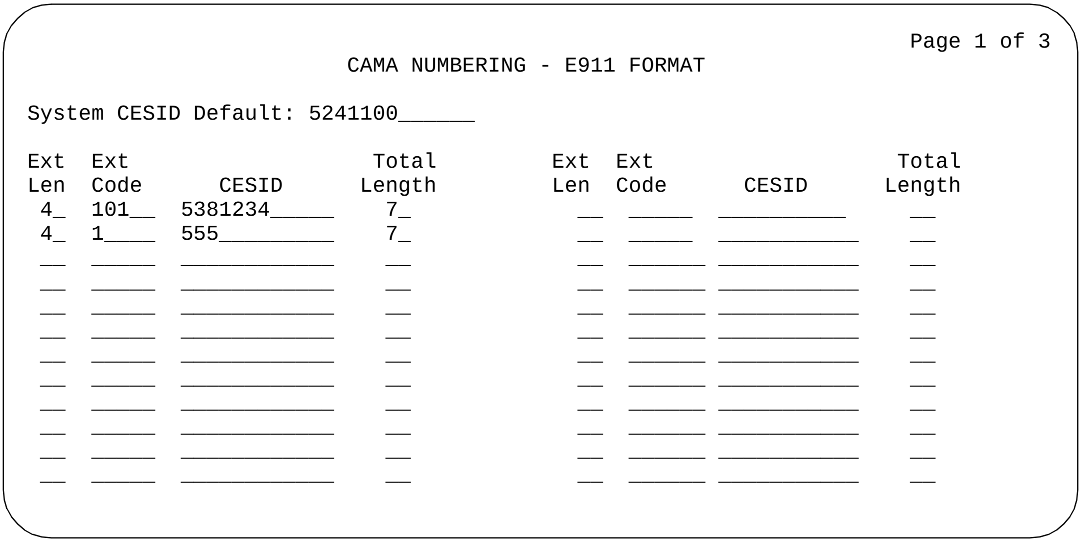
```
                                                                   Page 1 of X
                             Pattern Number: 12

   Grp.  FRL NPA Pfx Hop Toll No. Del Inserted                             IXC
   No.              Mrk Lmt List Digits  Digits
1: 1__   0   ___ _   __  __    1_    ____________________________________ user
2: ___   _   ___ _   __  __    __    ____________________________________ user
3: ___   _   ___ _   __  __    __    ____________________________________ user
4: ___   _   ___ _   __  __    __    ____________________________________ user
5: ___   _   ___ _   __  __    __    ____________________________________ user
6: ___   _   ___ _   __  __    __    ____________________________________ user

     BCC VALUE  TSC CA-TSC   ITC  BCIE Service/Feature           Numbering LAR
    0 1 2 3 4 W    Request                                        Format
 1: y y y y y n  y none_____ both ept  outwats-bnd____ BAND: ___ ________  none
 2: y y y y y n  n           rest      _______________           ________  next
 3: y y y y y n  n           rest      _______________           ________  rehu
 4: y y y y y n  n           rest      _______________           ________  none
 5: y y y y y n  n           rest      _______________           ________  none
 6: y y y y y n  n           rest      _______________           ________  none
```

Screen 5-7. Route Pattern form (Page 1)

29. On the Route Pattern screen, in `Grp. No.` field, type the CAMA trunk group number and press Enter.
30. In the FRL field, type **0**.

NOTE:
For the following step, if the Central Office (CO) wants KP911ST as the dialed digit string, then leave blank. If the CO wants KP11ST, then delete one digit.

31. Administer `No. Del Digits` field if needed and press Enter.
32. At the prompt, type **change cama-numbering** and press Enter.



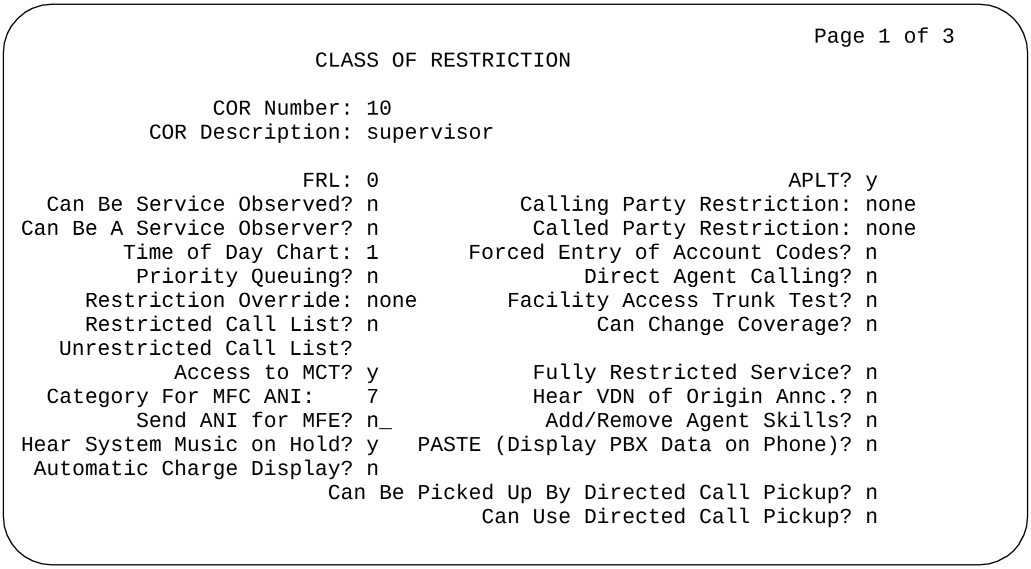
```
                                                                     Page 1 of 3
                         CAMA NUMBERING - E911 FORMAT

System CESID Default: 5241100______

Ext  Ext                 Total          Ext  Ext                 Total
Len  Code      CESID    Length          Len  Code      CESID    Length
 4_  101__  5381234_____   7_             __  _____  __________    __
 4_  1____  555_________   7_             __  _____  ___________   __
 __  _____  ____________   __             __  ______ ___________   __
 __  _____  ____________   __             __  ______ ___________   __
 __  _____  ____________   __             __  ______ ___________   __
 __  _____  ____________   __             __  ______ ___________   __
 __  _____  ____________   __             __  ______ ___________   __
 __  _____  ____________   __             __  ______ ___________   __
 __  _____  ____________   __             __  ______ ___________   __
 __  _____  ____________   __             __  ______ ___________   __
 __  _____  ____________   __             __  ______ ___________   __
 __  _____  ____________   __             __  ______ ___________   __
```

Screen 5-8. CAMA Numbering Format form

33. In the CAMA Numbering - E911 Format screen (page 1), in `System CESID Default:` field, enter your own system default and press Enter. This is the number outpulsed when the extension code is not found in the CAMA Numbering table. See Screen 5-8.

34. In the `Ext Len`, `Ext Code`, `CESID`, and `Total Length` fields, fill out to your own CAMA numbering plan and press Enter. Be sure to cover all extensions.

35. At the prompt, type **change cor** <**number**> (the class of restriction (COR) to be changed) and press Enter. Change all CORs that are defined for stations in order to remove any calling party restrictions for 911 calls.



```
                                                              Page 1 of 3
                       CLASS OF RESTRICTION

               COR Number: 10
          COR Description: supervisor

                      FRL: 0                                APLT? y
  Can Be Service Observed? n           Calling Party Restriction: none
Can Be A Service Observer? n            Called Party Restriction: none
        Time of Day Chart: 1       Forced Entry of Account Codes? n
         Priority Queuing? n                Direct Agent Calling? n
     Restriction Override: none       Facility Access Trunk Test? n
     Restricted Call List? n                 Can Change Coverage? n
   Unrestricted Call List?
            Access to MCT? y            Fully Restricted Service? n
  Category For MFC ANI:    7            Hear VDN of Origin Annc.? n
         Send ANI for MFE? n_            Add/Remove Agent Skills? n
Hear System Music on Hold? y   PASTE (Display PBX Data on Phone)? n
 Automatic Charge Display? n
                        Can Be Picked Up By Directed Call Pickup? n
                                    Can Use Directed Call Pickup? n
```

Screen 5-9. Class of Restriction form (page 1)

36. On the Class of Restriction screen (page 1), in the `Calling Party Restriction:` field, type **none** and press Enter.
37. Type **Save Translation** and press Enter.

Add IP Interface

NOTE:
This section contains preliminary material for Media Processor features.

DEFINITY ECS IP Solutions allows you to send voice and fax from the DEFINITY ECS through an Internet protocol (IP) network to other DEFINITY ECSs having this feature or to other H.323 V2 compliant endpoints. It is implemented using the TN802/B IP Interface, which is a Windows NT server residing on the IP Interface Assembly inside the DEFINITY ECS.

The IP Interface is an assembly composed of a TN802B circuit board, a processor card, and DSP resource card. For ordering purposes, the assembly is identified as a J58890MA-1 L30, but for simplicity, we refer to it in this book as the TN802B IP Interface.

The TN802B IP Interface operates in two modes: IP Trunk, available with Release 7 or later, and Media Processor (MedPro), available with Release 8. The IP Trunk mode is Internet Telephone Server—Enterprise (ITS-E) compatible, and the MedPro mode is H.323 V2 compatible. The TN802B IP Interface is backwards compatible and defaults to IP Trunk mode.To use it in MedPro mode, you activate it through administration on the **change circuit-packs** command.

For more information on the IP Interface capabilities and limitations, refer to the *DEFINITY Enterprise Communications Server Release 8 Overview*.

The following sections describe the process for installing the TN802B IP Interface and cables and connecting it to a computer terminal, first for IP Trunk mode, then for MedPro mode.

WARNING:
When connected remotely via pcANYWHERE, only use the pcANYWHERE Restart Host Computer button on the toolbar to restart Windows NT.

Media Processor Mode

To operate in MedPro mode, you must install the TN802B IP Interface and, if the system does not have one, you must also install and administer a TN799B C-LAN circuit pack. For C-LAN administration, refer to *DEFINITY Enterprise Communications Server Administration for Network Connectivity.*

If you have existing TN802 IP Interface, however, you can upgrade them to TN802Bs by downloading the firmware onto the circuit pack (see "Making a TN802 into a TN802B" on page 5-152).

Prepare for Installation

Have the following equipment on site before your shipment arrives:

- AC power outlets for the modem and monitor.
- Three unoccupied and adjoining port slots in the DEFINITY ECS for the TN802B IP Interface, if needed.

  The TN802B occupies only one slot, but it needs the two slots to its left for clearance.
- An additional unoccupied port slot for the TN799B, if needed. If you have an existing TN799 circuit pack, replace it with the TN799B.
- A 10 BaseT or 10/100 BaseT Ethernet connection into your local area network
- Two or more valid, unused IP addresses on your network that can be assigned to the IP Interface server. You also need the subnet mask and default gateway.
- An analog telephone line reserved (DID is okay) for the IP Interface diagnostic modem
- A valid telephone number reserved for the IP Interface diagnostic modem

In addition if non-U.S. customer:

- Modem comparable to a U.S. Robotics Sportster Model USR 33.6 EXT.
- Cable from modem to TN802B external cable assembly.

We recommend that you protect your cabinet with an uninterruptible power system (UPS).

Check your Shipment

When your DEFINITY Media Processor order arrives at your site, check the contents.

1. Inspect the shipping carton for damage before opening it. If the box is damaged, *do not open it*. Inform the shipping company, and ask for instructions on filing a claim.
2. If the box is undamaged, check the contents against the packing slip. Check the condition of each component, and note any damage or shortages on the packing slip. The carton should contain the following for each IP Interface ordered:.

Table 5-26. Required Hardware

Equipment	Description	Quantity
108525528	TN799B C-LAN circuit pack. One TN799B may support more than one TN802B, depending on the number of trunks.	1
J58890MA-1 L30	TN802B IP Interface Assembly	1 or more
H600-475	TN802B external cable assembly	1
	259A connector	1
	DW8 cable	1
407633999	U.S. Robotics Sportster external modem, Model USR 33.6 EXT (U.S. customers only). Non-U.S. customers must provide a modem comparable to this model.	1
601087091	20-ft DB-25 serial cable from modem to TN802B external cable assembly (U.S. customers only). Non-U.S. customers must provide a serial cable.	1

3. Read and follow any directions inserted into the package by the factory.

The TN802B external cable assembly is a bundle of cables with an amphenol connector at the end of the bundle and various PC-type connectors (VGA, Universal Serial Bus [USB], mouse, keyboard, Ethernet, modem, and COM2) at the ends of the individual cables. See Figure 5-44. Look for the label where the bundle enters the amphenol connector.

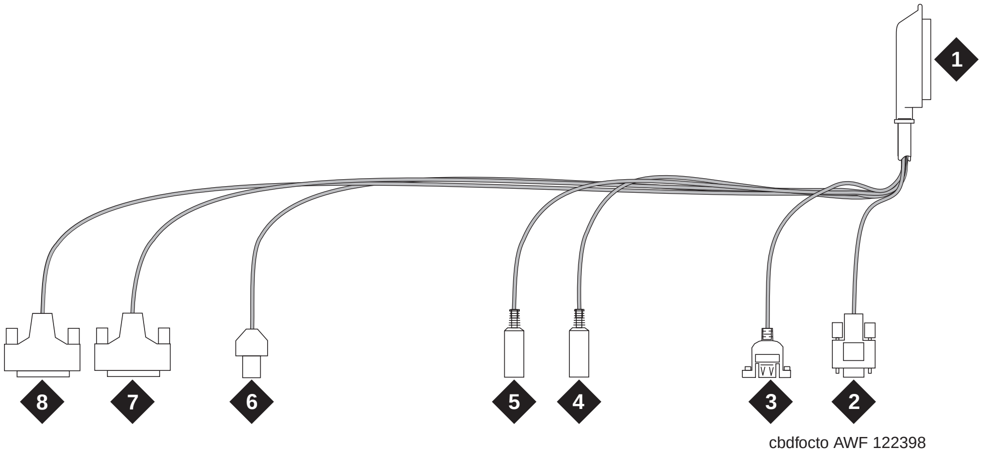


Figure Notes

1. Amphenol connector to connector corresponding to TN802B slot
2. To VGA monitor
3. To USB (not used)
4. To keyboard
5. To mouse
6. To ethernet
7. 25-pin male connector to modem
8. 25-pin male connector to COM2

Figure 5-44. TN802B IP Interface External Cable Assembly

Connect the Cables

1. Determine into which port slots you are putting the TN799B C-LAN and TN802B IP Interface circuit packs.

NOTE:
Make sure that at least 3 adjacent slots are free for the TN802B.

From the rear of the cabinet:

2. If adding a new TN799B, connect the 259A connector to the backplane connector corresponding to the TN799B slot.
3. If adding a new TN799B, connect one end of the DW8 cable to the 259A connector. Connect the other end to the customer’s network.
4. Connect the amphenol connector on the external cable assembly to the backplane connector corresponding to the TN802B slot (the highest numbered connector of the 3 slots required)

Connect the Modem

NOTE:
These instructions are for connecting the U.S. Robotics modem supplied to U.S. customers only. If using a different modem, follow the manufacturer's instructions on connecting the modem.

1. Connect the RS232 port of the modem to the MODEM connector of the TN802B external cable assembly.

NOTE:
Check the labels near the connectors; the MODEM and COM2 connectors look the same.

2. Connect an analog telephone line to the left most analog-line port on the modem as shown in Figure 5-45.
3. Make sure that the modem's DIP switches are set as shown in Figure 5-45.
4. Plug the modem into an AC power outlet.
5. Turn on the modem using the switch on the front of the modem.

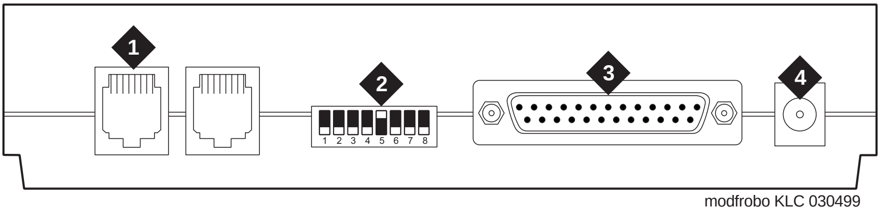


Figure Notes

1. Connect analog line here.
2. DIP switch 5 must be up.
3. Connect MODEM connector here.
4. Connect power connector here.

Figure 5-45. External Modem Connections for U.S. Robotics Modem

Connect the Ethernet

1. Connect the network cable to the ETHERNET connector on the TN802B external cable assembly.

Upgrading to TN802B

If you have a TN802 IP Interface, you must either install a TN802B or upgrade the existing circuit pack to operate in MedPro mode. Refer to "Making a TN802 into a TN802B" on page 5-152. To operate in the MedPro mode, you need to upgrade the switch to Release 8 or later.

Install the Circuit Packs

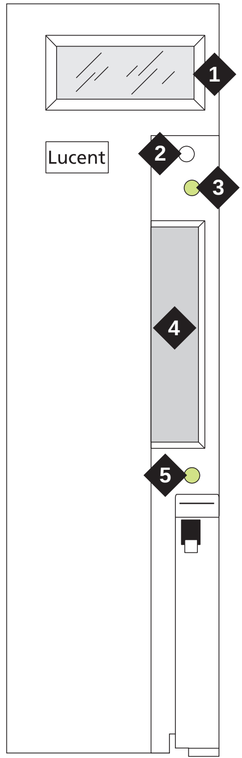
⚠ **CAUTION:**

When adding or replacing any hardware, be sure to ground yourself against electrostatic discharge (ESD) by wearing a grounded wrist strap.

NOTE:

The TN799B and TN802B circuit packs are hot-swappable, so you do not need to power down the carrier to install them.

If you need to remove the TN802B IP Interface from the carrier at a later time, shut down Windows NT first by pressing the recessed reset button on the faceplate (see Figure 5-46) of the TN802B IP Interface until the LCD shows a flashing **MSHUT ***. When the flashing stops and the asterisk disappears (about 2 min), it is safe to remove the circuit pack.



fpdfmapd KLC 030899

Figure Notes

1. LCD display	4. PCMCIA card slot
2. Reset button (recessed)	5. Yellow PCMCIA disk-in-use LED
3. Red board status LED	

Figure 5-46. TN802B IP Interface faceplate

1. Insert the TN799B circuit pack into the port slot identified earlier.

NOTE:
If replacing the existing TN799 circuit pack, remove it first and replace it with the new one.

To properly seat the circuit pack, push firmly on the front of the faceplate until the latch reaches the bottom rail of the carrier. Then close the latch until it is fully engaged.

2. Insert the TN802B IP Interface into the right most of the three slots you reserved for it (see Figure 5-47) and seat it properly.

   When you plug in the TN802B IP Interface, the circuit pack starts to boot and the LCD reads **PC Boot**. After about 3 to 4 minutes, it changes to **MEDPRO ***.

   NOTE:
   If this is an initial installation, the TN802B IP Interface needs to be administered first (see ''Administer the IP Interface'' on page 5-134).

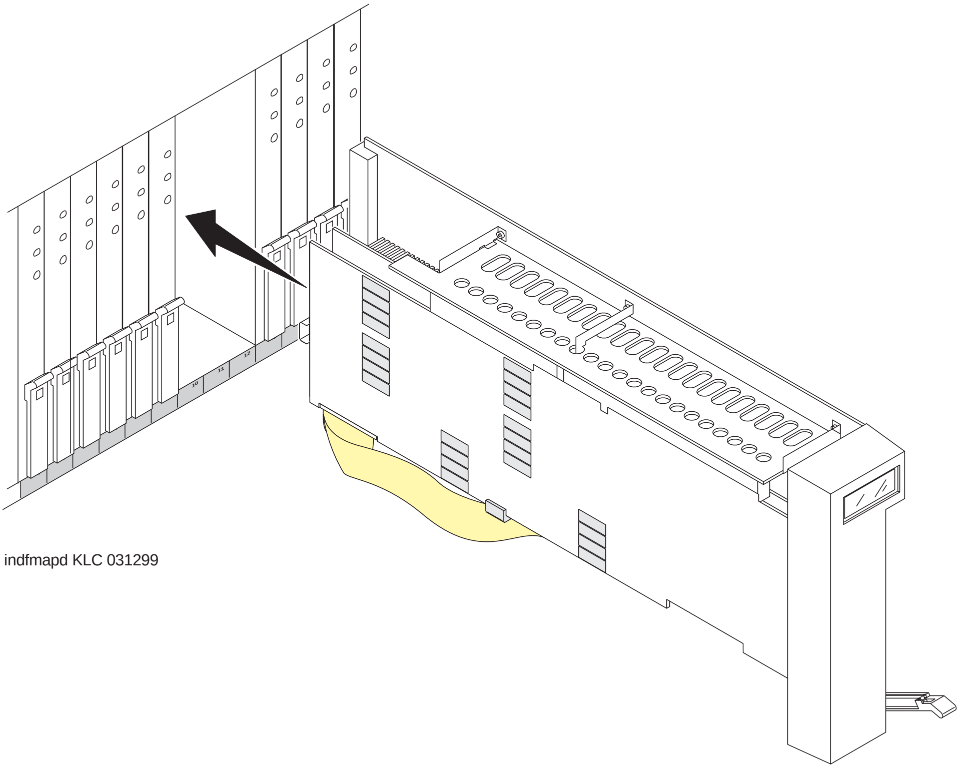


Figure 5-47. J58890MA-1 L30 IP Interface Assembly

Administer the TN799B C-LAN

Refer to the *DEFINITY Enterprise Communications Server Administration for Network Connectivity*.

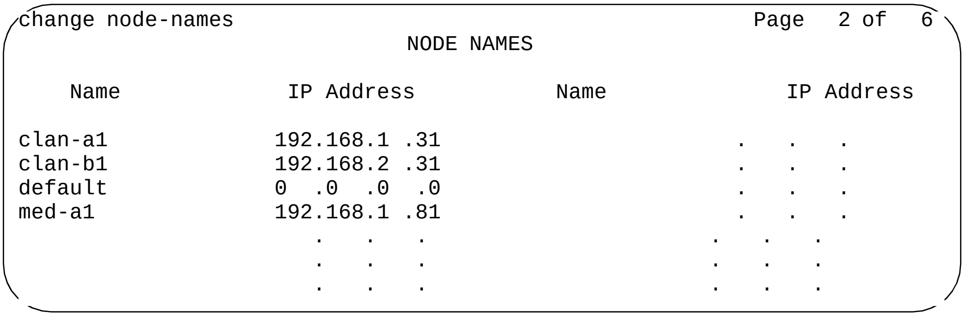
Administer the IP Interface

Administration is usually done remotely; call your service representative to start the process.

Administration Steps

NOTE:
Refer to the *DEFINITY Enterprise Communications Server Administration for Network Connectivity for Release 8* for specific information.

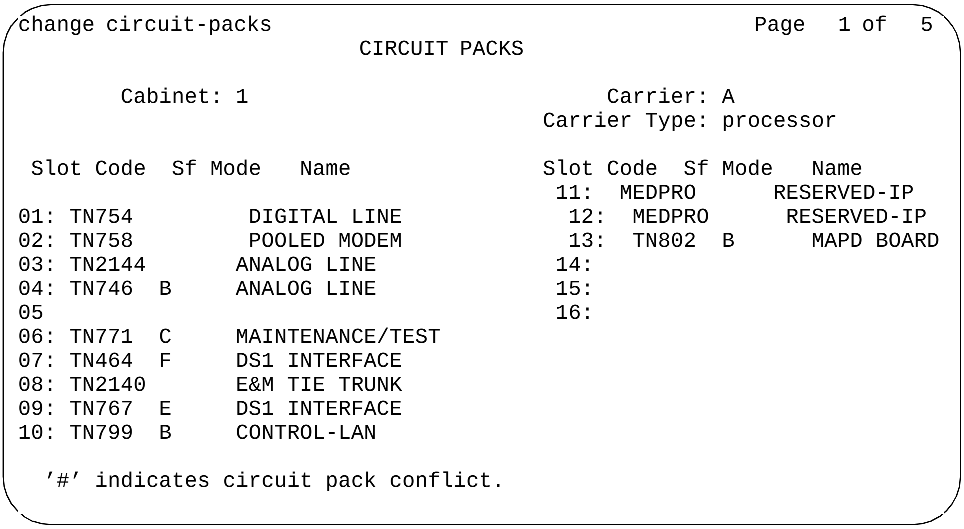
1. Login as **craft**
2. Type **change node-names** and press Enter
3. On screen 2, type in the node name and IP address for the TN802B.



```
change node-names                                                  Page   2 of   6
                               NODE NAMES

    Name                IP Address           Name               IP Address

clan-a1               192.168.1 .31                           .   .   .
clan-b1               192.168.2 .31                           .   .   .
default               0   .0   .0   .0                        .   .   .
med-a1                192.168.1 .81                           .   .   .
                         .   .   .                          .   .   .
                         .   .   .                          .   .   .
                         .   .   .                          .   .   .
```

4. Type **change circuit-pack** and press Enter.

5. Check the Code column to see if it says DSMAPD or MedPro.



```
change circuit-packs                                     Page   1 of  5
                           CIRCUIT PACKS

        Cabinet: 1                                Carrier: A
                                             Carrier Type: processor

 Slot Code  Sf Mode   Name                   Slot Code  Sf Mode   Name
                                          11:  MEDPRO      RESERVED-IP
01: TN754         DIGITAL LINE             12:  MEDPRO      RESERVED-IP
02: TN758         POOLED MODEM             13:  TN802  B      MAPD BOARD
03: TN2144       ANALOG LINE              14:
04: TN746  B     ANALOG LINE              15:
05                                        16:
06: TN771  C     MAINTENANCE/TEST
07: TN464  F     DS1 INTERFACE
08: TN2140       E&M TIE TRUNK
09: TN767  E     DS1 INTERFACE
10: TN799  B     CONTROL-LAN

  ’#’ indicates circuit pack conflict.
```

6. To correct it, go to the entry just above the TN802B that says DSMAPD.
7. Type MEDPRO, and press Enter. Changing the one entry automatically changes the entry above it. If it is in IP Trunk mode, you get the following error message:

   `MedPro type requires TN802 with application. Type MEDPRO on circuit-packs form.`

8. Type **change ip-interfaces** and press Enter.
9. Type in the information for the TN802B IP Interface,
10. Set the `Enabled` field to **y**, and press Enter.

NOTE:
The customer provides the subnet mask and gateway information.

At this time the TN802B LCD reads **PC BOOT ***, and about 3 to 4 minutes later reads **MEDPRO *** with the asterisk flashing

.

```
change ip-interfaces                                        Page   1 of   2


 Network regions are interconnected?  n
  En-                                                                 Net
 abled Type    Slot   Code Sfx Node Name       Subnet Mask      Bcast/Gway
Addr Rgn
   n   C-LAN  01A09 TN799    clan-a1        255.255.255.0   192.168.1 .100 1
  y  MEDPRO 01A13 TN802  B med-a1       255.255.255.0   192.168.1 .21  1
   n                                        255.255.255.0      .   .   .
   n                                        255.255.255.0      .   .   .
   n                                        255.255.255.0      .   .   .
   n                                        255.255.255.0      .   .   .
   n                                        255.255.255.0      .   .   .
   n                                        255.255.255.0      .   .   .
   n                                        255.255.255.0      .   .   .
   n                                        255.255.255.0      .   .   .
   n                                        255.255.255.0      .   .   .
   n                                        255.255.255.0      .   .   .
   n                                        255.255.255.0      .   .   .
   n                                        255.255.255.0      .   .   .
   n                                        255.255.255.0      .   .   .
```

Test the External Connection to the LAN

To test the external IP connections, ping the IP Interface server, and ping a known computer connected to your network. If everything is configured correctly, the `Result` column on the Ping Results screen reads **pass**. If it reads **abort**, verify the IP-address information and check the connectivity, including the cabling.

1. Type **ping ip-address *nnn.nnn.nnn.nnn* board *ccCss*** and press Enter. The variable ***nnn.nnn.nnn.nnn*** is the IP address of the TN802B IP Interface and ***ccCss*** is the cabinet, carrier, and slot of the TN802B IP Interface.

```
ping ip-address 192.168.10.21

                          PING RESULTS

  End-pt IP         Port       Port Type   Result     Time(ms)   Error Code

  192.168.10.21     01A13       MEDPRO    PASS        10         1124
```

2. Type **ping ip-address *nnn.nnn.nnn.nnn* board *ccCss*** and press Enter. The variable ***nnn.nnn.nnn.nnn*** is the IP address of the customer's gateway and ***ccCss*** is the cabinet, carrier, and slot of the TN802B IP Interface.
3. Type **ping ip-address *nnn.nnn.nnn.nnn* board *ccCss*** and press Enter. The variable ***nnn.nnn.nnn.nnn*** is the IP address of another computer beyond the gateway and ***ccCss*** is the cabinet, carrier, and slot of the TN802B IP Interface.

The TN802B IP Interface is now installed in the DEFINITY carrier and connected to the IP network.

IP Trunk Mode

NOTE:
IP Trunk mode should only be used to maintain compatibility with existing Release 7 IP Trunk or ITS-E installations. We strongly recommend that MedPro mode be used whenever possible.

Prepare for Installation

Have the following equipment on site before your shipment arrives:

- A mouse, keyboard, and VGA monitor for use during the installation of the server. You also need AC power outlets for the modem and monitor.
- Three adjoining, unoccupied port slots in the DEFINITY ECS

  The TN802B IP Interface slides into only 1 slot, but its faceplate occupies 3 slots.
- A 10 BaseT or 10/100 BaseT Ethernet connection into the customer's local area network (LAN)
- A valid, unused IP address on the customer's LAN that can be assigned to the IP Interface server. You also need the subnet mask, default gateway, domain name, and so forth from the customer's network administrator.
- An analog telephone line reserved for the IP Interface diagnostic modem
- A valid telephone number reserved for the IP Interface diagnostic modem

If non-U.S. customer:

- Modem comparable to a U.S. Robotics, Inc. Sportster Model USR 33.6 EXT.
- A cable from the modem to the TN802B external cable assembly.

We recommend that you protect the cabinet where the IP Interface is installed with an uninterruptible power system (UPS).

Check your Shipment

When your DEFINITY Media Processor order arrives at the customer's site, check the contents.

1. Inspect the shipping carton for damage before opening it. If the box is damaged, *do not open it*. Inform the shipping company, and ask for instructions on filing a claim.
2. If the box is undamaged, check the contents against the packing slip. Check the condition of each component, and note any damage or shortages on the packing slip. The carton should contain the following for each IP Interface ordered:.

Table 5-27. Required Hardware

Comcode	Description	Quantity
J58890MA-1 L30	TN802B IP Interface Assembly	1
H600-475	TN802B external cable assembly	1
407633999	U.S. Robotics Sportster external modem, model number USR 33.6 EXT (U.S. customers only) [1]	1
601087091	20-ft DB-25 serial cable from modem to TN802B external cable assembly (U.S. customers only) [2]	1

---

1. For non-U.S. customers, you need a modem comparable to the U.S. Robotics Sportster and a serial cable.

The TN802B external cable assembly is a bundle of cables with an amphenol connector at the end of the bundle and various PC-type connectors (VGA, Universal Serial Bus [USB], mouse, keyboard, Ethernet, modem, and COM2) at the ends of the individual cables. See Figure 5-48. Look for the label where the bundle enters the amphenol connector.

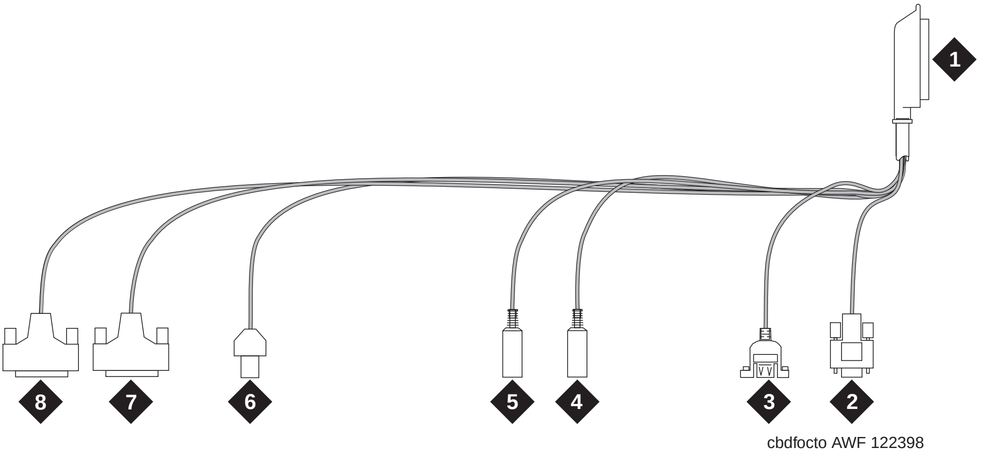


Figure Notes

1. Amphenol connector to connector corresponding to TN802B slot
2. To VGA monitor
3. To USB (not used)
4. To keyboard
5. To mouse
6. To ethernet
7. 25-pin male connector to modem
8. 25-pin male connector to COM2

Figure 5-48. TN802B IP Interface External Cable Assembly

3. Read and follow any directions inserted into the package by the factory.

Connect the Cables

1. Determine into which port slot you are putting the TN802B IP Interface.

   NOTE:
   Make sure that at least 3 adjoining slots are free.

2. From the rear of the cabinet, connect the amphenol connector on the external cable assembly to the backplane connector corresponding to that slot (the highest numbered connector of the 3 slots required).

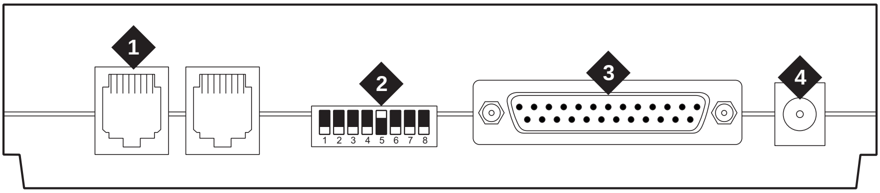
Connect the Modem

NOTE:
These instructions are for connecting the U.S. Robotics modem supplied to U.S. customers only. If using a different modem, follow the manufacturer's instructions on connecting the modem.

1. Connect the RS232 port of the modem to the MODEM connector of the TN802B external cable assembly.

   NOTE:
   Check the labels near the connectors; the MODEM and COM2 connectors look the same.

2. Connect an analog telephone line to the leftmost analog-line port on the modem as shown in Figure 5-49.
3. Make sure that the modem's DIP switches are set as shown in Figure 5-49.
4. Plug the modem into an AC power outlet.
5. Turn on the modem using the switch on the front of the modem.



modfrobo KLC 030499

Figure Notes

1. Connect analog line here.	3. Connect MODEM connector here.
2. DIP switch 5 must be up.	4. Connect power connector here.

Figure 5-49. External Modem Connections for U.S. Robotics Sportster

Connect the Monitor, Keyboard, and Mouse

NOTE:
Only make these connections if administered locally. Not necessary if administered remotely.

You must connect these before inserting the TN802B IP Interface.

1. Attach a VGA monitor to the VGA connector of the TN802B IP Interface external cable assembly.
2. Attach the keyboard to the KEYBOARD connector of the external cable assembly.
3. Attach the mouse to the MOUSE connector of the external cable assembly.
4. Plug the monitor into an AC power receptacle and turn it on.

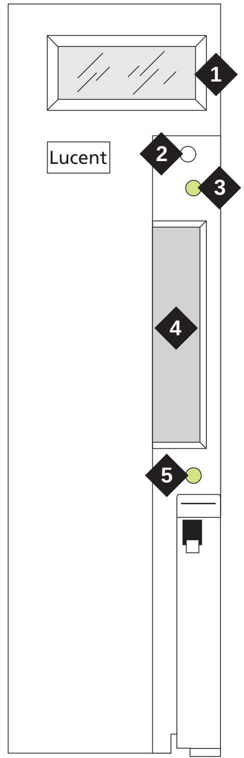
Connect the Ethernet

1. Connect the network cable to the ETHERNET connector on the TN802B external cable assembly.

Install the Assembly

NOTE:
The TN802B IP Interface is hot-swappable, so you do not need to power down the carrier to install it.

If you need to remove the TN802B IP Interface from the carrier at a later time, shut down Windows NT first by pressing the recessed reset button on the faceplate (see Figure 5-50) of the TN802B IP Interface until the LCD shows a flashing **MSHUT ***. When the flashing stops and the asterisk disappears (about 2 min), it is safe to remove the circuit pack.



fpdfmapd KLC 030899

Figure Notes

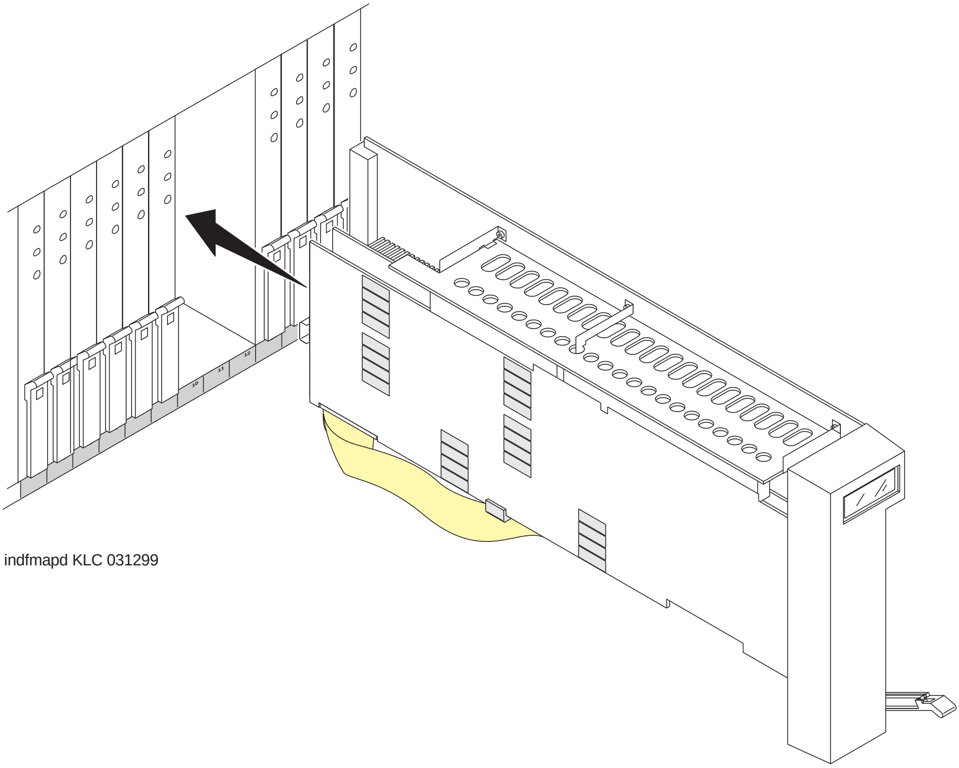
1. LCD display
2. Reset button (recessed)
3. Red board status LED
4. PCMCIA card slot
5. Yellow PCMCIA disk-in-use LED

Figure 5-50. TN802B IP Interface faceplate

1. Insert the TN802B IP Interface into the right most of the three slots you reserved for it (see Figure 5-51).

   NOTE:
   To properly seat the circuit pack, push firmly on the front of the faceplate until the latch reaches the bottom rail of the carrier. Then close the latch until it is fully engaged.

   When you plug in the TN802B IP Interface, the circuit pack starts to boot and the LCD reads **PC Boot** then after about 3 to 4 minutes it changes to **IP TRK ***, the default mode.



indfmapd KLC 031299

Figure 5-51. J58890MA-1 L30 IP Interface Assembly

Test the Modem

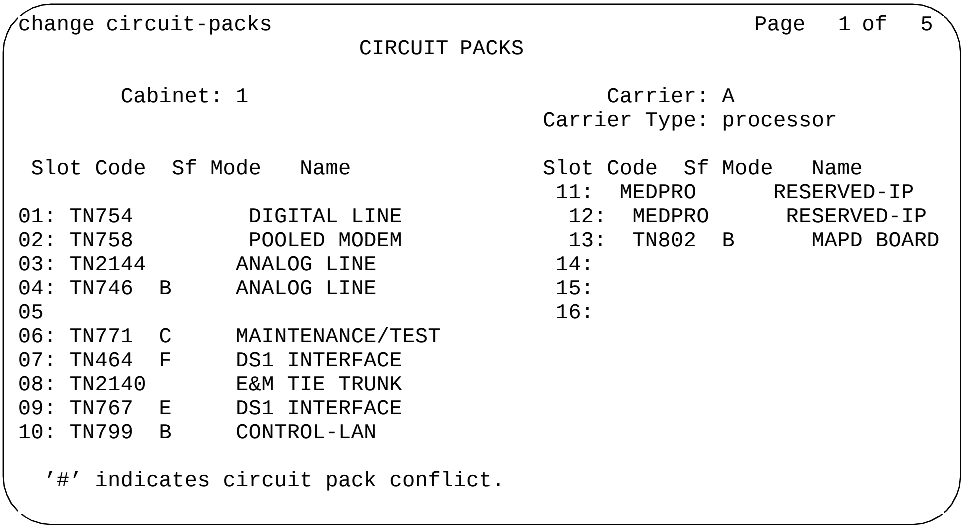
1. Check for dial tone.
2. Contact Lucent Technologies Customer Support and ask a representative to dial into your IP Interface server.

Administer the IP Interface

Administration is done either locally or remotely. If administered locally, proceed with the following administration steps on the attached keyboard, mouse, and monitor. If administered remotely, call your service representative to start the process.

Administration

1. Type **change circuit-pack** and press Enter.
2. Check the Code column to see if it says DSMAPD or MedPro.



```
change circuit-packs                                            Page   1 of   5
                          CIRCUIT PACKS

        Cabinet: 1                                    Carrier: A
                                              Carrier Type: processor

 Slot Code   Sf Mode    Name                  Slot Code   Sf Mode    Name
                                               11:  MEDPRO        RESERVED-IP
01: TN754          DIGITAL LINE                 12:  MEDPRO        RESERVED-IP
02: TN758          POOLED MODEM                 13:  TN802   B       MAPD BOARD
03: TN2144        ANALOG LINE                  14:
04: TN746   B     ANALOG LINE                  15:
05                                             16:
06: TN771   C     MAINTENANCE/TEST
07: TN464   F     DS1 INTERFACE
08: TN2140        E&M TIE TRUNK
09: TN767   E     DS1 INTERFACE
10: TN799   B     CONTROL-LAN

  '#' indicates circuit pack conflict.
```

3. To correct it, go to the entry just above the TN802B that says DSMAPD.
4. Type MEDPRO, and press Enter. Changing the one entry automatically changes the entry above it. If it is in IP Trunk mode, you get the following error message:

   `MedPro type requires TN802 with application. Type MEDPRO on circuit-packs form.`

Log onto the TN802B Interface Server

If administered remotely through pcANYWHERE:

1. Dial in to the server through pcANYWHERE using the dialup number supplied.
2. Click on the pcANYWHERE Remote Host Computer button on the toolbar to send CTRL ALT DEL to the host.
3. Type **administrator** in the `User Name` field.
4. Type **iptrunk** in the `Password` field and click **OK**.
5. After logging on for the first time, change the administrator password and, if desired, the user name, to ensure security. See your Windows NT server documentation for details.

If administered locally on a monitor, keyboard, and mouse:

1. Press CTRL, ALT, and DEL simultaneously.
2. Type **administrator** in the `User Name` field.
3. Type **iptrunk** in the `Password` field and click **OK**.
4. After logging on for the first time, change the administrator password and, if desired, the user name, to ensure security. See your Windows NT server documentation for details.

Assign Server and Domain Names

The Windows NT server identifies servers using a server name plus a domain name that locates the named server in a particular part of the network. The TN802B IP Interface is shipped with generic server and domain names. Assign replacement names that are meaningful within your network.

1. Click on **My Computer > Control Panel > Network**.
2. Select the **Identification** tab, then click **Change**.
3. Type the new server name in the `Computer Name` field.
4. Type the new domain name in the `Domain` field and click **OK > OK > Close**.
5. When prompted to reboot the computer, select one of the following options:
   - **No** if you have not assigned IP addresses then go to "Assign an IP Address"
   - **Yes** if you have assigned IP addresses.
6. Restart Windows NT to effect the changes.

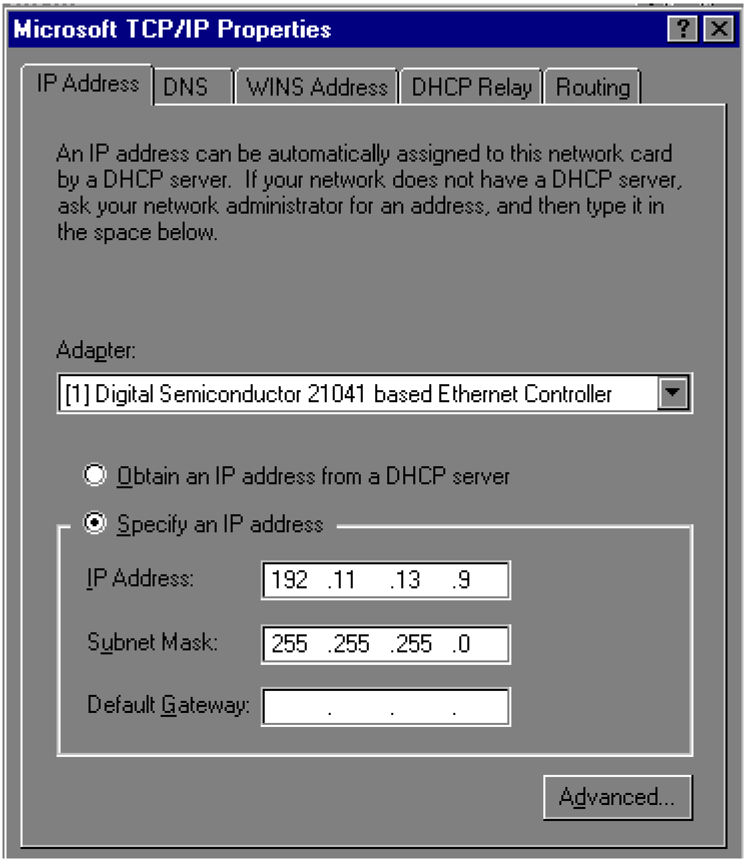
⚠ **WARNING:**

When connected remotely via pcANYWHERE, only use the pcANYWHERE Restart Host Computer button on the toolbar to restart Windows NT.

Assign an IP Address

1. Click on **My Computer > Control Panel > Network**.
2. Click the **Protocols** tab.
3. Select **TCP/IP Protocol** from the list.

4. Click the **Properties** option in the Network window.



Microsoft TCP/IP Properties

An IP address can be automatically assigned to this network card by a DHCP server. If your network does not have a DHCP server, ask your network administrator for an address, and then type it in the space below.

Adapter: [1] Digital Semiconductor 21041 based Ethernet Controller

○ Obtain an IP address from a DHCP server

● Specify an IP address

IP Address: 192 .11 .13 .9

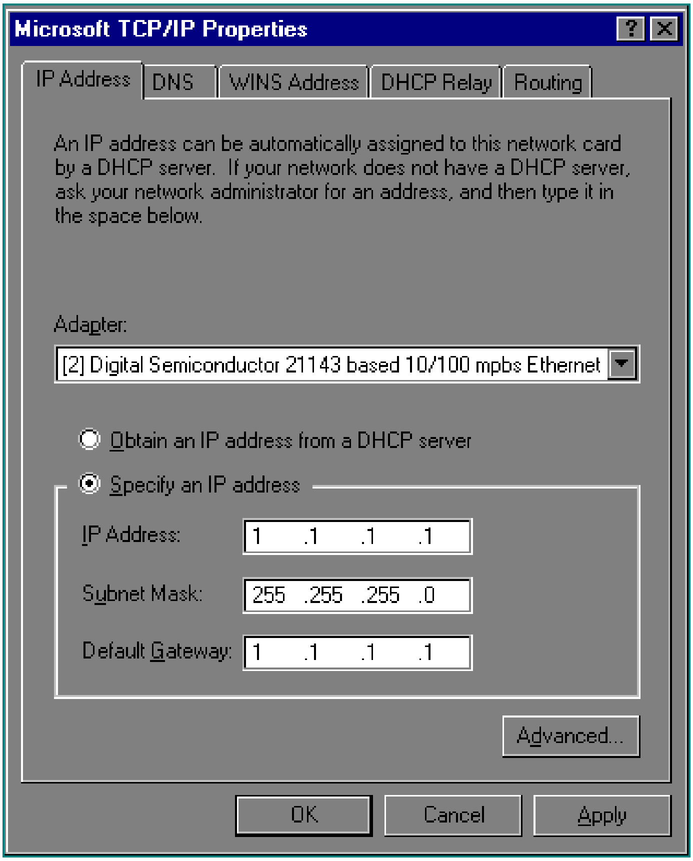
Subnet Mask: 255 .255 .255 .0

Default Gateway: . . .

5. Verify that the `Adapter` drop down menu lists 2 DEC Ethernet adapters.

⚠ CAUTION:
Do not change any settings on the adapter labeled [1].

6. Select the DEC Ethernet adapter labeled [2].



An IP address can be automatically assigned to this network card by a DHCP server. If your network does not have a DHCP server, ask your network administrator for an address, and then type it in the space below.

Adapter:
[2] Digital Semiconductor 21143 based 10/100 mpbs Ethernet

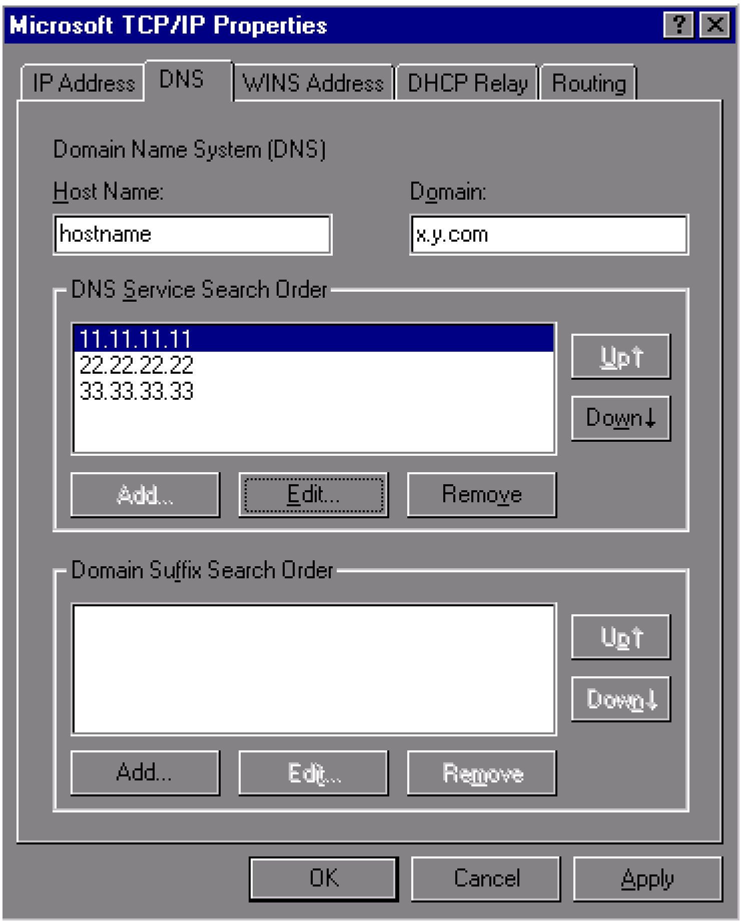
○ Obtain an IP address from a DHCP server
● Specify an IP address

IP Address: 1 .1 .1 .1
Subnet Mask: 255 .255 .255 .0
Default Gateway: 1 .1 .1 .1

7. Type a valid IP address for the IP Interface server in the `IP Address:` field.
8. Type the appropriate subnet mask in the `Subnet Mask:` field.

NOTE:
Not all networks require steps 9 through 18. Check with the local network administrator to determine which are required.

9. If you use gateways, type the IP address of the default gateway for the IP Interface server in the `Default Gateway:` field.
10. Click on the DNS tab and verify that the domain DNS server is correct.



Domain Name System (DNS)

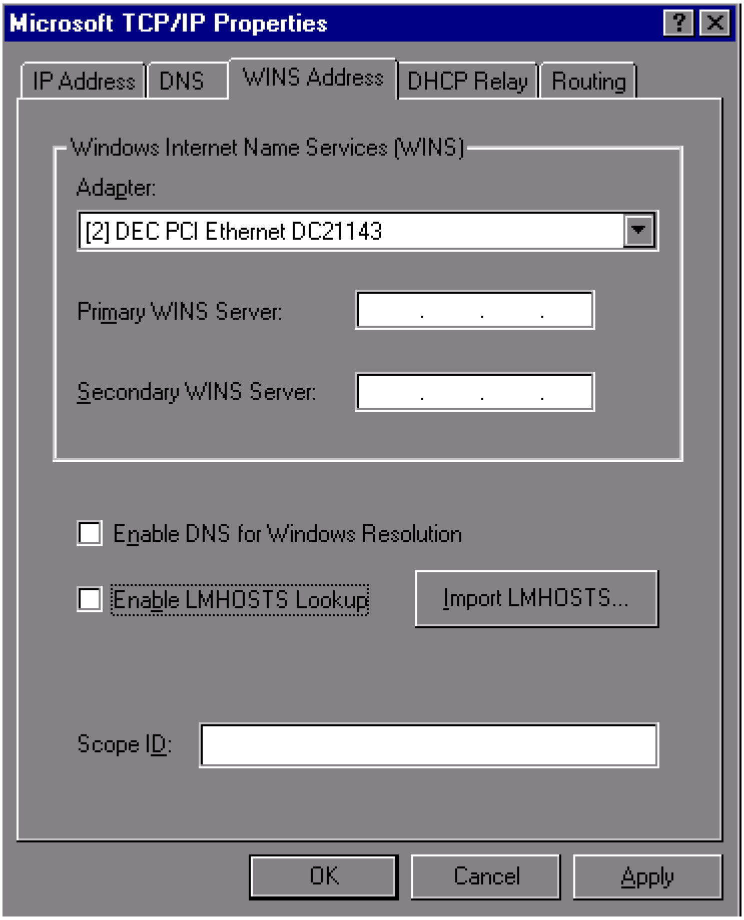
Host Name: hostname

Domain: x.y.com

DNS Service Search Order
11.11.11.11
22.22.22.22
33.33.33.33

Domain Suffix Search Order

11. Type domain name in the `Domain` field.
12. If using DNS, click `Add` under the `DNS Service Search Order` field and type its IP address.
13. Click on the WINS Address tab.



Adapter: [2] DEC PCI Ethernet DC21143

Primary WINS Server: . . .

Secondary WINS Server: . . .

☐ Enable DNS for Windows Resolution

☐ Enable LMHOSTS Lookup

Scope ID:

14. Make sure the [2] DEC shows in the `Adapter` field.
15. If WINS server is available, type its IP address in the `Primary WINS Server` field.
16. If DNS is available, select `Enable DNS for Windows Resolution`.
17. If the network uses an imported LMHOSTS file, select `Enable LMHOSTS Lookup` and `Import LMHOSTS` and click **OK**.
18. If the following dialog box opens, click **Yes**:

    ```
    At least one of the adapter cards has an empty primary
    WINS address. Do you want to continue?
    ```

19. Click the **Bindings** tab to effect the changes.

    NetBIOS Interface, Server, and Workstation should now be enabled. If any are disabled (a red circle with a line through it), review the previous network-configuration steps for omissions or errors.

20. Click **Close**.

If administered remotely through pcANYWHERE:

21. Click on the pcANYWHERE Restart Host Computer button on the toolbar to restart the computer.

If administered locally on a monitor, keyboard, and mouse:

21. Click **Yes** in the dialog box to restart the computer.

WARNING:

When connected remotely via pcANYWHERE, only use the pcANYWHERE Restart Host Computer button on the toolbar to restart Windows NT.

Check Network Services

When the server restarts, make sure that the required network services have started correctly. If you see an error dialog box, then the network services did not start correctly. Also, check the NT Event Log.

1. Click on **My Computer > Control Panel > Network > Services.** Make sure that the following services are listed:
   - Computer Browser
   - Microsoft Internet Information Server 2.0
   - NetBIOS Interface
   - RPC Configuration
   - Server
   - Workstation
2. Click the **Protocols** tab, and examine the Network Protocols. TCP/IP protocol should be the only one listed.
3. Click **OK**.

Test the External Connection to the LAN

To test the external IP connections, ping the IP Interface server and ping a known computer connected to your network.

1. Click **Start > Programs > Command Prompt**.
2. Type **ping *nnn.nnn.nnn.nnn*** (which is your IP address).
   - If everything is configured correctly, the system responds with the following message:

     ```
     Reply from nnn.nnn.nnn.nnn: bytes=32 time<##ms
     TTL=###
     ```
   - If no response, verify the IP-address information and check the connectivity, including the cabling.

3. At the command prompt, type **ping *nnn.nnn.nnn.nnn*** (which is the IP address of your gateway).
   - If everything is configured correctly, the system responds with the following message:

     ```
     Reply from nnn.nnn.nnn.nnn: bytes=32 time<##ms
     TTL=###
     ```

   - If no response, verify the IP address information and check the connectivity, including the cabling.
   - I f all else fails, click on **Start > Settings > Control Panel > Network**. Select the **Adapters** tab and highlight the [2] DEC adapter.
   - Click **Properties > Change**.
   - From the Duplex Mode dropdown menu, select a setting that matches the switch/hub that the TN802B connects to. For example, 10BaseT Full Duplex or 10BaseT No Link Test
4. At the command prompt, type **ping *nnn.nnn.nnn.nnn*** (which is the IP address of another external computer beyond the gateway).
   - If you have connectivity, the system responds with the following message:

     ```
     Reply from nnn.nnn.nnn.nnn: bytes=32 time<##ms
     TTL=###
     ```

   - If no response, verify the IP address information and check the connectivity, including the cabling. Consult your IP network administrator.
5. Type **exit** and press Enter.

Test the IP Interface Onboard LAN Connections

To test the onboard LAN connections, ping the IP Interface server and the processor on the TN802B IP Interface.

1. Click **Start > Programs > Command Prompt**.
2. Type **ping *192.11.13.9*** (which is the IP address of the internal IP Interface server).
   - If everything is configured correctly, the system responds with the following message:

     ```
     Reply from 192.11.13.9: bytes=32 time<##ms TTL=###
     ```

   - If no response, verify the IP address information and check the connectivity, including the cabling.

3. At the command prompt, type **ping *192.11.13.8*** (which is the IP address of the internal processor).
   - If you have connectivity, the system responds with the following message:

     ```
     Reply from 192.11.13.8: bytes=32 time<##ms TTL=###
     ```

   - If no response, verify the IP settings for Adapter [1].
4. Type **exit** and press Enter.

The TN802B IP Interface is now installed in the DEFINITY carrier and connected to the IP network. You can now use the Configuration Manager software (preinstalled on the TN802B hard disk) and DEFINITY ECS switch administration to administer connections to other IP Trunk and ITS-E equipment.

Making a TN802 into a TN802B

To upgrade the existing TN802 IP Interface to operate in MedPro mode, you need the following hardware:

NOTE:
The TN802 IP Interface must be vintage x or later.

- Monitor, keyboard, and mouse to access the IP Interface's Windows NT environment or pcANYWHERE software.
- 10-Mbyte SanDisk PCMCIA flashcard loaded with the MedPro NT Application Install Wizard
- TN802B label

Connect the Monitor, Keyboard, and Mouse

1. Attach a VGA monitor to the VGA connector of the TN802 IP Interface external cable assembly.
2. Attach the keyboard to the KEYBOARD connector of the external cable assembly.
3. Attach the mouse to the MOUSE connector of the external cable assembly.
4. Plug the monitor into an AC power receptacle and turn it on.
5. Reboot Windows NT by pressing the recessed reset button on the faceplate (see Figure 5-50) of the TN802B IP Interface until the LCD shows a flashing **MSHUT ***. When the flashing stops and the asterisk disappears (about 2 min), it is safe to remove the circuit pack.
6. After the TN802B is shut down, unlatch and pull the circuit pack out about 2 in. (5 cm) then re-insert it to restart the system.

Upgrade the IP Interface

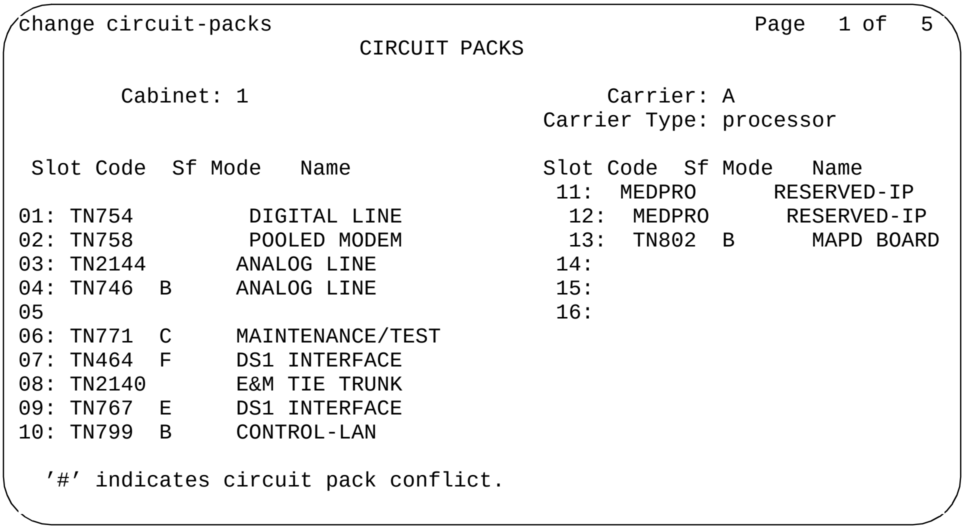
1. Insert the flash disk into the right most slot on the TN802B IP Interface. On the terminal, a dialog box assigns a drive letter; the default is (D:).
2. Right click on **Start > Explore** to open the Windows NT Explore pane and select the drive letter indicated in step 1
3. Double-click on **Medpro** and select the Setup icon.
4. Follow the Install Shield procedure to transfer all the necessary files to the TN802 IP Interface. In the Finish dialog box, select `I will restart later`.
5. Click on **Start > Settings > Control Panel > Services**.
6. Select **IP Trunk** and click on **Startup**.
7. Under Startup Type, select **Disabled** and click **OK** to disable IP Trunk mode.
8. Select **MedPro** and click on **Startup**.
9. Under Startup Type, select **Automatic** and click **OK** to enable MedPro mode.
10. Click **Start > Shut Down** and select `Restart the computer?`

    or

    Press the recessed reset button on the faceplate (see Figure 5-50) of the TN802B IP Interface until the LCD shows a flashing **MSHUT ***. When the flashing stops and the asterisk disappears (about 2 min), it is safe to remove the circuit pack.
11. After the TN802B is shut down, unlatch and pull it out about 2 in. (5 cm) then re-insert it to restart the system. Or type **reset board** and press Enter on the SAT. Once the system is completely initialized, the LCD reads **MEDPRO ***.
12. Affix the new TN802B label to the circuit pack.
13. Disconnect the monitor, keyboard, and mouse.

Circuit Pack Verification

1. Type **change circuit-pack** and press Enter.
2. Check the Code column to see if it says DSMAPD or MedPro.



```
change circuit-packs                                      Page   1 of   5
                           CIRCUIT PACKS

        Cabinet: 1                                    Carrier: A
                                                 Carrier Type: processor

 Slot Code   Sf Mode    Name                     Slot Code   Sf Mode    Name
                                                  11:  MEDPRO      RESERVED-IP
01: TN754         DIGITAL LINE                     12:  MEDPRO      RESERVED-IP
02: TN758         POOLED MODEM                     13:  TN802   B      MAPD BOARD
03: TN2144       ANALOG LINE                      14:
04: TN746   B    ANALOG LINE                      15:
05                                                16:
06: TN771   C    MAINTENANCE/TEST
07: TN464   F    DS1 INTERFACE
08: TN2140       E&M TIE TRUNK
09: TN767   E    DS1 INTERFACE
10: TN799   B    CONTROL-LAN

  ’#’ indicates circuit pack conflict.
```

3. To correct it, go to the entry just above the TN802B that says DSMAPD.
4. Type MEDPRO, and press Enter. Changing the one entry automatically changes the entry above it. If it is in IP Trunk mode, you get the following error message:

   ```
   MedPro type requires TN802 with application. Type
   MEDPRO on circuit-packs form.
   ```

Installing an Integrated Channel Service Unit (ICSU) Module

The integrated channel service unit (ICSU) is a combination of a 120A CSU module integrated with a DS1 circuit pack. Use this device with the 700A DS1 loopback jack when testing the DS1 span.

Checking for required components

The integrated channel service unit (ICSU) package contains:

- 120A CSU module
- Cable H700-383

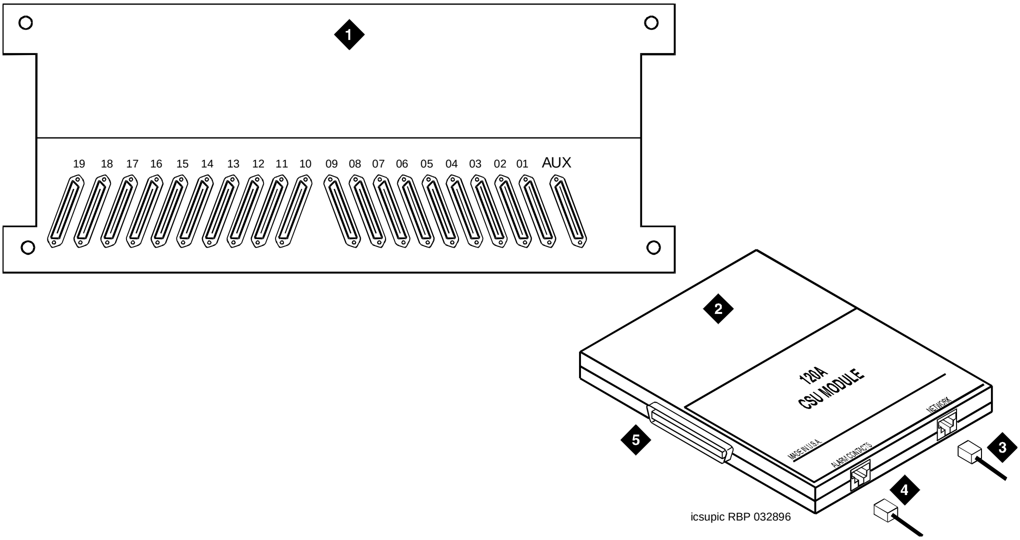
  4-pair modular cord
  Group 2, 50-ft (15.2 m) cable (standard)
- Cord DW8A-DE

  4-pair modular cord to alarm contacts
- DS1 circuit pack

  The basic ICSU requires a TN474E or TN777D or later suffix. The enhanced integrated channel service unit requires a TN474F or TN777E or later suffix.

Installing the 120A CSU

S igure 5-52.



1. Rear of carrier containing DS1 circuit pack
2. 120A CSU
3. 4-pair cord to network interface (H700-383)
4. DW8A-DE 4-pair cord to alarm contacts (optional)
5. To 25-pair connector on rear of carrier containing DS1 circuit pack

Figure 5-52. 120A Channel Service Unit Module

CAUTION:

Do not plug the 120A into any circuit pack other than a TN474F or TN777E or later release/vintage. Do not connect the 120A to any interface other than a network smart jack.

Be sure the DS1 circuit pack is set for 24-channel operation (1.544 Mbps). The 120A does not operate with the 32-channel interface. A switch on the circuit pack or administration sets this option.

CAUTION:

Always wear an anti-static wrist strap when installing a 120A module. Do not touch the external alarm cable when it is connected to the 120A. Static discharge can damage connector terminals and relays.

1. Unplug the DS1 circuit pack from its slot.
2. Install a 4C retainer in the 50-pin plug associated with the DS1 circuit pack slot.
3. Plug the 120A’s 25-pair connector directly into the plug associated with the DS1 circuit pack slot.

4. Secure the 4C retainer around the 120A.
5. Attach the supplied H700-383 cable to the 120A and to the network smart jack.

   This cable is directional. To determine the end that connects to the 120A, perform a continuity test between pins 3 and 7. The end with this continuity is the 120A end. The shield is grounded only at the 120A end.

   Use the cable provided. If cabling other than that provided with the 120A is used, observe the following guidelines:

   - Use 24-gauge wire that provides individually shielded, twisted pairs for transmit and receive signals. Use the cable between the network interface and the 120A. Ground the shields of this cable only at the 120A end to avoid ground loops.
   - Cabling between the network interface and 120A can have no bridge taps.
   - If using standard house riser cable for connections between the network interface and the 120A, maintain a 100-pair separation between the receive and transmit twisted pairs.
   - If using standard house riser cable for connections between the network interface and the 120A, allow no more than 2 cross connects to 110-type cross connect blocks.
   - Never use quad cable (untwisted two pair telephone cable) in a DS1 line.
   - Avoid mixing wires of different gauges in a DS1 line.
6. If using external alarm equipment, attach the supplied DW8 cable to the 120A and the external equipment. The maximum length of this cable depends on the alarm equipment.
7. If a TN474F is used, make sure the circuit pack is set for 24-channel operation. Set the switch on the circuit pack as shown in Figure 2-1.
8. From the DS1 circuit-pack form of the system administration console, set the line compensation field to 0-133 feet (40.6 m).
9. Reset the 120A by reseating the DS1 circuit pack.

   When you reinsert the DS1 circuit pack after installing a 120A CSU the 120A resets. The DS1 circuit pack initializes and tests the 120A. When initialization and testing is complete, the green LED goes off. If the RED indicator is OFF after the test, the ICSU is working.
10. If the circuits do not pass the self test, troubleshoot the 120A as instructed in *Integrated CSU Module Installation and Operation,* 555-230-193.

Table 5-28 provides the H700-383 cable pinouts. Table 5-29 provides the cable lengths for each cable group number.

Table 5-28. H700-383 cable Pin Assignments

Pin	Color	Channel Service Unit Designation	Network Designation	Function
1	BK	Line in 0	R1	RCV
2	Y	Line in 1	T1	
3	Shield			
4	R	Line out 0	R	XMT
5	G	Line out 1	T	
7	Shield			
7				Not assigned
8				Not assigned

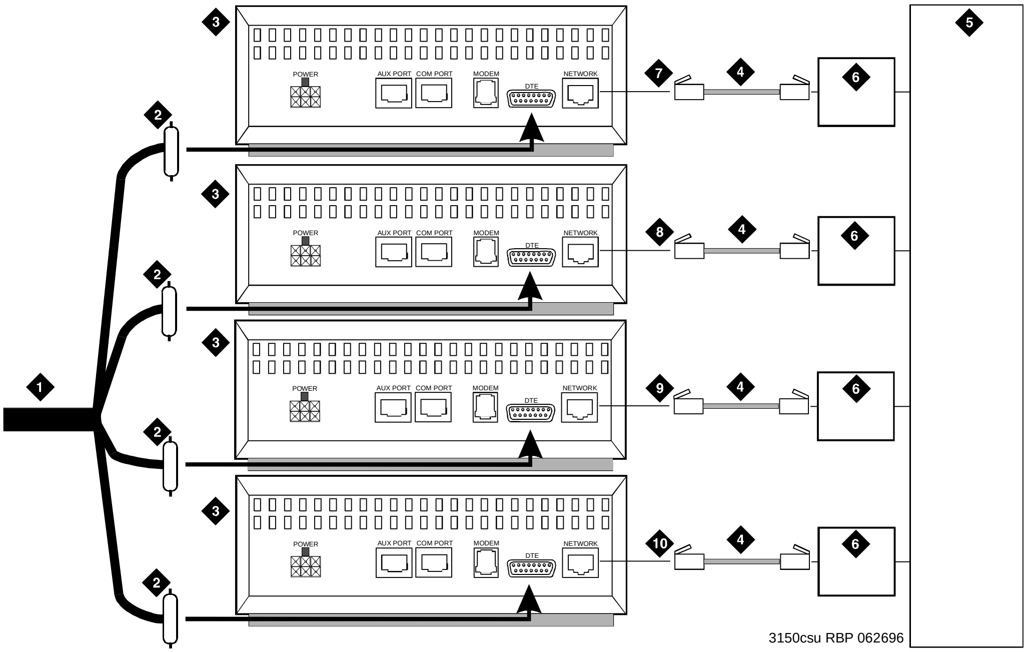
Table 5-29. H700-383 cable Lengths by Group Number

Group	Length	Group	Length
1	25 ft (7.7 m)	5	125 ft (38.1 m)
2	50 ft (15.2 m)	7	200 ft (71 m)
3	75 ft (22.9 m)	7	400 ft (122 m)
4	100 ft (30.5 m)	8	750 ft (198.1 m)

Installing a 3150/3170 Channel Service Unit

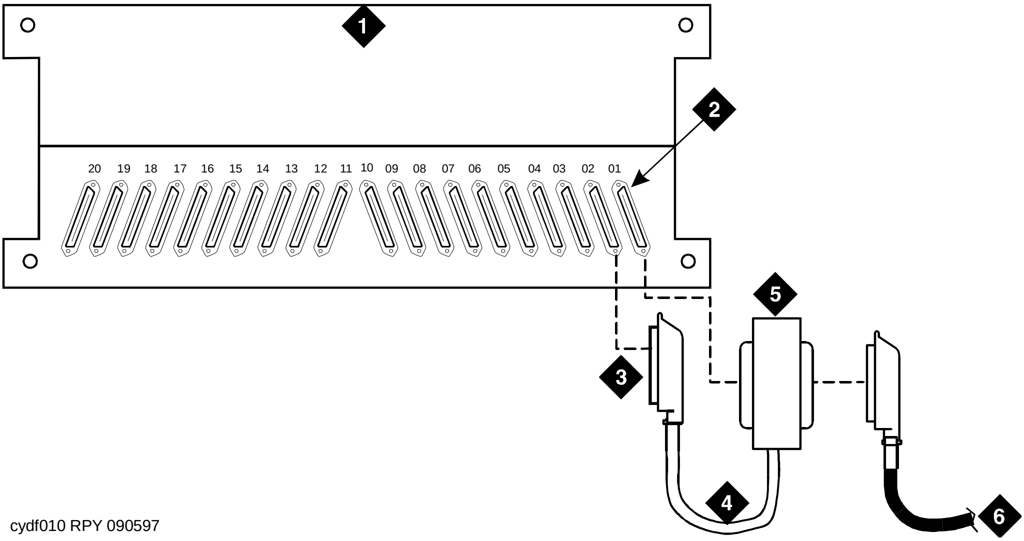
1. Install the CSU as shown in Figure 5-13. For some installations (such as a DS1 converter), use a Y-cable to connect the DEFINITY System to the quad cable. Table 5-13 shows the Y-cable lengths. Be sure to label all cables.

   Figure 5-13 shows a typical connection from the H700-348 Quad cable to the CSU, through the H700-307 network cable, and to the network interface through the smart jacks. The quad cable provides up to four connections using a 15-pin connector that plugs into the DTE jack on each CSU. The H700-348 quad cable may require an adapter cable.



1. H700-348 quad cable
2. 15-pin male “D” connectors (to DTE jacks on CSU)
3. Channel service unit (CSU)
4. H600-383 cable (RJ-48C to RJ-48C)
5. Network interface
6. Smart jack (if provided)
7. Cable A
8. Cable B
9. Cable C
10. Cable D

Figure 5-53. 3150/3170 Channel Service Unit Connections



1. Port carrier
2. DS1 converter connector
3. 50-pair female connector to DEFINITY System
4. 14-Inch (35.57 cm) “Y” cable
5. 50-Pin Male/50-pin female double-headed connector cable
6. Quad cable (with 50-pin male connector) connects to the channel service unit.

Figure 5-54. DS1 Converter Connections Using Double-Headed cable

Table 5-30. “Y” cable Lengths (DS1 converter Only)

Length (in/cm)	Description	Comcode
14/35.5	TN1754 to adjacent expansion interface circuit pack or TN573B switch node interface circuit pack in same carrier	847245750
70/177.8	TN1754 to expansion interface circuit pack or switch node interface in another carrier	847245778
14/35.5	TN1754 to fiber optic transceiver (DC-powered cabinets only). This cable is for intercabinet cabling only.	847245777
14/35.5	TN1754 to adjacent TN570/B/C expansion interface circuit pack	847747741

Connector and Cable Diagrams (Pinout Charts)

See Table 5-31 for lead designations. The circuit packs and auxiliary equipment are classified as shown in the tables at the end of this chapter.

Table 5-31. Lead and Color Designations

Cross- Connect Pin	Color	Amphenol Pin	Backplane Pin
1	W-BL	26	102
2	BL-W	01	002
3	W-O	27	103
4	O-W	02	003
5	W-G	28	104
6	G-W	03	004
7	W-BR	29	105
8	BR-W	04	005
9	W-SL	30	106
10	SL-W	05	006
11	R-BL	31	107
12	BL-R	06	007
13	R-O	32	108
14	O-R	07	008
15	R-G	33	109
16	G-R	08	009
17	R-BR	34	110
18	BR-R	09	010
19	R-SL	35	111
20	SL-R	10	011
21	BK-BL	36	112
22	BL-BK	11	012
23	BK-O	37	113
24	O-BK	12	013
25	BK-G	38	302
26	G-BK	13	202
27	BK-BR	39	303
28	BR-BK	14	203
29	BK-SL	40	304

Continued on next page

Table 5-31. Lead and Color Designations — *Continued*

Cross- Connect Pin	Color	Amphenol Pin	Backplane Pin
30	SL-BK	15	204
31	Y-BL	41	305
32	BL-Y	16	205
33	Y-O	42	306
34	O-Y	17	206
35	Y-G	43	307
36	G-Y	18	207
37	Y-BR	44	308
38	BR-Y	19	208
39	Y-SL	45	309
40	SL-Y	20	209
41	V-BL	46	310
42	BL-V	21	210
43	V-O	47	311
44	O-V	22	211
45	V-G	48	312
46	G-V	23	212
47	V-BR	49	313
48	BR-V	24	213
49	V-SL	50	300
50	SL-V	25	200

Table 5-32 shows the pinouts for the TN2185 ISDN-BRI 4-wire S Interface.

Table 5-32. TN2185 ISDNBRI — 4-Wire S Interface Pinout

Port	Signal	Cross-Connect Pin	Color	Amphenol Pin	Backplane Pin
1	TXT.1	1	W-BL	26	102
	TXR.1	2	BL-W	01	002
	PXT.1	3	W-O	27	103
	PXR.1	4	O-W	02	003
2	TXT.2	5	W-G	28	104
	TXR.2	6	G-W	03	004
	PXT.2	7	W-BR	29	105
	PXR.2	8	BR-W	04	005
3	TXT.3	9	W-SL	30	106
	TXR.3	10	SL-W	05	006
	PXT.3	11	R-BL	31	107
	PXR.3	12	BL-R	06	007
4	TXT.4	13	R-O	32	108
	TXR.4	14	O-R	07	008
	PXT.4	15	R-G	33	109
	PXR.4	16	G-R	08	009
5	TXT.5	17	R-BR	34	110
	TXR.5	18	BR-R	09	010
	PXT.5	19	R-SL	35	111
	PXR.5	20	SL-R	10	011
6	TXT.6	21	BK-BL	36	112
	TXR.6	22	BL-BK	11	012
	PXT.6	23	BK-O	37	113
	PXR.6	24	O-BK	12	013
7	TXT.7	25	BK-G	38	302
	TXR.7	26	G-BK	13	202
	PXT.7	27	BK-BR	39	303
	PXR.7	28	BR-BK	14	203
8	TXT.8	29	BK-SL	40	304
	TXR.8	30	SL-BK	15	204
	PXT.8	31	Y-BL	41	305
	PXR.8	32	BL-Y	16	205

Table 5-33 shows the pinouts for the TN2198 ISDN-BRI 2-wire U Interface.

Table 5-33. TN2198 ISDN-BRI — 2-Wire U Interface Pinout

Port	Signal	Cross-Connect Pin	Color	Amphenol Pin	Backplane Pin
1	T.1	1	W-BL	26	102
	R.1	2	BL-W	01	002
2	T.2	3	W-O	27	103
	R.2	4	O-W	02	003
3	T.3	5	W-G	28	104
	R.3	6	G-W	03	004
4	T.4	7	W-BR	29	105
	R.4	8	BR-W	04	005
5	T.5	9	W-SL	30	106
	R.5	10	SL-W	05	006
6	T.6	11	R-BL	31	107
	R.6	12	BL-R	06	007
7	T.7	13	R-O	32	108
	R.7	14	O-R	07	008
8	T.8	15	R-G	33	109
	R.8	16	G-R	08	009
9	T.9	17	R-BR	34	110
	R.9	18	BR-R	09	010
10	T.10	19	R-SL	35	111
	R.10	20	SL-R	10	011
11	T.11	21	BK-BL	36	112
	R.11	22	BL-BK	11	012
12	T.12	23	BK-O	37	113
	R.12	24	O-BK	12	013

* Pins 25 and 50 are grounded by the backplane.

Table 5-34. Port Circuit Pack Lead Designations

Cross-Connect Pin	TN742/B TN747B TN753 TN769 TN2147 TN465	TN754 TN726	TN760/B TN760C TN760D TN2209	TN762/B	TN763 TN763B TN763C	TN735	TN767B TN464E	TN746/B TN2183 TN793 TN2793	TN2224
1	T.1		T.1	T.1	T.1	T.1	C_5	T.1	T.1
2	R.1		R.1	R.1	R.1	R.1		R.1	R.1
3		TXT.1	T1.1	TXT.1	SZ.1	BT.1	C_ENAB	T.2	T.2
4		TXR.1	R1.1	TXR.1	SZ1.1	BR.1		R.2	R.2
5		PXT.1	E.1	PXT.1	S.1	LT.1	C_SYNC*	T.3	T.3
6		PXR.1	M.1	PXR.1	S1.1	LR.1		R.3	R.3
7	T.2		T.2	T.2	T.2	T.2	C2D-DATA	T.4	T.4
8	R.2		R.2	R.2	R.2	R.2	RDATA*	R.4	R.4
9		TXT.2	T1.2	TXT.2	SZ.2	BT.2	TDATA*		T.5
10		TXR.2	R1.2	TXR.2	SZ1.2	BR.2	TRSYSNC		R.5
11		PXT.2	E.2	PXT.2	S.2	LT.2	GRD		T.6
12		PXR.2	M.2	PXR.2	S1.2	LR.2	SCLK*		R.6
13	T.3		T.3	T.3	T.3	T.3			T.7
14	R.3		R.3	R.3	R.3	R.3			R.7
15		TXT.3	T1.3	TXT.3	SZ.3	BT.3			T.8
16		TXR.3	R1.3	TXR.3	SZ1.3	BR.3	PAHER*		R.8
17		PXT.3	E.3	PXT.3	S.3	LT.3		T.5	T.9
18		PXR.3	M.3	PXR.3	S1.3	LR.3	C_48V	R.5	R.9
19	T.4		T.4	T.4	T.4	T.4		T.6	T.10
20	R.4		R.4	R.4	R.4	R.4		R.6	R.10
21		TXT.4	T1.4	TXT.4	SZ.4	BT.4	C_P2SCLK	T.7	T.11
22		TXR.4	R1.4	TXR.4	SZ1.4	BR.4	LI (RX)	R.7	R.11
23		PXT.4	E.4	PXT.4	S.4	LT.4	LO* (TX)	T.8	T.12
24		PXR.4	M.4	PX4.4	S1.4	LR.4	LBACK1	R.8	R.12
25	T.5		T.5	T.5	T.5	T.5	GND	T.9	T.13
26	R.5		R.5	R.5	R.5	R.5	C_5V	R.9	R.13
27		TXT.5	T1.5	TXT.5	SZ.5	BT.5		T.10	T.14
28		TXR.5	R1.5	TXR.5	SZ1.5	BR.5		R.10	R.14
29		PXT.5	E.5	PXT.5	S.5	LT.5		T.11	T.15
30		PXR.5	M.5	PXR.5	S1.5	LR.5	C_RST	R.11	R.15
31	T.6		T.6	T.6	T.6	T.6		T.12	T.16
32	R.6		R.6	R.6	R.6	R.6		R.12	R.16
33		TXT.6	T1.6	TXT.6	SZ.6	BT.6	RDATA		T.17
34		TXR.6	R1.6	TXR.6	SZ1.6	BR.6	TDATA		R.17
35		PXT.6	E.6	PXT.6	S.6	LT.6	TRSYNC		T.18
36		PXR.6	M.6	PXR.6	S1.6	LR.6	GRD		R.18
37	T.7		T.7	T.7	T.7	T.7	SCLK		T.19
38	R.7		R.7	R.7	R.7	R.7			R.19

Continued on next page

Table 5-34. Port Circuit Pack Lead Designations — *Continued*

Cross-Connect Pin	TN742/B TN747B TN753 TN769 TN2147 TN465	TN754 TN726	TN760/B TN760C TN760D TN2209	TN762/B	TN763 TN763B TN763C	TN735	TN767B TN464E	TN746/B TN2183 TN793 TN2793	TN2224
39		TXT.7	T1.7	TXT.7	SZ.7	BT.7			T.20
40		TXR.7	R1.7	TXR.7	SZ1.7	BR.7			R.20
41		PXT.7	E.7	PXT.7	S.7	LT.7	GRD	T.13	T.21
42		PXR.7	M.7	PXR.7	S1.7	LR.7		R.13	R.21
43	T.8		T.8	T.8	T.8	T.8	C_PRES*	T.14	T.22
44	R.8		R.8	R.8	R.8	R.8		R.14	R.22
45		TXT.8	T1.8	TXT.8	SZ.8	BT.8		T.15	T.23
46		TXR.8	R1.8	TXR.8	SZ1.8	BR.8	DC2_DATA	R.15	R.23
47		PXT.8	E.8	PXT.8	S.8	LT.8	LI* (RX)	T.16	T.24
48		PXR.8	M.8	PXR.8	S1.8	LR.8	LO (TX)	R.16	R.24
49	GRD	GRD	GRD	GRD	GRD	GRD	LBACK2	GRD	GRD
50	GRD	GRD	GRD	GRD	GRD	GRD	GRD	GRD	GRD

* Denotes high side of line.

Table 5-35. DS1 Interface Cable H600-307 (and C6C)

50-Pin			15-Pin		
Pin	Color	Designation	Pin	Color	Designation
02	W-BL				
03	BL-W				
47	W-G	LI (High)	11	W-G	LI (High)
22	G-W	LI	03	G-W	LI
48	W-BR	LO	09	W-BR	LO
23	BR-W	LO (High)	01	BR	LO (High)
49	W-SL	LOOP2	06	W-SL	LOOP2
24	SL-W	LOOP1	05	SL-W	LOOP1

All other pins empty.

Table 5-36. DS1 Interface Cable H600-348

50-Pin			15-Pin		
Pin	**Color**	**Designation**	**Pin**	**Color**	**Designation**
			Plug 04		
38	W-BL	LI (High)	11	W-BL	LI (High)
13	BL-W	LI	03	BL-W	LI
39	W-O	LO	09	W-O	LO
14	O-W	LO (High)	01	O-W	LO (High)
			Plug 03		
41	W-G	LI (High)	11	W-G	LI (High)
16	G-W	LI	03	G-W	LI
42	W-BR	LO	09	W-BR	LO
17	BR-W	LO (High)	01	BR-W	LO (High)
			Plug 02		
44	W-SL	LI (High)	11	W-SL	LI (High)
19	SL-W	LI	03	SL-W	LI
45	R-BL	LO	09	R-BL	LO
20	BL-R	LO (High)	01	BL-R	LO (High)
			Plug 01		
47	R-O	LI (High)	11	R-O	LI (High)
22	O-R	LI	03	O-R	LI
48	R-G	LO	09	R-G	LO
23	G-R	LO (High)	01	G-R	LO (High)

Table 5-37. TN1654 Lead Designations

Pin	Color	Designation	Pin	Color	Designation
26	W-BL	+5E	01	BL-W	+5E
27	W-O	GRD	02	O-W	XMITDAT -
28	W-G	GRD	03	G-W	GRD
29	W-BR	XMITDAT +	04	BR-W	RCVDAT -
30	W-SL	GRD	05	SL-W	GRD
31	R-BL	RCVDAT +	06	BL-R	GRD
32	R-O	+5E	07	O-R	+5E
33	R-G	CCSYNC	08	G-R	CDSYNC
34	R-BR	C2DCDATA	09	BR-R	C2DDDATA
35	R-SL	CASYNC	10	SL-R	CBSYNC
36	BK-BL	D2CDATA	11	BL-BK	ISCLOCK
37	BK-O	CCPRES	12	O-BK	CDPRES
38	BK-G	LID *	13	G-BK	LID
39	BK-BR	LOD	14	BR-BK	LOD*
40	BK-SL	CCRESET	15	SL-BK	CDRESET
41	Y-BL	LIC*	16	BL-Y	LIC
42	Y-O	LOC	17	O-Y	LOC*
43	Y-G	CARESET	18	G-Y	CBRESET
44	Y-BR	LIB*	19	BR-Y	LIB
45	Y-SL	LOB	20	SL-Y	LOB*
46	V-BL	C2DADATA	21	BL-V	C2DBDATA
47	V-O	LIA*	22	O-V	LIA
48	V-G	LOA	23	G-V	LOA*
49	V-BR	CAPRES	24	BR-V	CBPRES
50	V-SL	GRD	25	SL-V	GRD

* Denotes an active low signal.

Table 5-38. TN793 24-Port Analog Line Lead Designations

Pin	Color	Designation	Pin	Color	Designation
26	W-BL		01	BL-W	
27	W-O		02	O-W	
28	W-G		03	G-W	
29	W-BR		04	BR-W	
30	W-SL		05	SL-W	
31	R-BL		06	BL-R	
32	R-O		07	O-R	
33	R-G		08	G-R	
34	R-BR		09	BR-R	
35	R-SL		10	SL-R	
36	BK-BL		11	BL-BK	
37	BK-O		12	O-BK	
38	BK-G		13	G-BK	
39	BK-BR		14	BR-BK	
40	BK-SL		15	SL-BK	
41	Y-BL		16	BL-Y	
42	Y-O		17	O-Y	
43	Y-G		18	G-Y	
44	Y-BR		19	BR-Y	
45	Y-SL		20	SL-Y	
46	V-BL		21	BL-V	
47	V-O		22	O-V	
48	V-G		23	G-V	
49	V-BR		24	BR-V	
50	V-SL		25	SL-V	

Table 5-39. Circuit Pack and Auxiliary Equipment Classifications

Analog Line (8)	2-Wire Digital & Analog Line (16) and (24)	Data Line & Digital Line 4-Wire	2-Wire Digital & Analog Line 24 Ports	Hybrid Line	MET Line	AUX Trunk	Central Office Trunk	Central Office Trunk 3-Wire	DID/ DIOD Trunk	Tie Trunk	DS1 Tie Trunk	ISDN BRI Line 4-wire	ISDN BRI Line 2-wire	Packet Data Line	Four Port DIOD
TN467	TN2149	TN726B	TN2224	TN762	TN735	TN417	TN429	TN2199	TN429	TN478	TN483	TN556B	TN2198	TN553	TN2184
TN432	TN2135	TN754B	TN2214	TN762B		TN763	TN493		TN2139	TN458	TN722				
TN431	TN468B	TN564B	TN793			TN763D	TN422		TN459B	TN449	TN767				
TN411B	TN448	TN413	TN2793				TN421		TN436B	TN760D	TN722B				
TN742	TN746		TN2214B				TN438B		TN753	TN760C	TN464F				
TN769	TN746B		TN2224B				TN447		TN2146	TN434					
	TN2181		TN793B				TN465C		TN414	TN415					
	TN2183		TN2793B				TN747B								
	TN793						TN2138								
	TN2793						TN2147C								
							TN2148								

1. DID means Direct Inward Dialing
2. DIOD means Direct Inward Outward Dialing
3. MET means Multibutton Electronic Telephone

Table 5-40. Circuit Pack and Auxiliary Equipment Leads (Pinout Charts)

Color	Connector Pin Numbers	Analog Line 8 ports	2-Wire Digital Line and Analog Line 16 ports	Data Line and Digital Line 4-wire	2-Wire Digital Line & Analog Line 24 Ports	Hybrid Line	MET Line	AUX Trunk	CO Trk.	CO Trunk 3-wire	DID/ DIOD Trunk	Tie Trk.	DS1 Tie Trunk	ISDN BRI Line 4-wire	ISDN BRI Line 2-wire	Packet Data Line	Four Port DIOD
W-BL	26	T1	T1		T1	V1T1	T1	T1	T1	A1	T1	T1		PXR1	T1	TXT1	T1
BL-W	01	R1	R1		R1	V1R1	R1	R1	R1	B1	R1	R1		PXT1	R1	TXR1	R1
W-O	27		T2	TXT1	T2	CT1	TXT1	SZ1				T11		TXT1	T2	PXT1	
O-W	02		R2	TXR1	R2	CR1	TXR1	SZ11				R11		TXR1	R2	PXR1	
W-G	28		T3	PXT1	T3	P-1	PXT1	S1				E1		PXR2	T3	TXT2	
G-W	03		R3	PXR1	R3	P+1	PXR1	S11		C1		M1		PXT2	R3	TXR2	
W-BR	29	T2	T4		T4	V1T2	T2	T2	T2	A2	T2	T2		TXT2	T4	PXT2	T2
BR-W	04	R2	R4		R4	V1R2	R2	R2	R2	B2	R2	R2		TXR2	R4	PXR2	R2
W-S	30			TXT2	T5	CT2	TXT2	SZ2				T12		PXR3	T5	TXT3	
S-W	05			TXR2	R5	CR2	TXR2	SZ12				R12		PXT3	R5	TXR3	
R-BL	31			PXT2	T6	P-2	PXT2	S2				E2		TXT3	T6	PXT3	
BL-R	06			PXR2	R6	P+2	PXR2	S12		C2		M2		TXR3	R6	PXR3	
R-O	32	T3			T7	V1T3	T3	T3	T3	A3	T3	T3		PXR4	T7	TXT4	T3
O-R	07	R3			R7	V1R3	R3	R3	R3	B3	R3	R3		PXT4	R7	TXR4	R3
R-G	33			TXT3	T8	CT3	TXT3	SZ3				T13		TXT4	T8	PXT4	
G-R	08			TXR3	R8	CR3	TXR3	SZ13				R13		TXR4	R8	PXR4	
R-BR	34		T5	PXT3	T9	P-3	PXT3	S3				E3		PXR5	T9	TXT5	
BR-R	09		R5	PXR3	R9	P+3	PXR3	S13		C3		M3		PXT5	R9	TXR5	
R-S	35	T4	T6		T10	V1T4	T4	T4	T4	A4	T4	T4		TXT5	T10	PXT5	T4
S-R	10	R4	R6		R10	V1R4	R4	R4	R4	B4	R4	R4		TXR5	R10	PXR5	R4
BK-BL	36		T7	TXT4	T11	CT4	TXT4	SZ4				T14		PXR6	T11	TXT6	
BL-BK	11		R7	TXR4	R11	CR4	TXR4	SZ14				R14		PXT6	R11	TXR6	

Continued on next page

Table 5-40. Circuit Pack and Auxiliary Equipment Leads (Pinout Charts)

Color	Connector Pin Numbers	Analog Line 8 ports	2-Wire Digital Line and Analog Line 16 ports	Data Line and Digital Line 4-wire	2-Wire Digital Line & Analog Line 24 Ports	Hybrid Line	MET Line	AUX Trunk	CO Trk.	CO Trunk 3-wire	DID/ DIOD Trunk	Tie Trk.	DS1 Tie Trunk	ISDN BRI Line 4-wire	ISDN BRI Line 2-wire	Packet Data Line	Four Port DIOD
BK-O	37		T8	PXT4	T12	P-4	PXT4	S4				E4		TXT6	T12	PXT6	
O-BK	12		R8	PXR4	R12	P+4	PXR4	S14				M4		TXR6	R12	PXR6	
BK-G	38	T5	T9		T13	V1T5			T5		T5			PXR7		TXT7	
G-BK	13	R5	R9		R13	V1R5			R5		R5			PXT7		TXR7	
BK-BR	39		T10	TXT5	T14	CT4								TXT7		PXT7	
BR-BK	14		R10	TXR5	R14	CR4								TXR7		PXR7	
BK-S	40		T11	PXT5	T15	P-5								PXR8		TXT8	
S-BK	15		R11	PXR5	R15	P+5								PXT8		TXR8	
Y-BL	41	T6	T12		T16	V1T6			T6		T6			TXT8		PXT8	
BL-Y	16	R6	R12		R16	V1R6			R6		R6			TXR8		PXR8	
Y-O	42			TXT6	T17	CT6								PXR9		TXT9	
O-Y	17			TXR6	R17	CR6								PXT9		TXR9	
Y-G	43			PXT6	T18	P-6								TXT9		PXT9	
G-Y	18			PXR6	R18	P+6								TXR9		PXR9	
Y-BR	44	T7			T19	V1T7			T7		T7			PXR10		TXT10	
BR-Y	19	R7			R19	V1R7			R7		R7			PXT10		TXR10	
Y-S	45			TXT7	T20	CT7								TXT10		PXT10	
S-Y	20			TXR7	R20	CR7								TXR10		PXR10	
V-BL	46		T13	PXT7	T21	P-7								PXR11		TXT11	
BL-V	21		R13	PXR7	R21	P+7								PXT11		TXR11	
V-O	47	T8	T14		T22	V1T8			T8		T8		LI*	TXT11		PXT11	
O-V	22	R8	R14		R22	V1R8			R8		R8		LI	TXR11		PXR11	
V-G	48		T15	TXT8	T23	CT8							LO	PXR12		TXT12	

Continued on next page

Table 5-40. Circuit Pack and Auxiliary Equipment Leads (Pinout Charts)

Color	Connector Pin Numbers	Analog Line 8 ports	2-Wire Digital Line and Analog Line 16 ports	Data Line and Digital Line 4-wire	2-Wire Digital Line & Analog Line 24 Ports	Hybrid Line	MET Line	AUX Trunk	CO Trk.	CO Trunk 3-wire	DID/ DIOD Trunk	Tie Trk.	DS1 Tie Trunk	ISDN BRI Line 4-wire	ISDN BRI Line 2-wire	Packet Data Line	Four Port DIOD
G-V	23		R15	TXR8	R23	CR8							LO*	PXT12		TXR12	
V-BR	49		T16	PXT8	T24	P-8							LBACK2	TXT12		PXT12	
BR-V	24		R16	PXR8	R24	P+8							LBACK1	TXR12		PXR12	
V-S	50																
S-V	25																

†The wire colors in this chart apply only to B25A and A25B cables. H600-307 cable colors are not shown.

The following abbreviations apply for all circuit packs unless otherwise noted:

T,R	PBX transmit voice	TTip(A)Green	
T1,R1	PBX receive voice	RRing(B)Red	
M	PBX transmit signal	SSleeve	
E	PBX receive signal	PXPBX transmit	
TX	Terminal transmit		
LI, LI*	Digital Trunk IN	LO, LO* Digital Trunk OUT	

The following wire colors apply in the above chart:

W	White	S	Slate (Grey)
BL	Blue	R	Red
O	Orange	BK	Black
G	Green	Y	Yellow
BR	Brown	V	Violet

Test Telephones and Other Equipment

6

This chapter describes how to test the telephones and other equipment. The following tests are included in this chapter:

1. Make Test Calls
2. Test 302C Attendant Console
3. Test Selector Console
4. Test External Ringing
5. Test Queue Warning Indicator
6. Test Integrated Announcement
7. Test Music-on-Hold
8. Test Emergency Transfer
9. Test Remote Access Interface (formerly INADS)
10. Test Basic Rate Interface (BRI)
11. Test Duplication Option Processing Element Interchange
12. Test Terminating Trunk Transmission
13. Test Stratum 3 Clock

The following tests are acceptance tests and provide some assurance the system will perform properly after installation and administration.

If problems occur or more extensive tests are required, refer to *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8r*, or to *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

Make Test Calls

Make 2 calls from 1 telephone to another telephone. Make the first call by dialing a telephone and make the second call by dialing a trunk access code and a Listed Directory Number (LDN).

Test 302C Attendant Console

Check all lamps are operational and call another telephone in the system.

1. Simultaneously press and hold the Ringer Volume up button and the POS BUSY button. This puts the console in the self-test mode.

   NOTE:
   Releasing the buttons causes the console to return to normal mode.

2. Verify all lamps on display light and remain lighted. Each row of lamps on the console lights and goes dark in sequence from top to bottom.
3. Press Start. Listen for dial tone. The green lamp associated with idle call appearance button lights. The Position Available lamp goes dark.
4. Dial number associated with a working telephone. Audible ringing tone is heard in ear piece.
5. Press Release. Audible ringing tone is silenced. The green lamp associated with idle call appearance button goes dark. The Position Available lamp lights.

Test Selector Console

Check all selector console lamps are operational. Make call to a telephone in the system.

1. Simultaneously press and hold the Ringer Volume up button and the POS BUSY button on the attendant console. This puts the console in the self-test mode.
2. Each row of lamps on the selector console lights and goes dark in sequence from top to bottom.
3. Press hundreds group select button. The hundreds group select lamp lights and any lamps associated with busy telephone light.
4. Press Direct Extension Selection (DXS) button for the desired extension. Audible ringing tone is heard in the earpiece on attendant console.
5. On attendant console, press Release. Audible ringing tone is silenced.

Test External Ringing

Make a test call to the attendant console to verify ringing device sounds when the Night lamp on console is lighted. If ringing device has not been installed by customer, connect spare telephone to information outlet reserved for ringing device and make test call.

Test Queue Warning Indicator

Make a test call to an extension associated with a Uniform Call Distribution (UCD) or Direct Department Calling (DDC) group, and verify the queue warning indicator lamp lights. If the queue warning indicator has not been installed by customer, connect a spare telephone to the information outlet reserved for queue warning indicator and make a test call.

Test Integrated Announcement

The TN750/B/C Announcement circuit pack provides the ability to store messages. The messages can be recorded from telephones on- or off-premises and have flexible message lengths. The telephone selected as the test telephone must have a class of service (COS) with console permission enabled.

Record Announcement

1. Select test telephone with console permission enabled.
2. Dial the access code followed by the integrated announcement extension number. Dial tone is heard.
3. Dial “1.” A short burst of tone is heard and recording begins. Speak the announcement into the telephone.
4. Dial “#” or hang up. Recording stops and dial tone is heard.

Playback Announcement

1. Dial access code followed by the integrated announcement extension number. Dial tone is heard.
2. Dial “2.” The announcement is heard and dial tone is heard at completion of announcement.

Delete Announcement

1. Dial access code followed by the integrated announcement extension number. Dial tone is heard.
2. Dial “3.” A confirmation tone is heard and announcement is deleted.

Test Music-on-Hold

Verify music is provided to a held party during any hold interval.

Test Emergency Transfer

Put system in emergency transfer mode and make call using emergency transfer telephone. There may be up to 4 Emergency Transfer switches depending on the system configuration. The switch is located on the Processor circuit pack(s) in the Processor Port Network (PPN) Control Carrier.

Test Remote Access Interface

Test the communication link between the system and the remote interface (formerly INADS) and verify the alarm notification process. Make a remote test from the remote interface to the DEFINITY System and a local test from the DEFINITY System to the remote interface.

In some countries, this remote access interface is not allowed. Contact your Lucent Technologies representative.

Remote Test

1. Call outside personnel who will be accessing the system remotely to perform administration, maintenance, and testing.
2. Ask remote personnel to call system and login and display System Parameters Maintenance screen. The login must be successful.

   NOTE:
   Product Identification on the System Parameters screen must match the Product Identification administered by the local technician.

3. Have the remote personnel type **test inads-link** and press Enter, terminate the login, and disconnect.
4. Have the remote personnel check the appropriate trouble ticket. The trouble ticket should show “INADS,n,MINOR” in the description field to indicate a minor off-board alarm was reported to the remote personnel. There may be more text in the description field if other resolved alarms were reported.
5. Have the remote personnel make second call and login to the system and check the error log to verify no problems. See *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8r*, for error log and error code information.
6. Have the remote access personnel terminate logoff and disconnect.

Local Test

1. Log in.
2. Type **test inads-link** and press Enter.
3. Request remote access personnel to verify a trouble ticket was created.
4. Check error log to verify no problems.
5. Log off the system.

Test Basic Rate Interface

Check for normal voice telephone function (dial tone, ability to make and receive calls). Check for the correct Service Profile Identifier (SPID) on a display telephone and the management terminal.

Test Duplication Option Processing Element Interchange

The process of the standby Processing Element (PE) taking over for the active PE is referred to as a PE Interchange. This interchange should not be performed immediately after powering up the system. Wait a few minutes to allow the system to complete its internal tests. The system default is PE_B after powering up the system, so the active PE should be the B processor for this test, and the interchange should make PE_A the active PE. Verify the system can successfully perform a PE interchange.

1. At the management terminal, verify the screen displays PE_B in the upper right corner.
2. Type **check status** and press Enter. Verify PE_B is in the standby mode. If it is, proceed to Step 4. If it is not, proceed to Step 3.
3. Type **refresh-spr-standby** and press Enter.
4. Type **reset system interchange** and press Enter. The management terminal will be logged off and a beep will be heard.
5. Login and verify that the screen displays PE_A in the upper right corner.

   NOTE:
   Processor A’s yellow light is on and its green LED is off. Processor B’s yellow and green LEDs are off. The system is alarm free.

6. Make system test call. The call must complete and the conversation must be satisfactory.

Test Terminating Trunk Transmission

The Terminating Trunk Transmission Test provides for extension number access to 3 tone sequences that can be used for trunk transmission testing from the distant end of the trunks.

The 3 test types must have extension numbers assigned on the `system-parameters maintenance` form:

Test Type 100:_______ Test Type 102:_______ Test Type 105:_______

Test type 100 provides:

- 5.5 Seconds of 1004 Hz tone at 0 dB
- Quiet until disconnect; disconnect is forced after 1 minute

Test Type 102 provides:

- 9 Seconds of 1004 Hz tone at 0 dB
- 1 Second of silence
- Cycle is repeated until disconnect, which is forced after 24 hours

Test Type 105 provides:

- 9 Seconds of 1004 Hz tone at -16 dB
- 1 Second of silence
- 9 Seconds of 404 Hz tone at -16 dB
- 1 Second of silence
- 9 Seconds of 2804 Hz tone at -16 dB
- 30 Seconds of silence
- 0.5 Seconds of test progress tone (2225 Hz)
- Approximately 5 seconds of silence
- Forced disconnect

Test Stratum 3 Clock

This sections tests the ability of the Stratum 3 clock to correctly provide timing and alarms to the system.

⚠ **CAUTION:**

The following procedures are destructive to DS1 data and should not be attempted while there are DS1 facilities in active use.

Check for Red LEDs

1. Turn on the Stratum 3 clock and wait 40-50 seconds to allow the system to complete the on-board diagnostics before checking LEDs.
2. If there are any red LEDs, follow the procedures in Table 6-1.

Table 6-1. Stratum 3 Clock LED Indicators

Card	LED Label	Procedure
PAI	REF A	Check that the CI circuit pack on the left is inserted properly. Check wiring for DS1 in carrier “A” which connects the system to the CSU and the External Synchronization Clock at the MDF through a Y-cable assembly. If all else fails to clear the LED then replace the circuit pack.
PAI	REF B	Check that the CI circuit pack on the right is inserted properly. Check wiring for DS1 in carrier B which connects the system to the CSU and the External Synchronization Clock at the MDF through a Y-cable assembly. If all else fails to clear the LED then replace the circuit pack.
PAI	ST A	Replace the ST3 card
PAI	ST B	Replace the ST3 card
CI	FAIL	Check wiring for its associated DS1 reference and replace the circuit pack if necessary
ST3	FAIL	Replace the circuit pack
ST3	LOCK	Ignore this LED
ST3	HOLDOVER	Ignore this LED
ST3	FREE RUN	Ignore this LED
TOCA	FAIL	Replace the circuit pack
TOCA	PORT ALM	Replace the circuit pack if necessary

Verify Timing to the System

1. To administer the Stratum 3 clock, type **change synchronization** and press Enter .
2. Type **3** in the `stratum` field.
3. Type the port network number where the TN780 Tone-Clock circuit packs reside in the `port network` field.

   NOTE:
   Wait 1 minute for the software to reconfigure the system synchronization.

4. Verify the results of test 649. If test 649 fails with a code of 2101, then check the wiring for **EXTSYN0** and **EXTSYN1**. Refer to *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8r*.
5. If test 649 is successful, then the system is getting correct timing from the Stratum 3 clock.

Perform Complete System Test

Run the complete system test with the “Allports” option in the “SPE Interchange” and “Long Test” modes. The hardware group tests are described in *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8r* or *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8si*.

NOTE:
This test takes several hours. It may be best to run the test in the background, or at night, or both.

Resolve Alarms

After the test has completed, inspect the alarms log. Type display alarms and resolve the alarms in the usual manner.

Check the error log for evidence of failure. The only failure results logged should be the outcome of tests requiring a connected station, where a station is not connected to the port under test. Repair all other failures or refer them to a maintenance technician for repair.

Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8r*.

Activate and Test Alarm Origination Feature

1. Activate the Alarm Origination feature from the *change system-parameter maintenance* form.
2. Type **test inads link** and press Enter to verify the system can reach the INADS Database Administrator at the Technical Service Center (TSC).
3. Be sure the system is part of the existing INADS database by calling the INADS Database Administrator to verify the system can be dialed into and that the system can dial out to INADS.

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

   Have the serial number of the system and the software version number available at the time of the call.

Connecting Fiber Optic Cables

A

Signals between cabinets are carried by fiber optic cables. The electronic signals at 1 cabinet must be converted into optical signals. These optical signals are converted back into electronic signals at another cabinet.

The fiber optic cables from the DEFINITY System route to a Lightguide Interconnect Unit (LIU), connect to the outside fiber plant, and then connect to the remote DEFINITY System via an LIU.

Two types of fiber optic cables are used on DEFINITY Systems: multi-mode and single-mode. See Table A-1.

- Multi-mode fiber uses LEDs as its light source and is less expensive than single-mode fiber. There are 2 common types of multi-mode fiber:
  - 62.5 micron core
  - 50.0 micron core
- Single-mode fiber is more expensive than multi-mode because it uses LASER light as its light source. Single-mode fiber typically uses the 8-10 micron core fiber.

Table A-1. Fiber Optic Reference

Fiber Core Size	Transceiver Model	Operating Wavelength (Nanometers)	Fiber Type
50 or 62.5	9823A	850 nm	Multi-mode
50 or 62.5	9823B	1300 nm	Multi-mode
8.3 -9.0	300A	1300 nm	Single-mode

LASER Product

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

- Maximum Power Output: -5dBm
- Wavelength: 1310 nm
- Mode Field Diameter: 8.8 microns

CLASS 1 LASER PRODUCT
IEC 825 1993

CAUTION:

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

Contact your Lucent Technologies representative for more information.

Fiber Optic Requirements

If estimated fiber losses are suspected of exceeding loss limits due to excessive length, splices, and so forth, perform OTDR (Optical Time Domain Reflectometer) or Optical Power Meter tests to ensure a successful installation of a remote EPN fiber link.

The requirements that determine the maximum fiber optic cabling distances are:

- The mean loss and the length of the outside plant fiber cable
- The mean loss and the length of fiber cable shipped with the cabinet (including any fiber riser cable)
- The mean loss of an ST connector and the number of ST connections
- The mean loss due to the total number of splices
- Higher-order mode loss

Fiber Optic Cable Connections

The Customer Service Document (CSD) provides an "Inter-Carrier Cable Running List." Each row on the list represents a cable connection. Use the running list to determine where to connect each fiber optic cable.

Multi-Mode Fiber Optic Connections

Multi-mode fiber cables are generally colored gray or orange. The following components are used in multi-mode fiber optic connections:

- Expansion Interface (EI) circuit packs in port slots in cabinet carriers
- Switch Node Interface (SNI) circuit packs in the Switch Node Carrier
- The 9823A lightwave transceiver transmits up to 4,900 feet (1500 m). The 9823B lightwave transceiver transmits up to 25,000 feet (7600 m).
- Multi-mode fiber optic cable consisting of 2 separate 62.5 micron or 50 micron core fiber optic cables.

Single-Mode Fiber Optic Connections

⚠ **CAUTION:**

Do not use Dispersion Shifted or Wave Diversion Multiplexing fiber. Use only dispersion unshifted fiber such as Depressed Clad and Matched Clad fiber (EIA/TIA Class IVa).

Single-mode fiber cables are generally colored yellow. The following components are used in single-mode fiber optic connections:

- Expansion Interface (EI) circuit packs in port slots in cabinet carriers
- Switch Node Interface (SNI) circuit packs in the Switch Node Carrier
- The 300A lightwave transceivers. Each 300A transmits light up to 115,000 feet or 22 miles (35 km). Fiber loss must be less than 17dB. Saturation may occur if distances are short; attenuators may be required if the total loss on the fiber link is less than 10dBm. An OTDR or Optical Power Meter test is recommended to determine specific fiber optic hardware requirements.

  NOTE:
  Using the 300A may require 5, 10, or 15dB attenuators. See "When to Use Single-Mode Fiber Attenuators" on page A-7. Also, contact your Lucent Technologies representative for attenuator requirements on single-mode links.

- Single-mode fiber optic cable consisting of 2 separate 8 to 10 micron core cables.

Fiber Optic Component Comcodes

Table A-2 provides fiber optic components and associated comcodes. These comcodes are from the *Lucent Fiber Optics Product Catalog*. For BCS comcodes, contact your Lucent Technologies representative.

For multi-mode fiber optic cables and comcodes, refer to Table A-3.

For single-mode fiber optic cables and comcodes, refer to Table A-4.

Table A-2. Fiber Optic Component Comcodes (ST and STII)

Description	Comcode
100A Lightguide Interconnect Unit (LIU) 12 Terminations (Preterminated with Mini Fanouts)	104325600
200A Lightguide Interconnect Unit (LIU) 24 Terminations (Preterminated with Mini Fanouts)	106658545
400A Lightguide Interconnect Unit (LIU) 48 Terminations (Preterminated with Mini Fanouts)	106266901
Lightguide Distribution Shelf (Preterminated with Mini Fanouts)	Contact Lucent Representative
10A Lightguide Coupling Panel for 100A and 200A (6 Couplings)	104141858
1000ST Lightguide Coupling Panel for 400A (6 Couplings)	105392005
1A4 Vertical Trough for 100A	104141866
1A6 Horizontal Trough for 100A	104141874
2A4 Vertical Trough for 200A	106497753
2A6 Horizontal Trough for 200A	106497761
C2000A-2 Multi-mode Connector	104148028
C3000A-2 Single-mode Connector	105271142
5dB Attenuator (Single-mode) (Yellow)	106060718
10dB Attenuator (Single-mode) (Yellow)	106060734
15dB Attenuator (Single-mode) (Yellow)	106061021
Fiber Protector Cover	846929883
300A Fiber Optic Transceiver (Single-mode)	107731853
9823A Fiber Optic Transceiver (Multi-mode)	106455348
9823B Fiber Optic Transceiver (Multi-mode)	106455363

Table A-3 provides multi-mode cable lengths and associated comcode numbers. Multi-mode fiber cables are gray or orange in color.

Table A-3. Multi-mode Fiber Cable Ordering Information

Description	Length	Comcode
Fiber Interconnection Cable	20 Feet (6.1 m)	407439975
Fiber Interconnection Cable	25 Feet (7.62 m)	407441427
Fiber Interconnection Cable	30 Feet (9.14 m)	407441435
Fiber Interconnection Cable	35 Feet (10.67 m)	407441443
Fiber Interconnection Cable	40 Feet (12.2 m)	407441450
Fiber Interconnection Cable	50 Feet (15.2 m)	407441468
Fiber Interconnection Cable	75 Feet (22.8 m)	407441476
Fiber Interconnection Cable	100 Feet (30.48 m)	407441484
Fiber Interconnection Cable	125 Feet (38.1 m)	407441492
Fiber Interconnection Cable	150 Feet (45.7 m)	407441500
Fiber Interconnection Cable	175 Feet (53.3 m)	407441518
Fiber Interconnection Cable	200 Feet (61 m)	407441666

Table A-4 provides single-mode cable lengths and associated comcode numbers. Single-mode fiber cables are yellow.

Table A-4. Single-mode Fiber Cable Ordering Information

Description	Length	Comcode
Fiber Optic Patch Cord	2 Feet (0.6 m)	105357727
Fiber Interconnection Cable	20 Feet (6.1 m)	407598325
Fiber Interconnection Cable	30 Feet (9.14 m)	407598333
Fiber Interconnection Cable	40 Feet (12.2 m)	407598341
Fiber Interconnection Cable	50 Feet (15.2 m)	407598358
Fiber Interconnection Cable	75 Feet (22.8 m)	407598366
Fiber Interconnection Cable	100 Feet (30.48 m)	407598374
Fiber Interconnection Cable	125 Feet (38.1 m)	407598390
Fiber Interconnection Cable	150 Feet (45.7 m)	407598408

Optical Cross-Connect Hardware

Optical cross-connects consist of a preterminated lightguide shelf or Lightguide Interconnect Unit (LIU) with lightguide troughs. A multi-mode or single-mode fiber optic cable connects the lightwave transceivers on the DEFINITY System to connector panels inside the shelf or LIU. Circuits can be changed by moving the patch cord from 1 point on the connector panel to another.

Measuring Single-Mode Power in the Field

The data pattern on the link influences the optical power measurement. The duty cycle that the transceiver is sending when the DEFINITY System is idle is a 30% on (“1”) and 70% off (“0”) data pattern. This implies that the optical reading will be about 2.3dB less than the typical output power specification (-8dBm). Calculate all power budget analysis at 50% duty cycle for both transmitter output power and receiver sensitivity.

The following information is provided for field troubleshooting use only and is not intended for fiber budget analysis.

The power measurement is taken from the TX connector, through the entire fiber link, and to the RX connector on the opposite end of the link (remote EPN). Refer to Figure A-2 for a typical fiber route.

1. Remove the fiber cable from the RX connector at the local 300A.
2. Attach the power meter to the fiber cable. Note the reading.
3. Reconnect the RX cable.
4. Repeat the test at the RX connector at the remote 300A. Note the reading.
5. Reconnect the RX cable.
6. Using Figure A-1, determine the type of in-line attenuator required for each direction in the tested fiber link.

NOTE:
Using the maximum power budget of 17dB in any fiber link may cause problems if the fiber plant is damaged and additional connectors or splices are added. Maintain a margin of at least 1dB; 2dB is the industry standard.

When to Use Single-Mode Fiber Attenuators

For 300A operation, single-mode fiber loss must be between 10dB and 17dB (at 1300 to 1310 nm). Since saturation may occur if distances are short, attenuators may be required if the total loss on the fiber link is less than 10dB. Perform an OTDR or Optical Power Meter test to determine specific requirements. Typically, fiber distances of 9 miles (14 km) or less require an in-line attenuator.

Using Figure A-1, find the line that most closely matches the customer's fiber plant, or overlay your own load line. Using the measured loss of 0.33dB/km as an example, install a 10dB attenuator if the distance is about 9 miles (14 km) or less. Use a 5dB attenuator if the distance is from 9 to 18 miles (14.4 to 30 km).

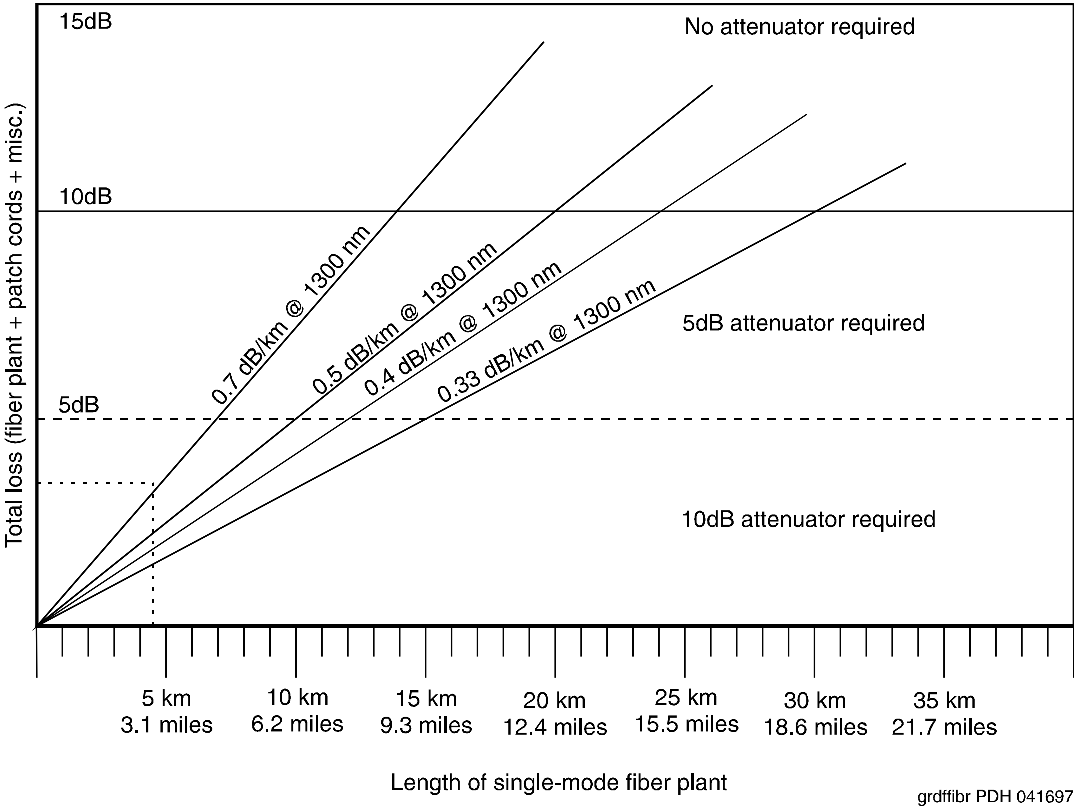


Figure A-1. Single-Mode Attenuator Requirements

Single-Mode Fiber Link (with Attenuators)

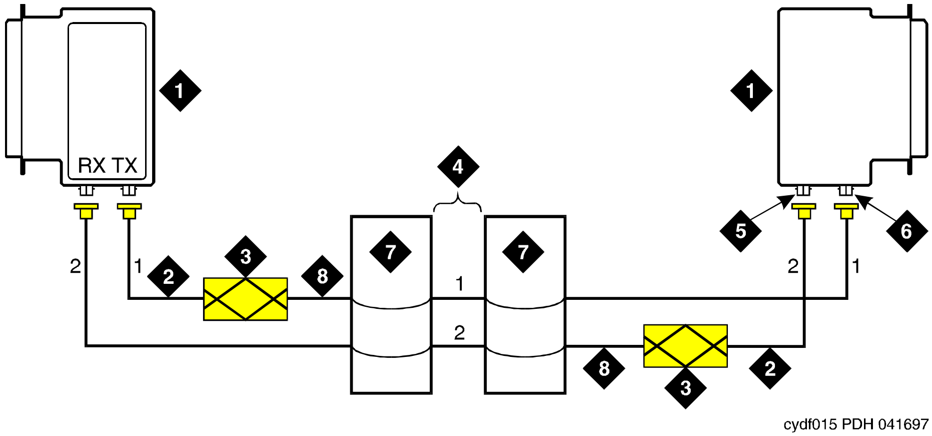


Figure Notes

1. 300A Lightwave Transceiver
2. 2-Foot (0.6 m) Patchcord
3. In-Line Attenuator
4. Fiber Plant
5. TX Connector
6. RX Connector
7. Lightguide Interconnect Unit
8. Fiber Optic Cable

Figure A-2. Typical Single-Mode Connection with Attenuator

1. Connect a 2-foot (0.6 m) patchcord to the TX connector on the local 300A transceiver. See Figure A-2.
2. Connect the patchcord to the required attenuator. The attenuator must be installed in series with the strand of fiber connecting to the TX connector.
3. Repeat for the TX connector at the opposite end of the fiber link (remote EPN). A different value attenuator may be required, depending on the amount of fiber loss back to the local system.

NOTE:
If the fiber link is duplicated, route the fiber via a separate geographical path, if possible. This way, if the standard fiber link is damaged, the duplicated fiber remains in service.

Lightguide Distribution Shelf

The preterminated lightguide distribution shelf can mount to LGX® fiber optic distribution frames or can mount directly to a wall. The shelf can also mount in 23-inch (58.4 cm) or 19-inch (48.2 cm) equipment cabinets or racks. The shelf accommodates single-mode and/or multi-mode fiber connections. See Figure A-3.

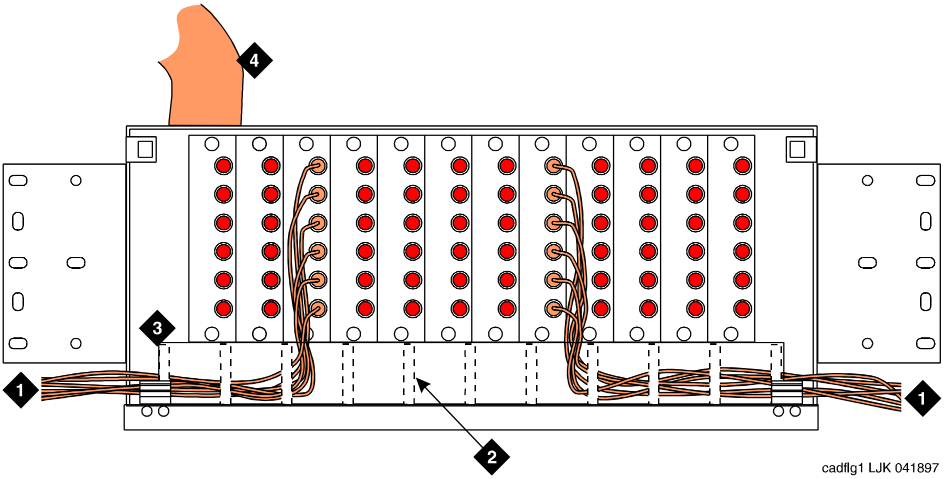


Figure Notes:

1. To PPN or Remote EPN Cabinet
2. Retainer Rings
3. Circuit Labels
4. From Outside Cable Plant

Figure A-3. Typical Preterminated Lightguide Distribution Shelf

NOTE:
If you are not viewing this book on CD-ROM, Figure A-3 shows orange fiber connections, denoting multi-mode fiber.

100A and 200A Lightguide Equipment

Optical interconnects consist of LIUs without a trough between them. Incoming and outgoing cables connect directly to each other. This arrangement makes circuit changes more difficult, but reduces optical losses.

Optical cross-connect and interconnect fields are made up of the following:

- 100A or 200A LIU
- 10A Lightguide Coupling Panel
- C2000A-2 Connector Coupling (Multi-Mode) or C3000A-2 Connector Coupling (Single-Mode)
- 1A4 Lightguide Trough
- 1A6 Lightguide Trough
- Fiber Interconnect Cable (Multi-Mode or Single-Mode)

Lightguide Interconnect Units

The 100A LIU consists of a cabinet with retainer rings to hold slack fiber cables, mounting cutouts for two 10A lightguide connector panels, and a door with circuit labels on each side. See Figure A-4. The 100A provides up to 12 terminations.

The 200A Lightguide Interconnect Unit (LIU) can terminate up to 24 fiber connections. These fiber connections can be either single-mode or multi-mode.

Lightguide Troughs

Two types of troughs are used with optical cross-connect hardware. The vertical trough secures single fiber optic jumpers routed between LIU columns, and the horizontal trough is used at the bottom of an LIU column to store cable slack.

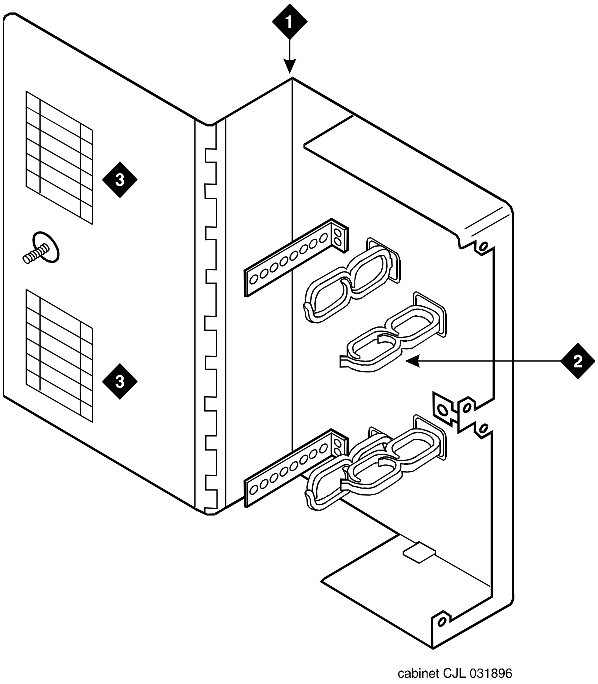


Figure Notes:

1. 100A Lightguide Interconnect Unit (LIU)
2. Retainer Rings
3. Circuit Labels

Figure A-4. 100A Lightguide Interconnection Unit

10A and 1000ST Lightguide Coupling Panel

The 10A Lightguide Coupling Panel mounts in the cutouts of a 100A LIU and a 200A LIU. A 100A LIU requires 2 coupling panels. A 200A requires 4 coupling panels. Each panel can hold 6 connector couplings. A connection to an ST coupler is shown in Figure A-5.

NOTE:
If you are not viewing this book on CD-ROM, the fiber cable shown in Figure A-5 is yellow, denoting single-mode fiber.

The 1000ST Lightguide Coupling Panel mounts in the cutouts of a 400A LIU. A 400A LIU requires 8 coupling panels. Each coupling panel can hold 6 connector couplings.

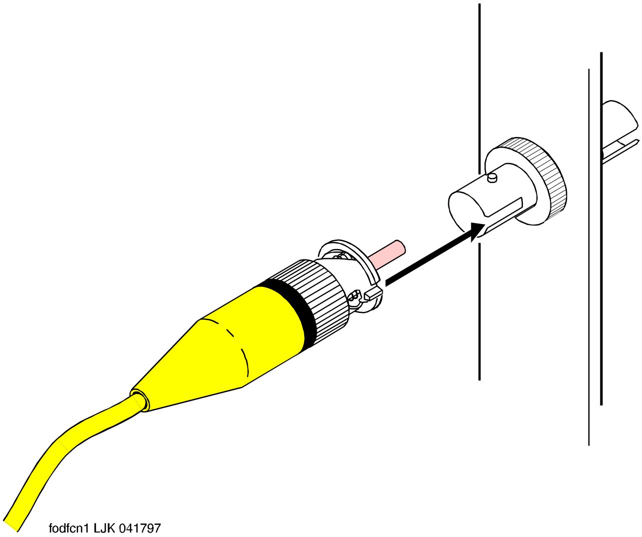


Figure A-5. 10A and 1000ST Lightguide Connector Coupling

The C2000A-2 Connector Coupling joins multi-mode fiber optic cables equipped with ST connectors. It has a threaded midsection that allows it to be secured to the 10A or 1000ST Lightguide Coupling Panel.

The C3000A-2 Connector Coupling joins single-mode fiber optic cables equipped with ST connectors. It has a threaded midsection that allows it to be secured to the 10A or 100ST Lightguide Coupling Panel.

400A Lightguide Equipment

The 400A Lightguide Interconnect Unit (LIU) can terminate up to 48 fiber connections. These fiber connections can be either single-mode or multi-mode (not both).

NOTE:
If you are not viewing this book on CD-ROM, the fiber cable shown in Figure A-6 is yellow, denoting single-mode fiber.

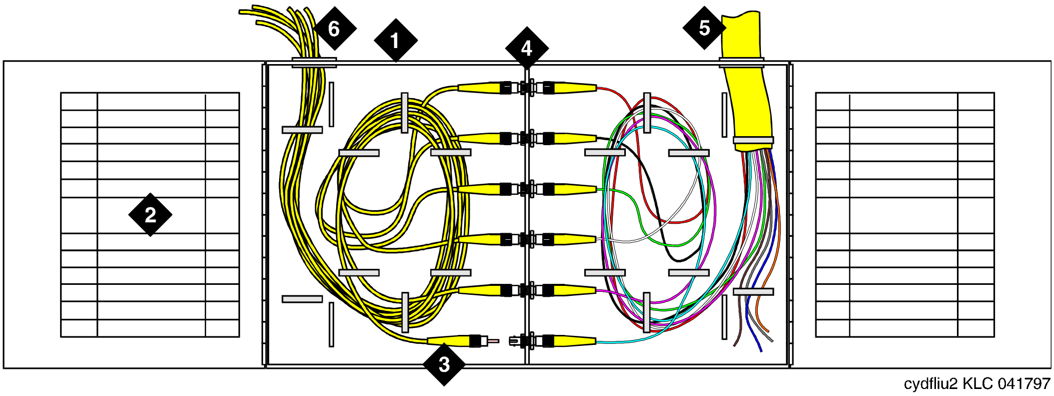


Figure Notes:

1. 400A Lightguide Interconnect Unit (LIU)
2. Circuit Label
3. Fiber Optic Cable Connectors
4. Demarcation Point (between network and DEFINITY)
5. Fiber Plant (Network Side)
6. To 300A Fiber Optic Transceivers

Figure A-6. 400A LIU Equipment

1. Label each fiber cable as it is installed.
2. Route the fiber cables from the fiber optic transceivers and connect as shown in Figure A-6.

General Rules and Recommendations

Fiber optic cable requires careful handling and routing. Follow these rules and recommendations when installing fiber optic cables:

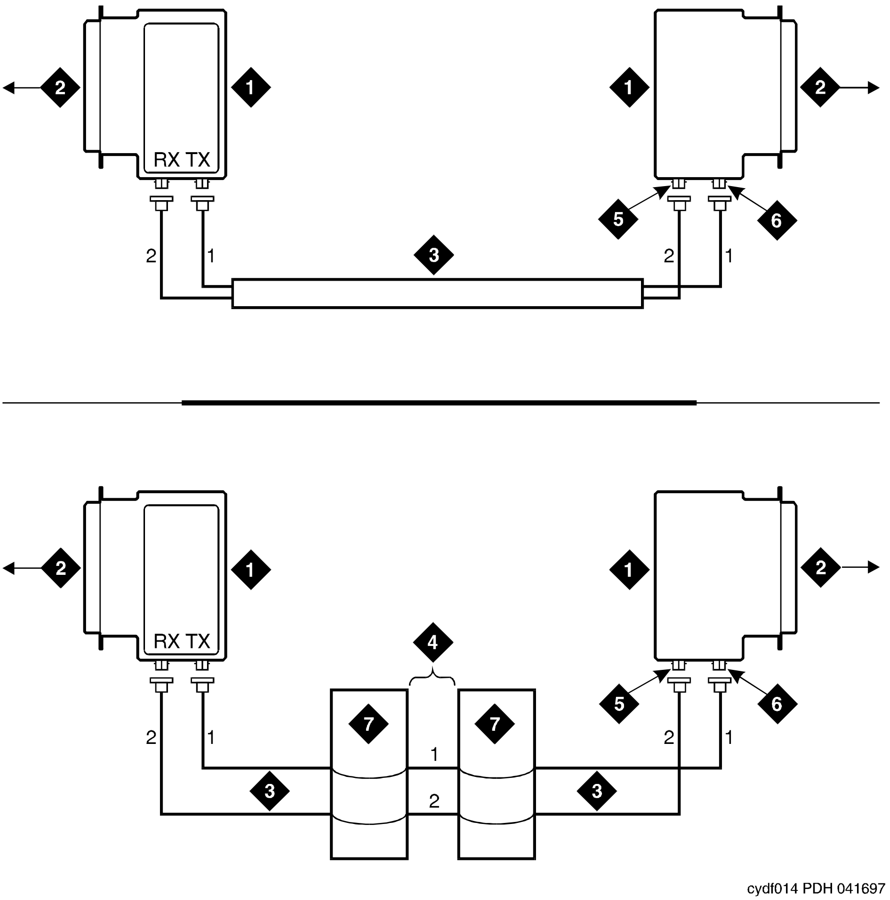


Figure Notes

1. Lightwave Transceiver
2. To I/O Connector Panel
3. Fiber Optic Cable
4. Fiber Plant
5. TX Connector
6. RX Connector
7. Lightguide Interconnect Unit

Figure A-7. Fiber Optic Cable Connections Between Transceivers

Rule 1

Cross-connect the fiber optic cable between 2 lightwave transceivers. That is, run the cable from the TX connector on 1 transceiver to the RX connector on the other transceiver, and in reverse for the other cable. See the top half of Figure A-7. Multi-mode connections using an LIU for fiber cross-connects to remote EPNs are shown in the bottom half of Figure A-7. For single-mode connections, refer to Figure A-2.

Cross-connect the fiber optic cable between 2 lightwave transceivers for each connection (row) on the fiber optic cable running list as shown in the Customer Service Document.

Rule 2

For multi-mode fiber, use the 9823A (shortwave) transceiver for distances of up to 4900 feet (1494 m). Use the 9823B (longwave) transceiver for distances of up to 25,000 feet (7620 m). Ensure all 9823As connect to 9823As and all 9823Bs connect to 9823Bs.

For single-mode fiber, use the 300A single-mode fiber optic transceivers. Single-mode fiber is generally used to connect remote EPNs at distances of up to 115,000 feet (22 miles or 35 km). Single-mode fiber may require attenuators. It is usually more cost effective to use multi-mode fiber between cabinets when possible.

Rule 3

⚠ **CAUTION:**

Do not route fiber optic cables and the B25A cables together.

Route fiber optic cables away from groups of other cables where they may be stretched by the weight of metal cable bundles. It may be necessary to run fiber optic cables with the I/O cables, such as in the cable slack manager or under a raised floor. In these cases, protect the cable by running it in a dedicated area if possible. When the cable must be run with other cabling, protect it by running it through flexible conduit. Use the following steps to route the cable:

1. Route the fiber optic cable up toward the top of the cabinet. The excess cable should be looped and draped from the B25A cable clamp.
2. Dress the cable running up the back of the cabinets by *loosely* tie wrapping the cable to the outside of the B25A cable clamp (do not put the cable inside the clamp holding the B25A cables).

Rule 4

Avoid bending fiber optic cables to a radius smaller than 1.5 inches (3.8 cm), to prevent mechanical stress on the cables. Plan the use of cable ties to avoid crimping the cable or creating a fixed stress point where, at a later time, movement of the cable causes it to exceed the minimum bend radius.

Rule 5

Ensure fiber optic cables are not pressed against any sheet metal edges by subsequently installed cables.

Rule 6

If the fiber link is duplicated, route the fiber via a separate geographical path, if possible. This way, if the standard fiber link is cut or damaged, the duplicated fiber remains in service.

Cleaning Fiber Optic Cables

The use of isopropyl alcohol is recommended to properly clean fiber optic cables. Contact your Lucent Technologies representative for more information.

1. Moisten a lint-free cloth with isopropyl alcohol.
2. Gently wipe the ceramic ferrule with the cloth. Be sure to wipe the entire length of the ferrule and the ferrule tip.
3. Dry the ferrule with air.
4. If the connector is not being used immediately, cover the connector with the dust cap.

Labels for Fiber Optic Cables

Cable Labels

Cable labels, with adhesive backing, are installed on each end of a fiber optic cable. Each label displays the following information:

- The numbers of the cabinets, carriers, and slots connected by the cable
- Information on the cable itself, such as cable comcode number, and how it is used

Cross-Connect Labels

The label used with cross-connect fiber optic cables shows the cabinet, carrier and slot numbers of the source of the cable. It also indicates that the cable goes to the LIU. The type of cable is indicated by its comcode number.

Making Changes at an LIU or Shelf

Circuit changes are made by moving the fiber optic patch cords to other couplings.

To Remove a Fiber Optic Patch Cord

1. At the LIU or shelf, locate the correct patch cord and unplug it from the coupling.
2. Carefully remove the cable from the LIU and from the trough.

   NOTE:
   Take care to ensure the patch cord is not bent beyond the minimum bend radius of 1.5 inches (3.8 cm).

3. Trace the other end of the patch cord to its termination point and unplug it.
4. Remove the label associated with the removed patch cord.
5. Place plastic covers over the connectors to prevent dust or damage.

To Make a New Cross-Connection

1. At the LIU or shelf, locate the connector couplings associated with the circuit to be added.
2. Select a patch cord of the appropriate length for the cross-connection to be made. Excess cord length causes congestion in the trough and may cause the cable to be damaged.
3. Plug 1 end of the cord into the appropriate connector coupling.
4. Route the patch cord through the LIU or shelf and into the vertical and horizontal troughs.
5. Plug the other end of the patch cord into the appropriate connector coupling on the fiber optic transceiver on the DEFINITY System.
6. Label the cable for the circuit added.
7. Test the circuit using the **test fiber link** commands in *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8r*.

To Make a New Interconnection

1. At the LIU, locate the cable to be moved and unplug it from the coupling.
2. Carefully unwind the cable from around the retainer rings, remembering the minimum bend radius.
3. If it is necessary to remove the cable from the LIU, carefully guide it through the split rings in the LIU.
4. Locate the appropriate connection on the other side of the interconnect field and carefully route the cable through the split rings of the LIU.
5. Carefully unwind the cable from the retainer rings, remembering the minimum bend radius.
6. Plug the cable into the appropriate connector coupling.
7. Label the cable for the changed circuit.
8. Test the circuit using the **test fiber link** commands in *DEFINITY Enterprise Communications Server Release 8 Maintenance for R8r*.

Routing Fiber Optic Cables

Cable Slack Managers or Raised Floors

When using either cable slack managers or raised floors, route the fiber cable to the outside of the carriers behind the rear connector panel and cable troughs. Do not route fiber in the side cable troughs used for the B25A cables. However, since the B25A cables route out of the bottom of the trough, loop slack fiber at the top of the trough.

Protect cables routed between cabinets with a fiber protector cover. When routing fiber to a cabinet that is not adjacent, route the fiber back into and under the top of the intermediate cabinet.

Fiber optic cable requires connection to an LIU or shelf for connection to remote cabinets or for connection to the outside fiber plant. In some systems, it may be necessary to run fiber with the I/O cables such as in the cable slack manager or under a raised floor. In these cases protect the fiber by running it in a dedicated area if possible. In any situation where the fiber optic cable must be run with other cabling, protect it by first running it through flexible conduit.

Overhead Ductwork

With overhead ductwork, route the fiber cable to the outside of the carriers, along the cable troughs, and into the shielded ductwork.

Do not route fiber in the side cable troughs that are used for the B25A cables. Use the shielded ductwork to manage slack fiber at the top of the cabinet.

Option Switch Settings

B

Some of the interface units used between the Multi-Carrier Cabinets and other types of equipment require specific option switch settings.

This section lists the settings required for the Comsphere external modems, 572 printers, and TN760 and TN464 Tie Trunk circuit packs.

Refer to the user's guide for each type of equipment for information on how to locate and set the option switches.

External Modem Option Settings

The COMSPHERE 3700, 3800, and 3900 series (recommended) external modems may require option switch settings. Refer to the documentation that accompanies each modem to set the options.

NOTE:
A locally obtained, type-approved external modem may be used. Contact your Lucent Technologies representative for more information.

The Release 8 systems operate with the COMSPHERE modems set to the factory default settings. The modem settings and descriptions are listed in Table B-1.

Table B-1. Modem Fields

Modem Connection	Description
Modem Name	This field is 20 characters long and permits alphanumeric characters to provide a unique qualifier for a given modem (such as INTEL).
RTS/CTS Enabled	Informs the modem that communication with the data source UART is driven with RTS/CTS flow control. The field name has a default of \Q3 in a field 6 characters long. This field is not case sensitive. Default is upper case.
Asynchronous Data Mode	Configures modem as an asynchronous communications device. The field name has a default value of &M0&Q0 in a field 8 characters long. This field is not case sensitive. Default is upper case.
DTE Auto-Data Speed	Adjusts the speed of the data source (DTE) UART to the outgoing (modem-to-modem) data rate. At maximum, this speed is 9600 baud. It is not desirable to have the serial data fill the modem buffer faster than the outgoing data rate, since data compression is disabled. The field name has a blank default value in a field of 6 characters. The Lucent products use the command **S90=1** to enable this functionality while the Intel product uses the command **\J1** to enable similar functionality. This field is not case sensitive. Default is upper case.
Disable Data Compression	Turns off the default data compression algorithms in use by most modems. The field has a blank field of 6 characters as default. The AT commands that control this are supported by similar commands; however, these commands do not operate in the same manner. The Intel modems require “H0%C0” to disable V.42bis & MNP Class 5 data compression algorithms. The Paradyne products only use %C0 to disable both algorithms. This field is not case sensitive. Default is upper case.

Continued on next page

Table B-1. Modem Fields — *Continued*

Modem Connection	Description
Enable Error Control	Turns on the V.42 LAPM and MNP error control protocols, if available. The field has a blank field of 6 characters as default. The Paradyne products use the command **\N5** to enable V.42/MNP/Buffer error control while the Intel product uses \N3 to provide similar functionality. This V.42/MNP/Buffer mode attempts to negotiate V.42 error control with the remote modem. If this fails, the modem changes to MNP, if this fails, no error control is used. This field is not case sensitive. Default is upper case.
Misc. Init. Param	This field has a blank as a default and a field length of 20 characters. This field supports any initialization parameters not already specified. The AT commands specified in this free-form field is always the last initialization parameters to be sent to the external modem. This field is not case sensitive. Default is upper case.
Auto-Answer Ring Number	This field controls the number of rings required before the modem answers an incoming call. This field has a blank default value in a field 6 characters long. Typically, the maximum permissible value for this register is 255. The values 1-255 denote the number of incoming ring cycles. This field is not case sensitive. Default is upper case.
Dial Type	This field controls the type of interregister signaling to be used between the modem and the Central Office. The field has a default of ”T“ for tone dialing. Pulse dialing is indicated by “P”. The field length should be 3 characters long. This field is concatenated with the dial string. This field is not case sensitive. Default is upper case.
Adjustable Make/Break Ratio	This field controls the make/break ratios of pulses and DTMF dialing. The Intel product information has support for different make/ break options for pulse dialing only. Intel uses &P0 to select a ratio of 39% make and 61% break for communication within the United States and Canada. The option &P1 sets a ratio of 33% make and 67% break for the United Kingdom and Hong Kong. This field has a blank default and a 5 character long entry. This field is not case sensitive. Default is upper case.

Continued on next page

Table B-1. Modem Fields — *Continued*

Modem Connection	Description
Dial Command	This field has a default of “D” in a field 3 characters long. This field denotes the dialing command of the modem. This is a standard command. This field is not case sensitive. Default is upper case.
No Answer Time-Out	Most external modems provide a timer that abandons any outbound data call after a predetermined interval. Some modems disable this timer, allowing an outbound call to ring indefinitely. Paradyne does not provide this capability because it is undesirable to have an outbound call attempt to ring indefinitely. Therefore, the initialization string must contain the following ASCII string to set the “No-Answer Timer” to the maximum value: S7=255. The internal modem must have this parameter disabled or set to at least 255 seconds. This is a non-administrable parameter. For the modem connection, this parameter is the first initialization string to be transmitted to the modem. This field is visible on the administration form in display mode only. The new field is set to S7=255. This hardcoded constant can be overridden for type approval applications, specifically in the United Kingdom and other Western European nations, by the use of the “Misc. Init. Param:” field. (S7=255)

Printer Option Settings

Printers can be used with a management terminal as journal printers for the hospitality feature and also as an output device for Call Detail Recording (CDR).

A 572 printer can function as a CDR device, system printer, or journal printer. The options are set with function keys rather than DIP switches. Figure B-1 shows the arrangement of the function keys on the printer control panel.

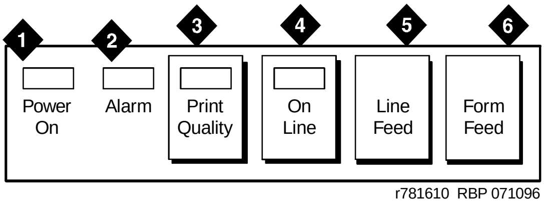


Figure Notes

1. Power On Button
2. Alarm Button
3. Print Quality Button
4. On Line Button
5. Line Feed Button
6. Form Feed Button

Figure B-1. Control Panel for 572 Printer

1. Load the printer with paper and turn the power off (Callout 1).
2. Simultaneously press and hold the **Print Quality** and **On Line** buttons. Press the **Power On** button. Release all three buttons. The printer is now in set-up mode and it prints its current settings.

   If the printer is used with a management terminal, CDR, or as a Journal printer, set the options as shown in Table B-2. If the printer is used as the system printer, set the options as shown in Table B-3.
3. Use **Line Feed** or Form Feed to step through the options for the function.
4. Press **On Line**. This activates the menu for the function. Use **Line Feed** and **Form Feed** to step through the options for the function.
5. When a desired option is located, press **Print Quality**. Each time an option is set, the setting is printed. Repeat for each option to be set.
6. When finished, press **Print Quality**. The printer changes to normal mode.

Table B-2. 572 Printer Used with Management Terminal

Function	Function Name	Menu	Menu Status
01	FORM LENGTH	09	11
02	LPI	01	6
03	CPI	01	10
04	LQ or NLQ	01	LQ
05	BUZZER	01	ON
06	FONT	02	FONTCART
07	RESOLUTION	01	144
11	BUFFER	02	N-LINE
13	PW ON MODE	01	ON-LINE
14	DIRECTION	01	B1-DIR.1
15	BUFF FULL	02	LF + CR
16	P.E.	01	ACTIVE
17	AUTO CARRIAGE RETURN (CR)	01	CR + LF
18	ZERO	01	0
22	AUTO LINE FEED	01	CR ONLY
31	1’’ SKIP	01	OFF
32	CHAR.SET (GO, GL)	02	USA
33	CHAR.SET (G1, GR)	01	UK
34	CHAR SET (G2)	03	GE
35	CHAR SET (G3)	07	LINE DRAWING
81	OFF-LINE STATE	01	ALL RECEIVE
82	DSR	02	OFF
83	REQUEST TO SEND (RTS) TIMING	01	RTS
84	CD	02	OFF
85	CLEAR TO SEND (CTS)	02	OFF
91	OVER RUN	02	256
92	DATA BIT	02	8

Continued on next page

Table B-2. 572 Printer Used with Management Terminal — *Continued*

Function	Function Name	Menu	Menu Status
93	PROTOCOL	03	XON/XOFF
94	STOP BIT	01	1
95	PARITY	01	NONE
96	PBS (matches connected device)	01	9600

Table B-3. 572 Printer used as System Printer

572 Printer Option Settings

Function	Function Name	Menu	Menu Status
01	FORM LENGTH	09	11
02	LPI	01	6
03	CPI	01	10
04	LQ or NLQ	01	LQ
05	BUZZER	01	ON
06	FONT	02	FONTCART
07	RESOLUTION	01	144
11	BUFFER	02	N-LINE
13	PW ON MODE	01	ON-LINE
14	DIRECTION	01	B1-DIR.1
15	BUFF FULL	02	LF + CR
16	P.E.	01	ACTIVE
17	AUTO CARRIAGE RETURN (CR)	01	CR + LF
18	ZERO	01	0
22	AUTO LINE FEED	01	CR ONLY
31	1'' SKIP	01	OFF

Continued on next page

Table B-3. 572 Printer used as System Printer — *Continued*

572 Printer Option Settings

Function	Function Name	Menu	Menu Status
32	CHAR.SET (GO, GL)	02	USA
33	CHAR.SET (G1, GR)	01	UK
34	CHAR SET (G2)	03	GE
35	CHAR SET (G3)	07	LINE DRAWING
81	OFF-LINE STATE	01	ALL RECEIVE
82	DSR	02	OFF
83	REQUEST TO SEND (RTS) TIMING	01	RTS
84	CD	02	OFF
85	CLEAR TO SEND (CTS)	02	OFF
91	OVER RUN	02	256
92	DATA BIT	02	8
93	PROTOCOL	03	XON/XOFF
94	STOP BIT	01	1
95	PARITY	01	NONE
96	PBS	04	12

Call Detail Recording Option Settings

The interface between the system and CDR equipment may be 1 of the following:

- Data Module — recommended option settings are shown in Table B-3.
- Modem — recommended option settings are in modem vendor document
- TN726 Data Line circuit pack and an Asynchronous Data Unit — data modules or modems are not required.
- Connected directly to the **DCE** connector (EIA Port) located on the rear of the Control Carrier — data modules or modems are not required.

A 572 Printer can be used as an output receiving device for CDR. The recommended option settings for this printer is shown in Table B-4. Also, a TELESEER, CDR, 94A Local Storage Unit (LSU), or Customer Premises Equipment (CPE) can be used as the output receiving device.

Administration procedures for CDR equipment are provided in *DEFINITY Enterprise Communications Server Release 8 Administrator's Guide*.

Table B-4. 572 Printer Used with Management Terminal, CDR, or Journal Printer

Function	Function Name	Menu	Menu Status
01	FORM LENGTH	09	11
02	LPI	01	6
03	CPI	01	10
04	LQ or NLQ	01	LQ
05	BUZZER	01	ON
06	FONT	02	FONTCART
07	RESOLUTION	01	144
11	BUFFER	02	N-LINE
13	PW ON MODE	01	ON-LINE
14	DIRECTION	01	B1-DIR.1
15	BUFF FULL	02	LF + CR
16	P.E.	01	ACTIVE
17	AUTO CARRIAGE RETURN (CR)	01	CR + LF
18	ZERO	01	0
22	AUTO LINE FEED	01	CR ONLY

Continued on next page

Table B-4. 572 Printer Used with Management Terminal, CDR, or Journal Printer — *Continued*

Function	Function Name	Menu	Menu Status
31	1'' SKIP	01	OFF
32	CHAR.SET (GO, GL)	02	USA
33	CHAR.SET (G1, GR)	01	UK
34	CHAR SET (G2)	03	GE
35	CHAR SET (G3)	07	LINE DRAWING
81	OFF-LINE STATE	01	ALL RECEIVE
82	DSR	02	OFF
83	REQUEST TO SEND (RTS) TIMING	01	RTS
84	CD	02	OFF
85	CLEAR TO SEND (CTS)	02	OFF
91	OVER RUN	02	256
92	DATA BIT	02	8
93	PROTOCOL	03	XON/XOFF
94	STOP BIT	01	1
95	PARITY	01	NONE
96	PBS	01	9600

TN760D Tie Trunk Option Settings

The TN760D Tie Trunk circuit pack interfaces between four tie trunks and the TDM bus. Two tip and ring pairs form a 4-wire analog transmission line. An E and M pair are DC signaling leads used for call setup. The E-lead receives signals from the tie trunk and the M-lead transmits signals to the tie trunk.

To choose the preferred signaling format (Table B-5 and Table B-6), set the switches on the TN760D and administer the port using Figure B-2 and Table B-7.

Table B-5. Signaling Formats for TN760D

Mode	Type
E & M	Type I Standard (unprotected)
E & M	Type I Compatible (unprotected)
Protected	Type I Compatible, Type I Standard
Simplex	Type V
E & M	Type V
E & M	Type V Revised

Table B-6. Signaling Type Summary

Signaling Type	Transmit (M-Lead)		Receive (E-Lead)	
	On-Hook	Off-Hook	On-Hook	Off-Hook
Type I Standard	ground	battery	open[1]/battery	ground
Type I Compatible	open[1]/battery	ground	ground	open[1]/battery
Type V	open[1]/battery	ground	open	ground
Type V Reversed	ground	open	ground	open

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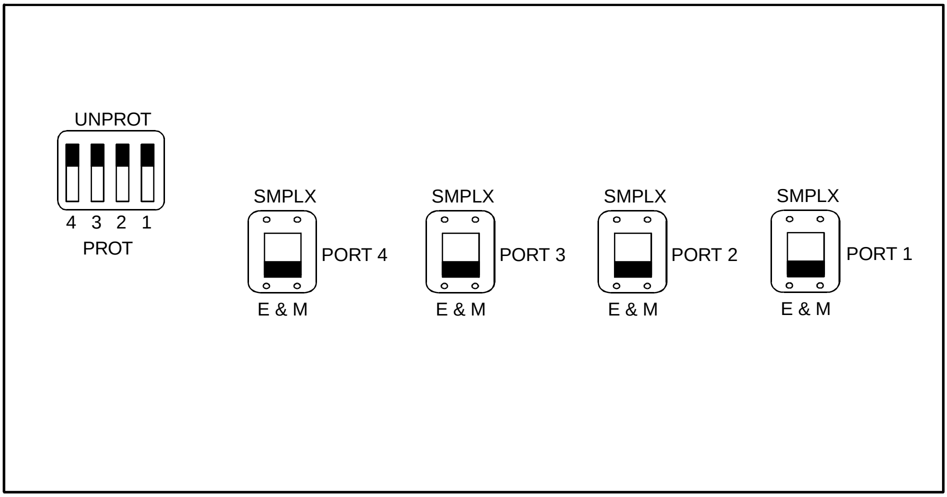
[1] An open circuit is preferred instead of battery voltage.



r758183 RBP 050896

Figure B-2. TN760D Tie Trunk Circuit Pack (Component Side)

Table B-7. TN760D Option Switch Settings and Administration

Installation Situation		**Preferred Signaling Format**		**E&M/SMPLX Switch**	**Prot/Unprot Switch**	**Administered Port**
Circumstance	**To**	**System**	**Far-End**			
Co-Located	DEFINITY	E&M Type 1 Compatible	E&M Type 1 Standard	E&M	Unprotected	Type 1 Compatible
Inter-Building	DEFINITY	Protected Type 1 Compatible	Protected Type 1 Standard Plus Protection Unit	E&M	Protected	Type 1 Compatible
Co-Located	Net Integrated	E&M Type 1 Standard	Any PBX	E&M	Unprotected	Type 1

TN464E/F Option Settings

The TN464E/F DS1/E1 Interface - T1/E1 circuit pack interfaces between a 24 or 32 channel Central Office/ISDN or tie trunk and the TDM bus.

Set the switches on the circuit pack to select bit rate and impedance match. See Table B-8 and Figure B-3.

Table B-8. Option Switch Settings on TN464E/F

120 Ohms	Twisted pair
75 Ohms	Coaxial requiring 888A adapter
32 Channel	2.048 megabits per second
24 Channel	1.544 megabits per second

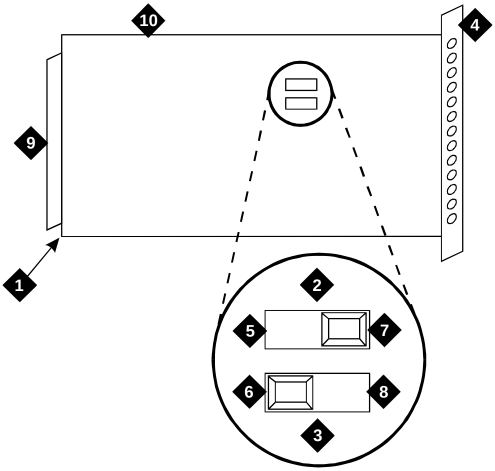


Figure Notes

1. Backplane Connectors
2. 24/32 Channel Selector
3. 75/120 Ohm Selector
4. Faceplate
5. 32 Channel
6. 120 Ohm (shown selected)
7. 24 Channel (shown selected)
8. 75 Ohm
9. Connector
10. TN464E/F DS1/E1 Interface Circuit Pack

Figure B-3. TN464E/F Option Settings

Cable Ductwork

C

The cable ductwork is assembled from various group numbers from ED-1E465 (facia paneling to cover the I/O ducts is assembled from ED-1E464). The assembly, installed after the cabinets have been installed, provides ducts for three types of cables: intercabinet cables, I/O cables (tip and ring), and AC power cables. DC power cables are installed in ductwork per local codes. Typical assembled ductwork is shown in Figure C-1. The 3 primary types of ductwork are detailed below:

- Shielded intercabinet cable duct — Provides the path for cables connected between cabinets. This duct is the first installed. Covers for this duct should be stored until the intercabinet cabling is completed.
- I/O cable duct — Provides the path for I/O cables to the Main Distribution Frame (MDF). The I/O cables originate at connectors on the rear of the cabinets and terminate on connectors at the MDF.
- AC power duct — Provides the path for the AC wiring that powers the system. This duct mounts to the rear of the shielded duct that runs across each cabinet.

Five group numbers provide various arrangements of receptacles necessary for different types of cabinets. Knockouts are provided for 1-inch (2.54 cm), 1.5-inch (3.81 cm), or 2-inch (5 cm) conduits that provide AC power connection at one end of each cabinet lineup. Covers for the power duct should be stored until the AC wiring is completed.

Three methods are available for running I/O cables from the I/O ducts to the MDF:

1. Using an overhead cable rack
2. Using cable duct groups 22 through 26, and 39
3. Using multiples of either group as required

Equipment room layout and expected growth determines which method to use. Installation of an overhead rack is covered by *Cable Racks* (800-614-157).

NOTE:

Install all screws in all appropriate places to comply with electromagnetic interference (EMI) requirements for shielding.

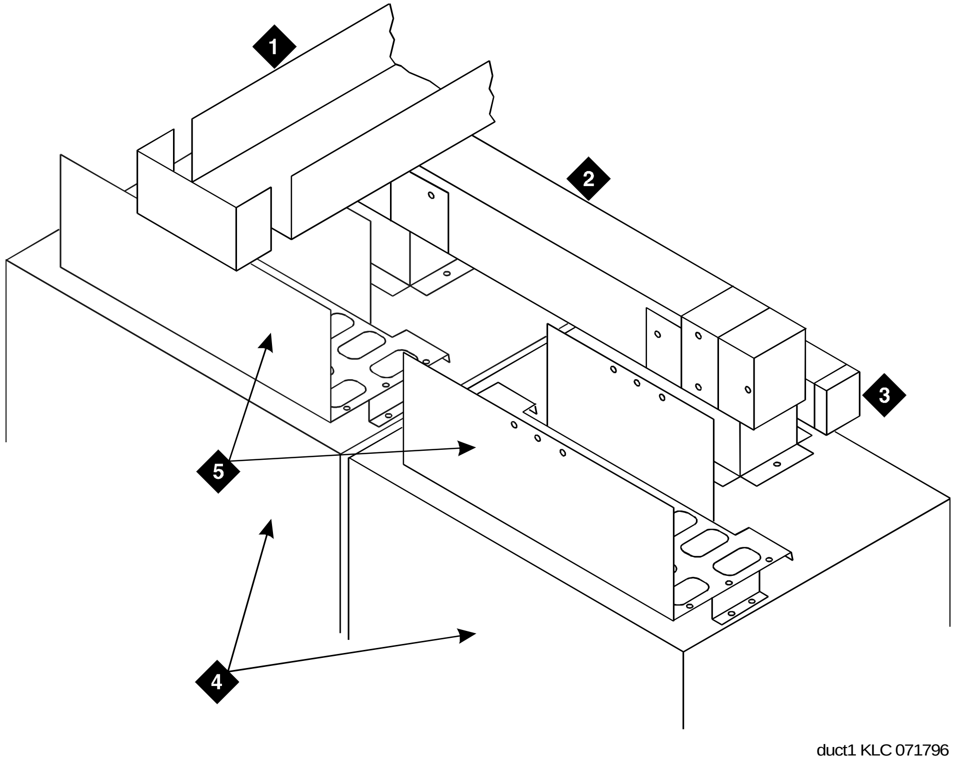


Figure Notes

1. I/O Cross-Isle Trough
2. Shielded Intercabinet Duct
3. AC Power Cable Duct
4. Front of Cabinets
5. I/O Ducts to Cross-Connect Field

Figure C-1. Typical Layout of Assembled Ductwork

Installation

This ductwork consists of ED-1E465 group numbers (facia paneling to cover the I/O ducts is assembled from ED-1E464). The group numbers match those in the Customer Service Document (CSD) and floor plan layout.

Inventory the materials received and mark a copy of the floor plan with the location of each group number to be installed. Hardware used to assemble each item is packaged with the individual groups.

Table C-1 shows the available group numbers and a brief description of each group. Some ducts are equipped with covers which should be stored until all cabling is completed. When storing, tag the covers with their associated group numbers for ease in identification.

Table C-1. ED-1E465 Group Numbers and Descriptions

Group	Description
6	Rear or front end plate for I/O ductwork
8	I/O cable rack coupling to rear of cabinet
9	I/O cable rack riser to side of cabinet
10	I/O cross-aisle ductwork
12	AC power duct
13	AC power duct with one 3-wire twist-lock receptacle (right side)
14	AC power duct with one 3-wire twist-lock receptacle (left side)
15	AC power duct with two 3-wire twist-lock receptacles (right side)
16	AC power duct with four 3-wire twist-lock receptacles (left side)
17	Raceway cover
18	Raceway cover with utility outlet
19	AC power duct combination end
21	AC power duct with one 4-wire twist-lock receptacle (right side)
22	I/O duct-side of cabinet to wall (43 inch (109.2 cm) aisle)
23	I/O duct-side of cabinet to wall over one cabinet
24	I/O duct-side of cabinet to wall over two cabinets
25	I/O duct-side of cabinets to wall over three cabinets
26	I/O duct-rear of cabinet to wall (43 inch (109.2 cm) aisle)
27	Transition between older DIMENSION system-type cabinet and new DEFINITY system cabinets for shielded cable ducts

Continued on next page

Table C-1. ED-1E465 Group Numbers and Descriptions — *Continued*

Group	Description
28	Transition between older DIMENSION system-type cabinet and new DEFINITY system cabinets for I/O cables
29	Shielded duct assembly transition from the front of a System 85-R1 cabinet to the rear of a DEFINITY cabinet
30	I/O duct transition assembly for cross-aisle (System 85-R1 lineup to bridge a DEFINITY lineup)
31	Shielded duct assembly transition from rear of a System 85-R1 to front of a DEFINITY cabinet
32	AC power with a 4-wire twist-lock receptacle (left side viewed from rear)
33	Ladder rack supported 86 or 88.5 inches (218.4 cm or 224.7 cm) from floor
34	AC power duct with two 3-wire receptacles (250 VAC) (right side)
35	AC power duct with one 3-wire receptacle (250 VAC) (right side)
37	AC power duct with one 3-wire receptacle (30 A, 208 VAC) for CC
39	I/O cross-aisle ductwork (48 inch (109.2 cm) aisle)
41	Basic hardware for one cabinet
42	Right or left end plate for shielded ductwork
44	Front and rear end plate for shielded ductwork
51	Shielded cross-aisle ductwork
78	Shielded cross-aisle ductwork (48 inch (122 cm) aisle)

Install the various cable ducts in the order shown in Table C-2. Figure C-2 shows an overhead view of a typical ductwork installation.

⚠ **WARNING:**
To prevent damage to the cabinet circuitry or cables, place cardboard or equivalent in the cable ducts to catch any metal filings that may fall from the self-threading screws.

Table C-2. Installation Sequence

Step	Group	Remarks
1	41	Install basic ductwork on each cabinet
2	51	Install cross-aisle shielded ductwork
3	10 or 26	Install I/O cross-aisle or cabinet to wall cable trough
	22-25	Install I/O cross-aisle to wall trough duct
4	8 or 9	Install I/O cable rack coupling to rear of cabinet or install I/O cable rack riser to end of cabinet
5	12-19, 21, 32, 34, & 35	Install AC power ducts
6	27	Install shielded cable ducts between DEFINITY and DIMENSION cabinets
7	28	Install I/O cable ducts between DEFINITY and DIMENSION cabinets
8	29 & 31	Install shielded duct assembly from front of system cabinet to rear of a DEFINITY cabinet (group 29) or front of a DEFINITY cabinet to rear of system cabinet (group 31)
9	30	I/O transition assembly for cross-aisle (DEFINITY)
10	33	Ladder rack supported 86 or 88.5 inches (218.4 cm or 224.8 cm) from floor

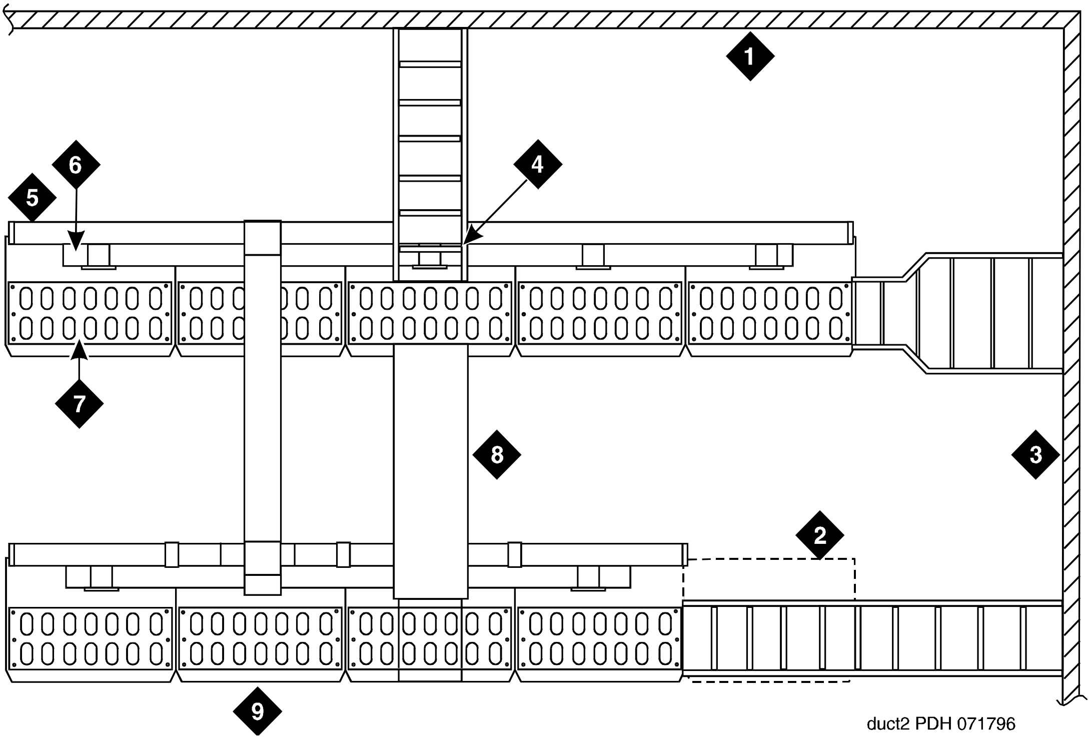


Figure Notes

1. Wall
2. Space for Future Cabinet
3. Plywood Wall and Cross-Connect Field
4. I/O Cable Rack Coupling to Rear of Cabinet
5. AC Power Cable Duct
6. Shielded Intercabinet Fiber Optic Cables
7. I/O Duct to Cross-Connect Field
8. I/O Cross-Isle Trough
9. Front of Cabinets

Figure C-2. Overhead View of a Typical Ductwork Layout

Install Intercabinet Shielded Ducts

1. Loosen (do not remove) the four bolts holding the dust cover to the cable access hole in the top of the cabinet.

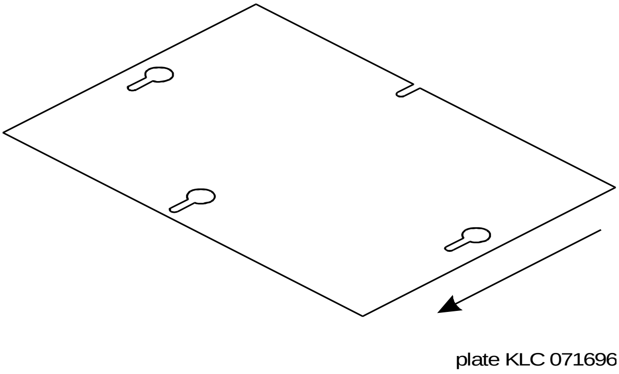


Figure C-3. Dust Cover Removal

2. Remove the dust cover by sliding it in the direction shown by the arrow in Figure C-3. Move the dust cover until it clears the bolts.
3. Set the cabinet riser (Figure C-4) with its base in place of the dust cover just removed. The four slots in its base should be just behind the bolts and the heads of the two middle bolts should have cleared the holes provided for them. Push the riser forward to seat the bolts in the four slots in the base of the riser. Then tighten the bolts.

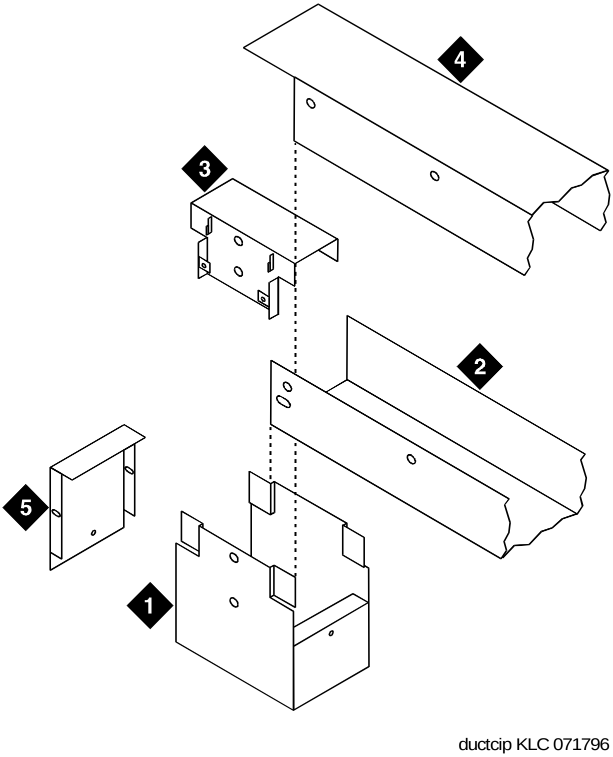


Figure Notes

1. Cabinet Riser
2. Shielded Trough
3. Cross-Aisle Riser
4. Shielded Coupling
5. Shielded End Cap

Figure C-4. Assembly of Intercabinet Shielded Ducts

4. Install risers on any other cabinets that require shielded-duct connections.
5. Set a shielded trough between two cabinet risers. Push down on the trough so the slots in the ends of the trough engage the ears at the corners of the risers. The walls of the trough go inside the walls of the risers and outside of the ears of the risers.
6. Seat the bottom of the shielded trough on the support walls of the two cabinet risers that it connects. Attach the trough to each riser with a self-tapping screw.
7. Install shielded troughs on any other pairs of cabinets that require shielded-duct connections.

8. Route the appropriate cables between the cabinets just connected.
9. If a given cabinet is to support a cross-aisle shielded duct, set a cross-aisle riser on the cabinet riser. Otherwise set a shielded coupling on the cabinet riser. In either case, position the device so the two holes on the back wall line up with the holes on the back wall of the cabinet riser. Bolt the two pieces together at the holes just described.
10. If there is no trough to install in one end of the cabinet riser, press a shielded end cap on the unused end of the riser. The side walls of the end cap go inside the walls of the riser and outside of the ears of the riser. The top of the end cap should rest on top of the shielded coupling or cross-aisle riser previously installed. Bolt the bottom of the end cap to the cabinet riser with a self-tapping screw.
11. Set the shielded cover on the shielded trough and press it down so the dimples on the cover engage the holes in the trough.

Install Cross-Aisle Shielded Ducts

The inter-cabinet ducts and cross-aisle risers must be installed before any cross-aisle ductwork is installed.

1. Set the tongue on the bottom of a cross-aisle trough (Figure C-5) into the platform of the cross-aisle riser. From above the trough, run a self-tapping screw through the slot in the trough and into the hole in the riser.

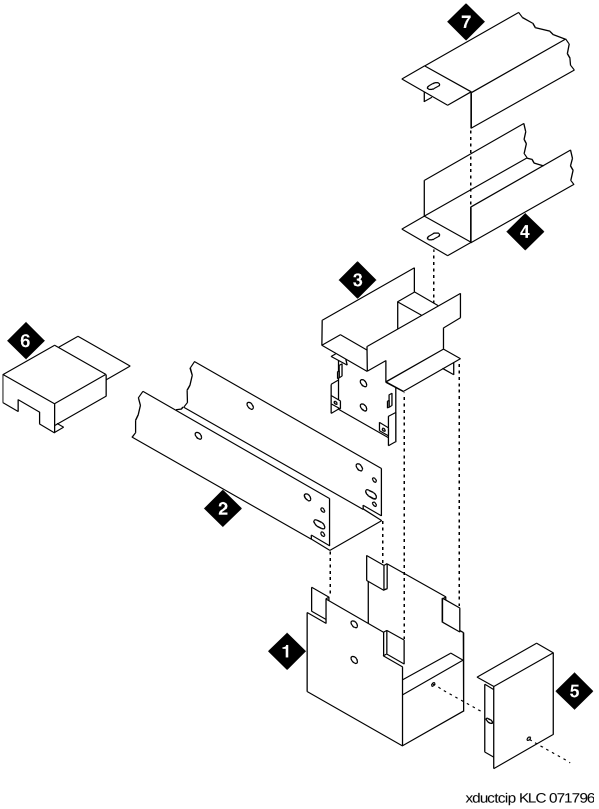


Figure Notes

1. Cabinet Riser
2. Shielded Trough
3. Cross-Aisle Riser
4. Cross-Aisle Trough
5. Shielded End Cap
6. Cross-Aisle Shielded End Cap
7. Cross-Aisle Trough Cover

Figure C-5. Assembly of Cross-Aisle Shielded Ducts

2. Install cross-aisle troughs on any other cabinets requiring such connections.
3. If there is no trough to install in one end of the cross-aisle riser, press a cross-aisle shielded end cap on the unused end of the riser. Unlike earlier ductwork, the endcap fits either end of the cross-aisle riser. The side walls of the end cap go outside the walls of the riser. The ears on the bottom of the end cap go outside of the riser's bottom plate, and the bottom plate of the end cap goes inside of the riser's bottom plate.

4. Route the appropriate cables between the cabinets just connected.
5. Set the shielded cross-aisle trough cover on top of the trough with its side walls outside of the walls of the trough, and press it down until it completely covers the trough.

Mating Cross-Aisle Risers to Old Cabinet Risers

The new shielded ductwork is constructed so cross-aisle risers can be attached to cabinet risers of the former design.

1. Remove the shielded coupling from the old cabinet riser. This assembly is illustrated in the older system's installation document.
2. Replace the shielded coupling with a cross-aisle riser. Set the cross-aisle riser (Figure C-6) on the cabinet riser. Position the cross-aisle riser so the two holes on the back wall line up with the holes on the back wall of the cabinet riser. Bolt the two pieces together at the holes just described.

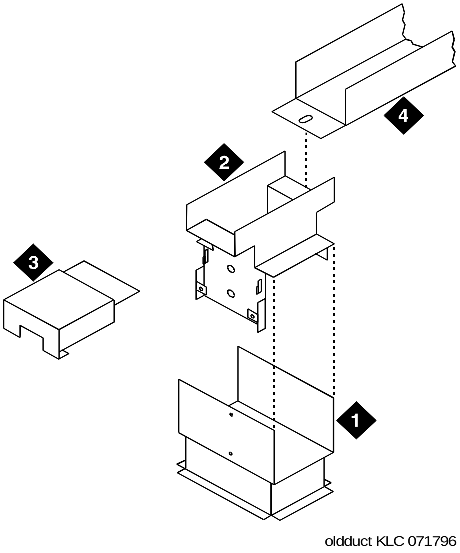


Figure Notes

1. Cabinet Riser
2. Cross-Aisle Riser
3. Cross-Aisle Shielded End Cap
4. Cross-Aisle Trough

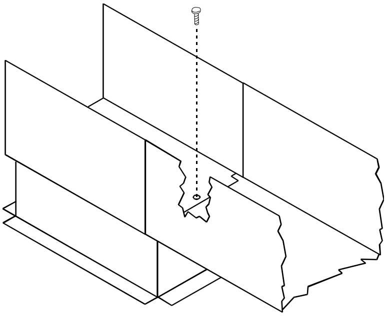
Figure C-6. Mating Cross-Aisle Risers to System 85-R2 Cabinet Risers

3. Assemble cross-aisle ductwork as already described.

Mating Shielded Ducts to Risers

The new shielded ductwork is constructed so new cross-aisle troughs can be attached to risers of the former design. They fit outside of the older risers.

To attach the new shielded trough to a riser, first set it under the trough on the riser and install the other side of the trough as already described. Lift the trough as shown in Figure C-7, with the walls of the trough outside of the walls of the riser. Hold a nut under the trough, and bolt the parts together as shown.



newduct KLC 071696

Figure C-7. Shielded Duct Connected to Old Style Riser

Install Cross Aisle I/O Ductwork

1. If required, attach I/O endplate (group 6) to the cross-aisle brackets (group 10). See Figure C-8.
2. Install a cross-aisle bracket on both sides of the I/O trough where cross-aisle or wall trough is to be used. Place the bracket inside the I/O trough with its angle end outside. Secure the bracket using three thread-forming screws in each trough (use the holes in the bracket closest to the angle).
3. If cross-aisle, install brackets on I/O trough of cross-aisle cabinet.
4. Place I/O cross-aisle trough (group 10) or I/O wall trough (group 26) on brackets and secure with thread-forming screws.

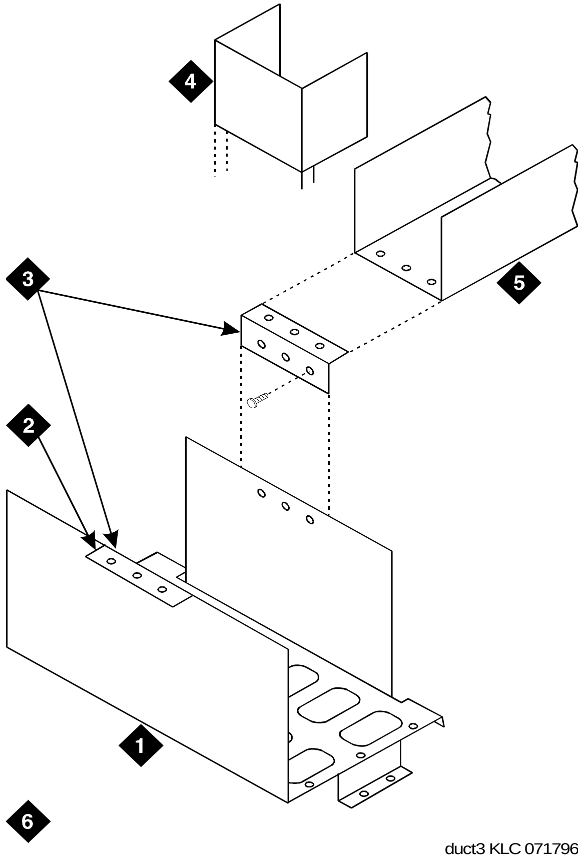


Figure Notes

1. I/O Trough	4. I/O Endplate
2. Use Only When Required	5. Cross-Aisle I/O Trough or I/O Wall Trough
3. Cross-Aisle Brackets	6. Front of Cabinet

Figure C-8. **Install Cross-Aisle I/O Ductwork or I/O Cross-Aisle to Wall Trough**

NOTE:

If wall trough is being installed, locally provided hardware is required at wall end of duct.

Install Cross-Aisle to Wall Trough

Refer to Figure C-9 to assemble the ductwork:

1. Install wall mounting bracket to designated location. Hardware to mount bracket should be determined according to wall type and should be locally provided.
2. Use thread-forming screws to attach the 3-hole face of the angle bracket to the I/O trough.
3. Attach the angle bracket to the 6-hole face of the cross-aisle bracket using three 10-24 X 3/4 inch screws, connected to nuts and washers through the bottom holes.
4. Attach the I/O cable duct to the cross-aisle bracket using the thread-forming screws. Attach the other end of the I/O duct to the wall mounting using 10-24 X 3/4 inch screws, nuts and washers.

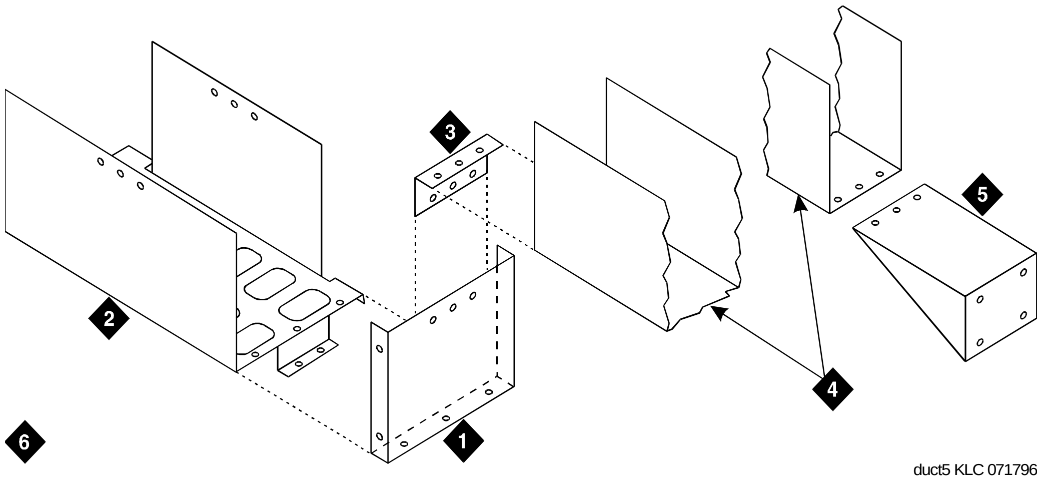


Figure Notes

1. Angle Bracket
2. I/O Trough
3. Cross-Aisle Bracket
4. I/O Cable Duct
5. Wall Mounting Bracket
6. Front of Cabinet

Figure C-9. Installation of I/O Cross-Aisle to Wall Trough

Install I/O Cable Rack Coupling

1. Attach I/O trough to top of cabinet using thread-forming screws. See Figure C-10.
2. Attach cross-aisle bracket to I/O trough using thread-forming screws through the top three holes on the bracket’s 6-hole face.
3. Attach I/O coupling trough to cross-aisle bracket using thread-forming screws.
4. Attach cable rack to coupling trough using locally-provided coupling plates and 3/8-18 x 1/2 inch hex head bolts with nuts.
5. Attach other end of cable rack to wall using locally-provided hardware.

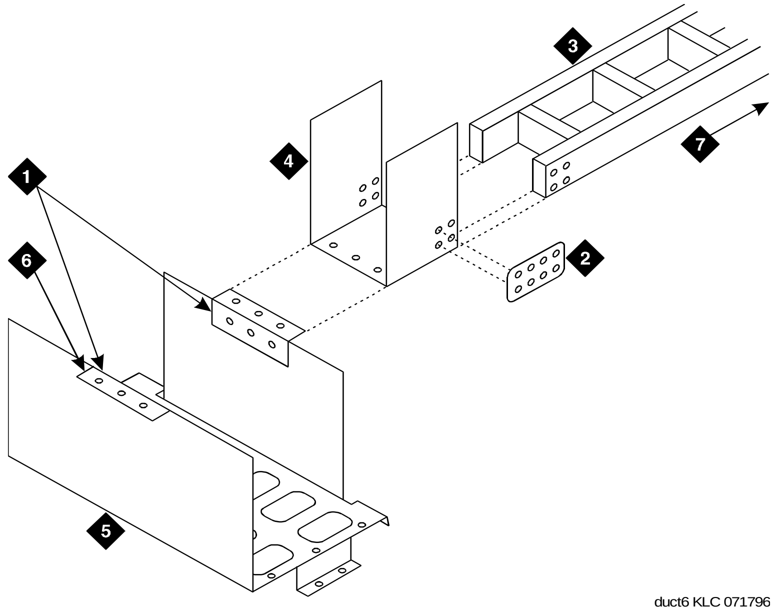


Figure Notes

1. Cross-Aisle Bracket	5. I/O Trough
2. Coupling Plate	6. Use Only When Required
3. Cable Rack	7. To Wall
4. I/O Coupling Trough	

Figure C-10. Installation of I/O Cable Rack Coupling to Rear of Cabinet

Install I/O Cable Rack Riser

Refer to Figure C-11 and assemble the ductwork:

1. Attach angle bracket (group 9) to I/O trough using thread-forming screws.
2. Attach cross-aisle bracket to angle bracket using thread-forming screws. Attach the angle bracket to the 6-hole face of the cross-aisle bracket using three thread-forming screws through the bottom holes.
3. Attach I/O coupling trough (group 8) to cross-aisle bracket using thread-forming screws.
4. Attach cable rack to coupling trough using locally-provided coupling plates and 3/8-18 x 1/2 inch hex bolts and nuts.
5. Attach other end of cable rack to wall using locally provided hardware suitable to type of wall.

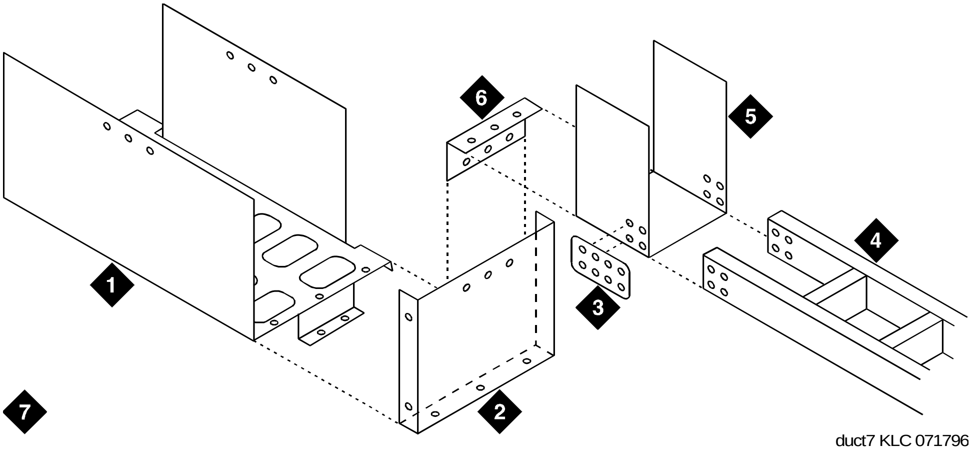


Figure Notes

1. I/O Trough
2. Angle Bracket
3. Coupling Plate
4. Cable Rack
5. I/O Coupling Trough
6. Cross-Aisle Bracket
7. Front of Cabinet

Figure C-11. Installation of I/O Cable Rack Riser to End of Cabinet (Group 9)

Install AC Power Duct

Refer to Figure C-12 and assemble the ductwork:

1. Hang AC power duct (group 12 through 16 and 21) on back of shielded duct and anchor in place using one thread-forming screw at each cabinet.
2. If required, slide utility outlet assembly (part of group 18) into the duct from the end.
3. Repeat steps 1 and 2 for each cabinet.
4. Interconnect ducts with couplings using four round-head machine screws.
5. Insert 4 wire holders into each duct spaced evenly along duct.
6. If equipped with an AC outlet, snap two group 18 raceway covers into place onto the AC power ducts.
7. If not equipped with an AC outlet, snap a group 17 raceway cover into place onto the AC power ducts.
8. If required, attach group 19 (combination end cap) by using two round head machine screws.
9. Assemble the ladder rack as shown in Figure C-13 on page C-19.

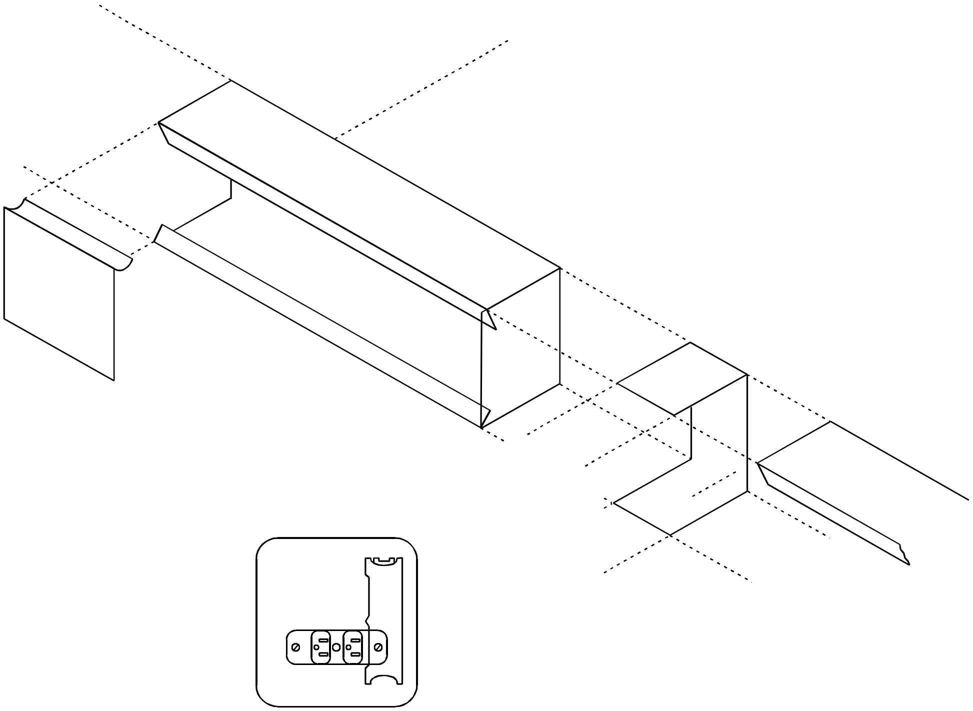


Figure Notes

1. Raceway Cover
2. Twist-Lock Receptacle
3. Thread-Forming Screw
4. Combination Endcap
5. Conduit Knockout
6. I/O Power Duct
7. Rear of Shielded Duct
8. Coupling
9. Typical Utility Outlet Assembly
10. Slide in Direction Shown
11. Wire Holders

Figure C-12. Install AC Power Duct

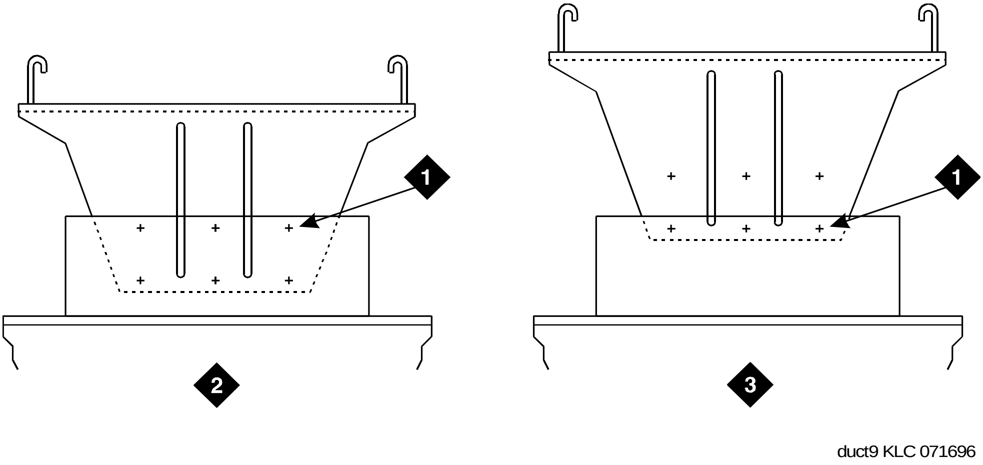


Figure C-13. **Assembly of Ladder Rack**

Connector and Cable Diagrams

D

This chapter provides connector and cable diagrams for the DEFINITY Enterprise Communications Server.

For circuit pack and auxiliary equipment classifications, see the tables at the end of Chapter 5, ‘‘Install and Wire Telephones and Other Equipment’’.

See Figure D-1 for Expansion Interface to Expansion Interface fiber interconnect.

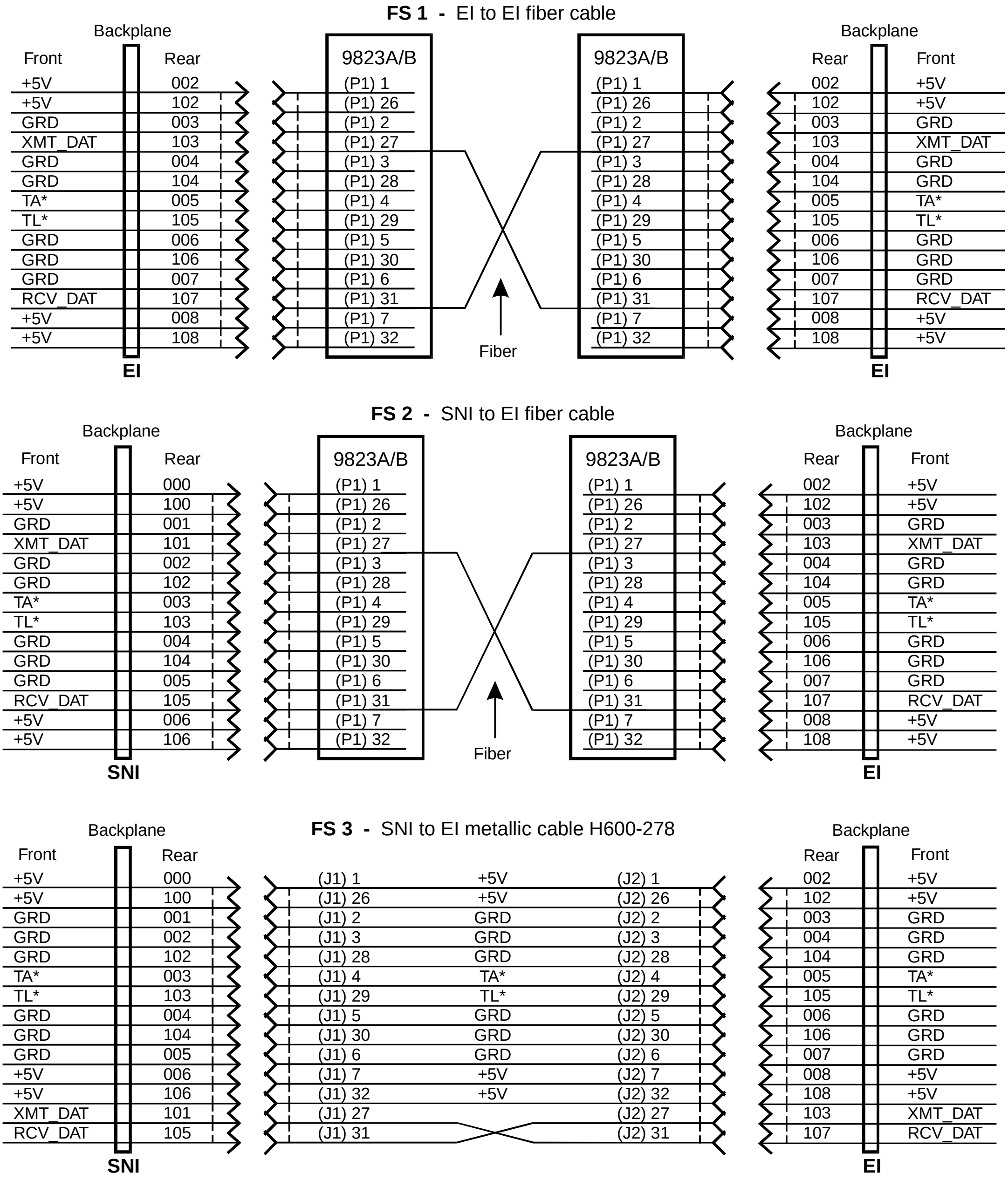


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Figure D-1. Expansion Interface to Expansion Interface Fiber (Part 1)

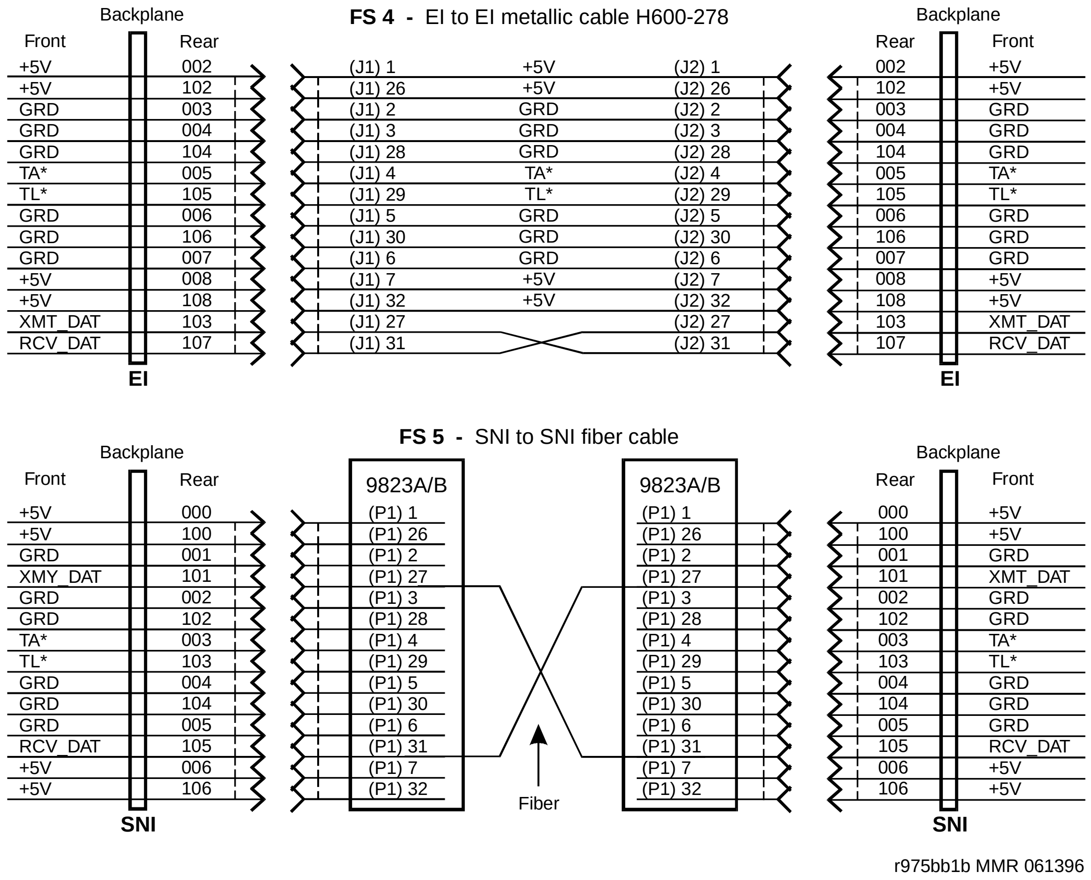
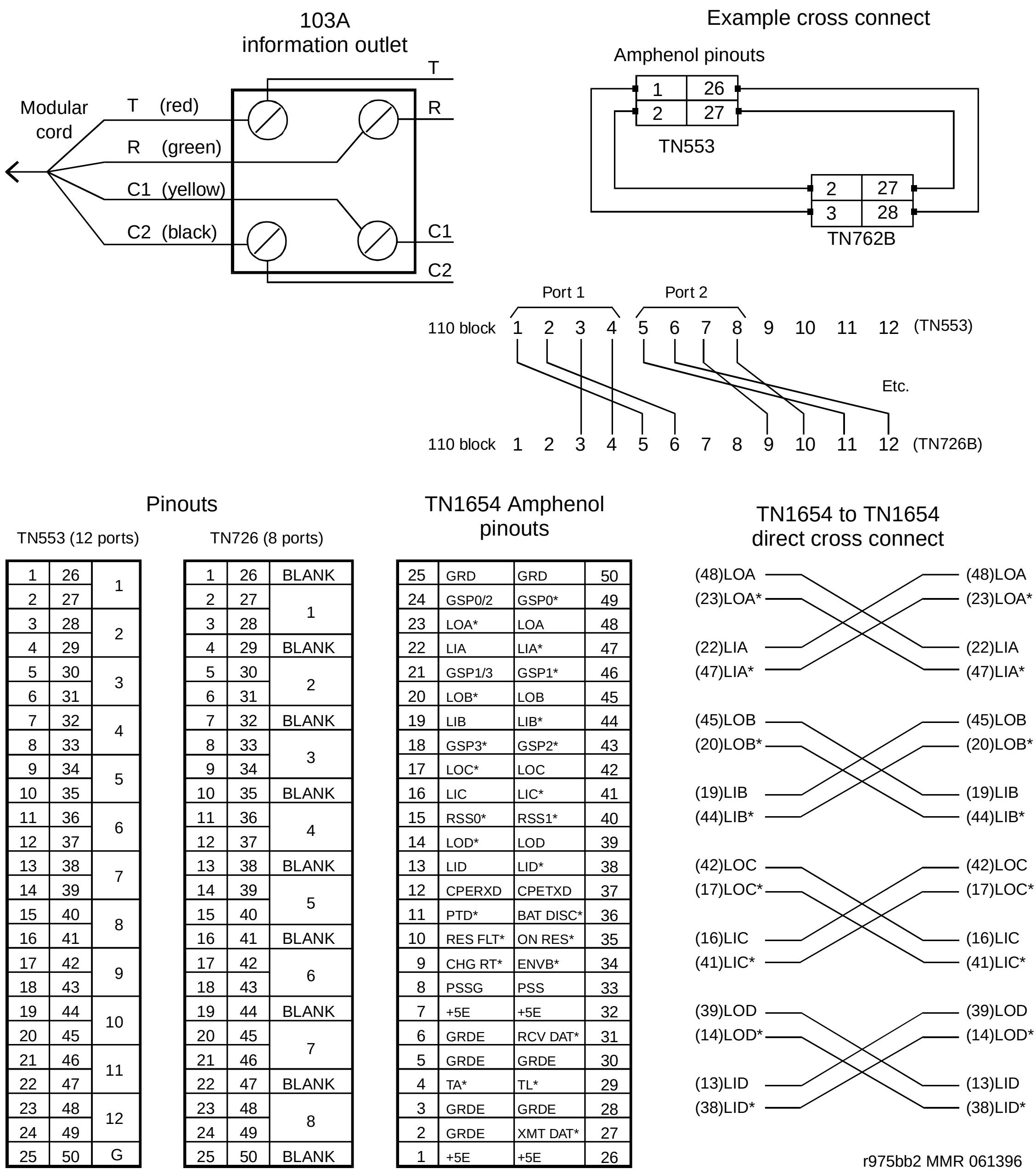

Backplane
Front
Rear
FS 4 - EI to EI metallic cable H600-278
+5V 002 (J1) 1 +5V (J2) 1 002 +5V
+5V 102 (J1) 26 +5V (J2) 26 102 +5V
GRD 003 (J1) 2 GRD (J2) 2 003 GRD
GRD 004 (J1) 3 GRD (J2) 3 004 GRD
GRD 104 (J1) 28 GRD (J2) 28 104 GRD
TA* 005 (J1) 4 TA* (J2) 4 005 TA*
TL* 105 (J1) 29 TL* (J2) 29 105 TL*
GRD 006 (J1) 5 GRD (J2) 5 006 GRD
GRD 106 (J1) 30 GRD (J2) 30 106 GRD
GRD 007 (J1) 6 GRD (J2) 6 007 GRD
+5V 008 (J1) 7 +5V (J2) 7 008 +5V
+5V 108 (J1) 32 +5V (J2) 32 108 +5V
XMT_DAT 103 (J1) 27 (J2) 27 103 XMT_DAT
RCV_DAT 107 (J1) 31 (J2) 31 107 RCV_DAT
EI
EI
FS 5 - SNI to SNI fiber cable
Backplane
Front
Rear
9823A/B
9823A/B
+5V 000 (P1) 1 (P1) 1 000 +5V
+5V 100 (P1) 26 (P1) 26 100 +5V
GRD 001 (P1) 2 (P1) 2 001 GRD
XMY_DAT 101 (P1) 27 (P1) 27 101 XMT_DAT
GRD 002 (P1) 3 (P1) 3 002 GRD
GRD 102 (P1) 28 (P1) 28 102 GRD
TA* 003 (P1) 4 (P1) 4 003 TA*
TL* 103 (P1) 29 (P1) 29 103 TL*
GRD 004 (P1) 5 (P1) 5 004 GRD
GRD 104 (P1) 30 (P1) 30 104 GRD
GRD 005 (P1) 6 (P1) 6 005 GRD
RCV_DAT 105 (P1) 31 (P1) 31 105 RCV_DAT
+5V 006 (P1) 7 (P1) 7 006 +5V
+5V 106 (P1) 32 (P1) 32 106 +5V
Fiber
SNI
SNI
r975bb1b MMR 061396

Figure D-2. Expansion Interface to Expansion Interface Fiber (Part 2)



TN553 (12 ports)

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

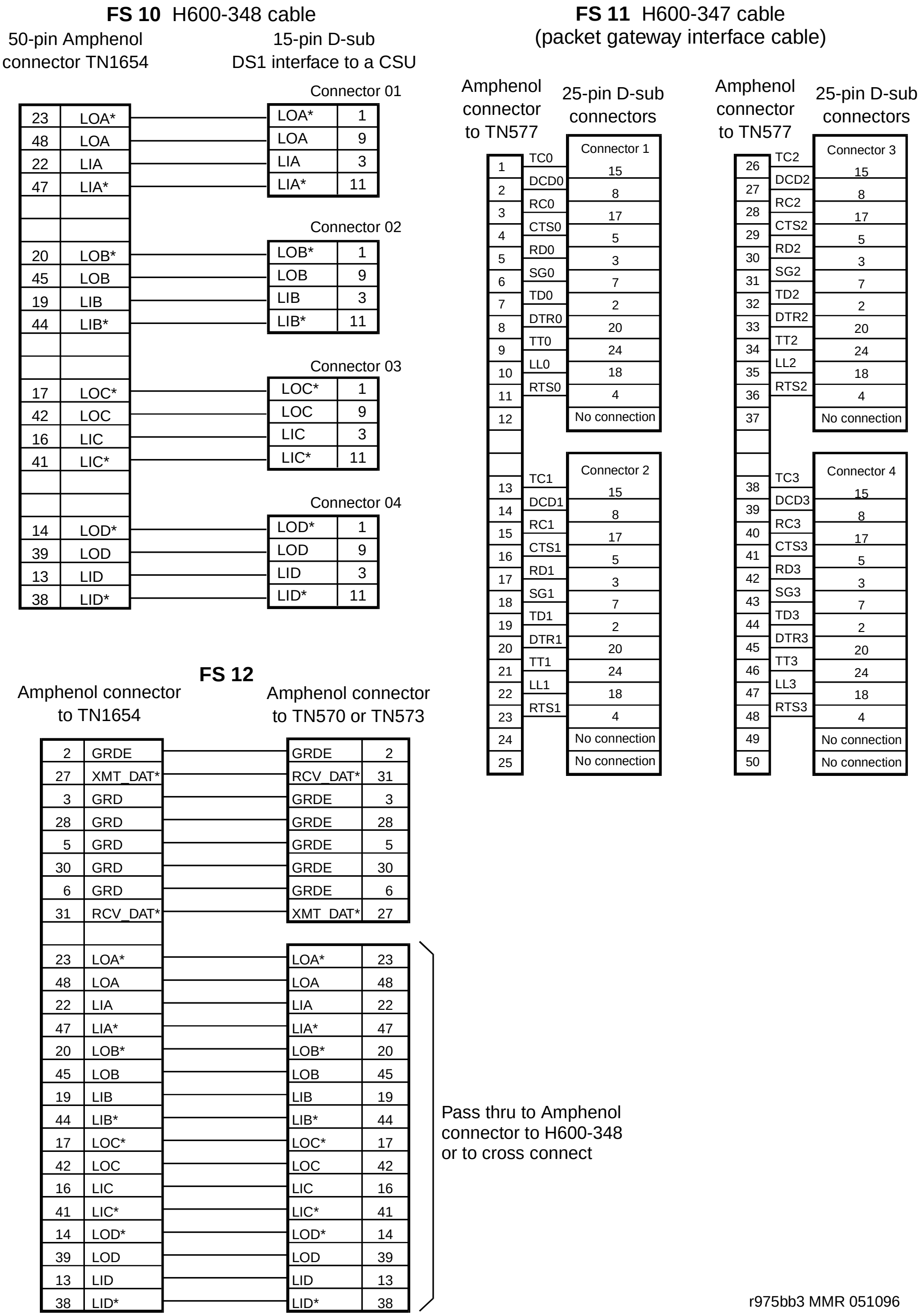
TN726 (8 ports)

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

TN1654 Amphenol pinouts

25	GRD	GRD	50
24	GSP0/2	GSP0*	49
23	LOA*	LOA	48
22	LIA	LIA*	47
21	GSP1/3	GSP1*	46
20	LOB*	LOB	45
19	LIB	LIB*	44
18	GSP3*	GSP2*	43
17	LOC*	LOC	42
16	LIC	LIC*	41
15	RSS0*	RSS1*	40
14	LOD*	LOD	39
13	LID	LID*	38
12	CPERXD	CPETXD	37
11	PTD*	BAT DISC*	36
10	RES FLT*	ON RES*	35
9	CHG RT*	ENVB*	34
8	PSSG	PSS	33
7	+5E	+5E	32
6	GRDE	RCV DAT*	31
5	GRDE	GRDE	30
4	TA*	TL*	29
3	GRDE	GRDE	28
2	GRDE	XMT DAT*	27
1	+5E	+5E	26

Figure D-3. Sample Cross-Connects



FS 10 H600-348 cable

50-pin Amphenol connector TN1654		15-pin D-sub DS1 interface to a CSU	
		Connector 01	
23	LOA*	LOA*	1
48	LOA	LOA	9
22	LIA	LIA	3
47	LIA*	LIA*	11
		Connector 02	
20	LOB*	LOB*	1
45	LOB	LOB	9
19	LIB	LIB	3
44	LIB*	LIB*	11
		Connector 03	
17	LOC*	LOC*	1
42	LOC	LOC	9
16	LIC	LIC	3
41	LIC*	LIC*	11
		Connector 04	
14	LOD*	LOD*	1
39	LOD	LOD	9
13	LID	LID	3
38	LID*	LID*	11

FS 11 H600-347 cable
(packet gateway interface cable)

Amphenol connector to TN577		25-pin D-sub connectors
		Connector 1
1	TC0	15
2	DCD0	8
3	RC0	17
4	CTS0	5
5	RD0	3
6	SG0	7
7	TD0	2
8	DTR0	20
9	TT0	24
10	LL0	18
11	RTS0	4
12		No connection
		Connector 2
13	TC1	15
14	DCD1	8
15	RC1	17
16	CTS1	5
17	RD1	3
18	SG1	7
19	TD1	2
20	DTR1	20
21	TT1	24
22	LL1	18
23	RTS1	4
24		No connection
25		No connection

Amphenol connector to TN577		25-pin D-sub connectors
		Connector 3
26	TC2	15
27	DCD2	8
28	RC2	17
29	CTS2	5
30	RD2	3
31	SG2	7
32	TD2	2
33	DTR2	20
34	TT2	24
35	LL2	18
36	RTS2	4
37		No connection
		Connector 4
38	TC3	15
39	DCD3	8
40	RC3	17
41	CTS3	5
42	RD3	3
43	SG3	7
44	TD3	2
45	DTR3	20
46	TT3	24
47	LL3	18
48	RTS3	4
49		No connection
50		No connection

FS 12

Amphenol connector to TN1654		Amphenol connector to TN570 or TN573	
2	GRDE	GRDE	2
27	XMT_DAT*	RCV_DAT*	31
3	GRD	GRDE	3
28	GRD	GRDE	28
5	GRD	GRDE	5
30	GRD	GRDE	30
6	GRD	GRDE	6
31	RCV_DAT*	XMT_DAT*	27
23	LOA*	LOA*	23
48	LOA	LOA	48
22	LIA	LIA	22
47	LIA*	LIA*	47
20	LOB*	LOB*	20
45	LOB	LOB	45
19	LIB	LIB	19
44	LIB*	LIB*	44
17	LOC*	LOC*	17
42	LOC	LOC	42
16	LIC	LIC	16
41	LIC*	LIC*	41
14	LOD*	LOD*	14
39	LOD	LOD	39
13	LID	LID	13
38	LID*	LID*	38

Pass thru to Amphenol connector to H600-348 or to cross connect

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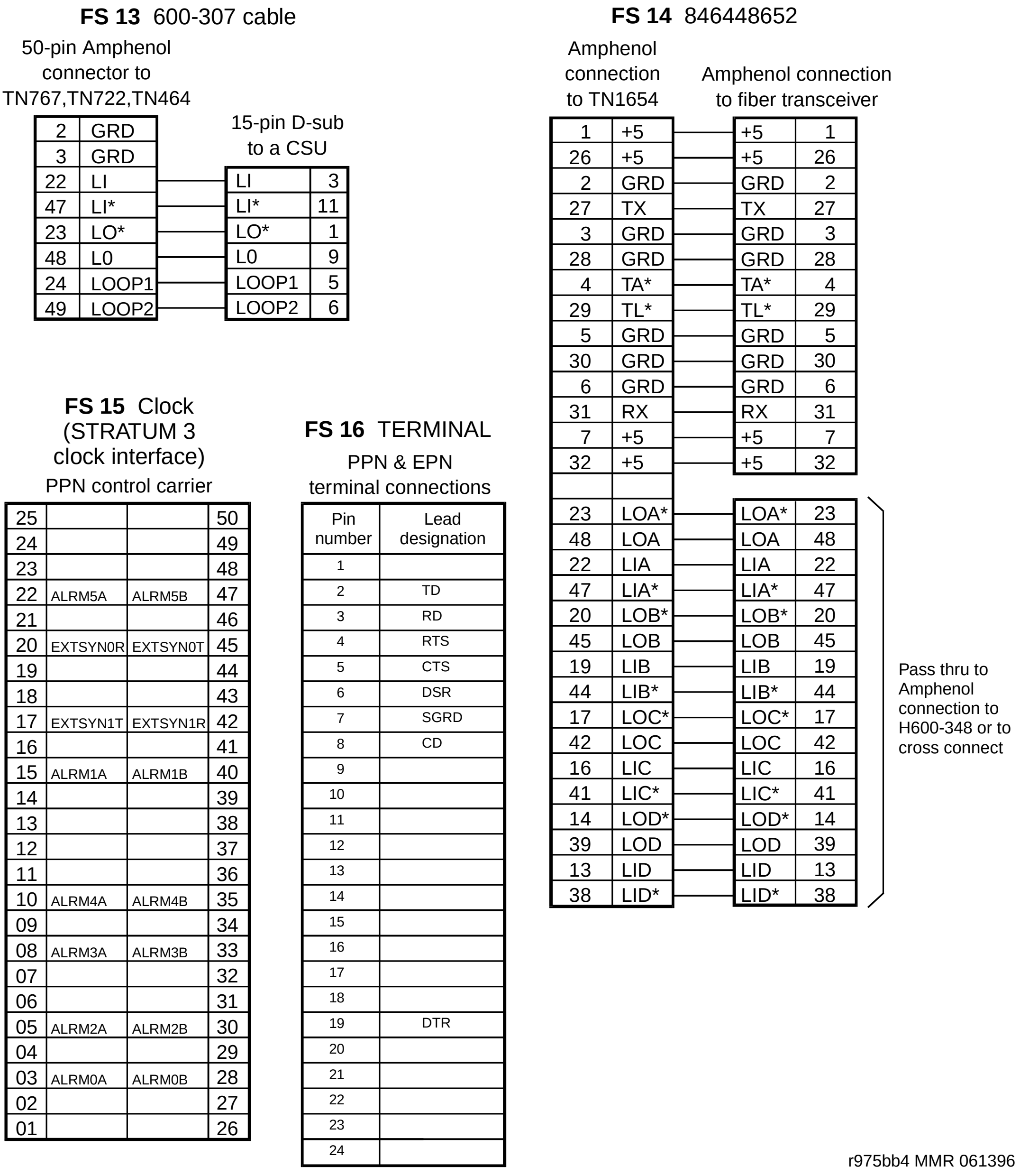
Figure D-4. Sample Cable Pinouts



FS 13 600-307 cable

50-pin Amphenol connector to TN767,TN722,TN464

2	GRD
3	GRD
22	LI
47	LI*
23	LO*
48	L0
24	LOOP1
49	LOOP2

15-pin D-sub to a CSU

LI	3
LI*	11
LO*	1
L0	9
LOOP1	5
LOOP2	6

FS 14 846448652

Amphenol connection to TN1654

Amphenol connection to fiber transceiver

1	+5	+5	1
26	+5	+5	26
2	GRD	GRD	2
27	TX	TX	27
3	GRD	GRD	3
28	GRD	GRD	28
4	TA*	TA*	4
29	TL*	TL*	29
5	GRD	GRD	5
30	GRD	GRD	30
6	GRD	GRD	6
31	RX	RX	31
7	+5	+5	7
32	+5	+5	32
23	LOA*	LOA*	23
48	LOA	LOA	48
22	LIA	LIA	22
47	LIA*	LIA*	47
20	LOB*	LOB*	20
45	LOB	LOB	45
19	LIB	LIB	19
44	LIB*	LIB*	44
17	LOC*	LOC*	17
42	LOC	LOC	42
16	LIC	LIC	16
41	LIC*	LIC*	41
14	LOD*	LOD*	14
39	LOD	LOD	39
13	LID	LID	13
38	LID*	LID*	38

Pass thru to Amphenol connection to H600-348 or to cross connect

FS 15 Clock (STRATUM 3 clock interface)

PPN control carrier

25			50
24			49
23			48
22	ALRM5A	ALRM5B	47
21			46
20	EXTSYN0R	EXTSYN0T	45
19			44
18			43
17	EXTSYN1T	EXTSYN1R	42
16			41
15	ALRM1A	ALRM1B	40
14			39
13			38
12			37
11			36
10	ALRM4A	ALRM4B	35
09			34
08	ALRM3A	ALRM3B	33
07			32
06			31
05	ALRM2A	ALRM2B	30
04			29
03	ALRM0A	ALRM0B	28
02			27
01			26

FS 16 TERMINAL

PPN & EPN terminal connections

Pin number	Lead designation
1	
2	TD
3	RD
4	RTS
5	CTS
6	DSR
7	SGRD
8	CD
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	DTR
20	
21	
22	
23	
24	

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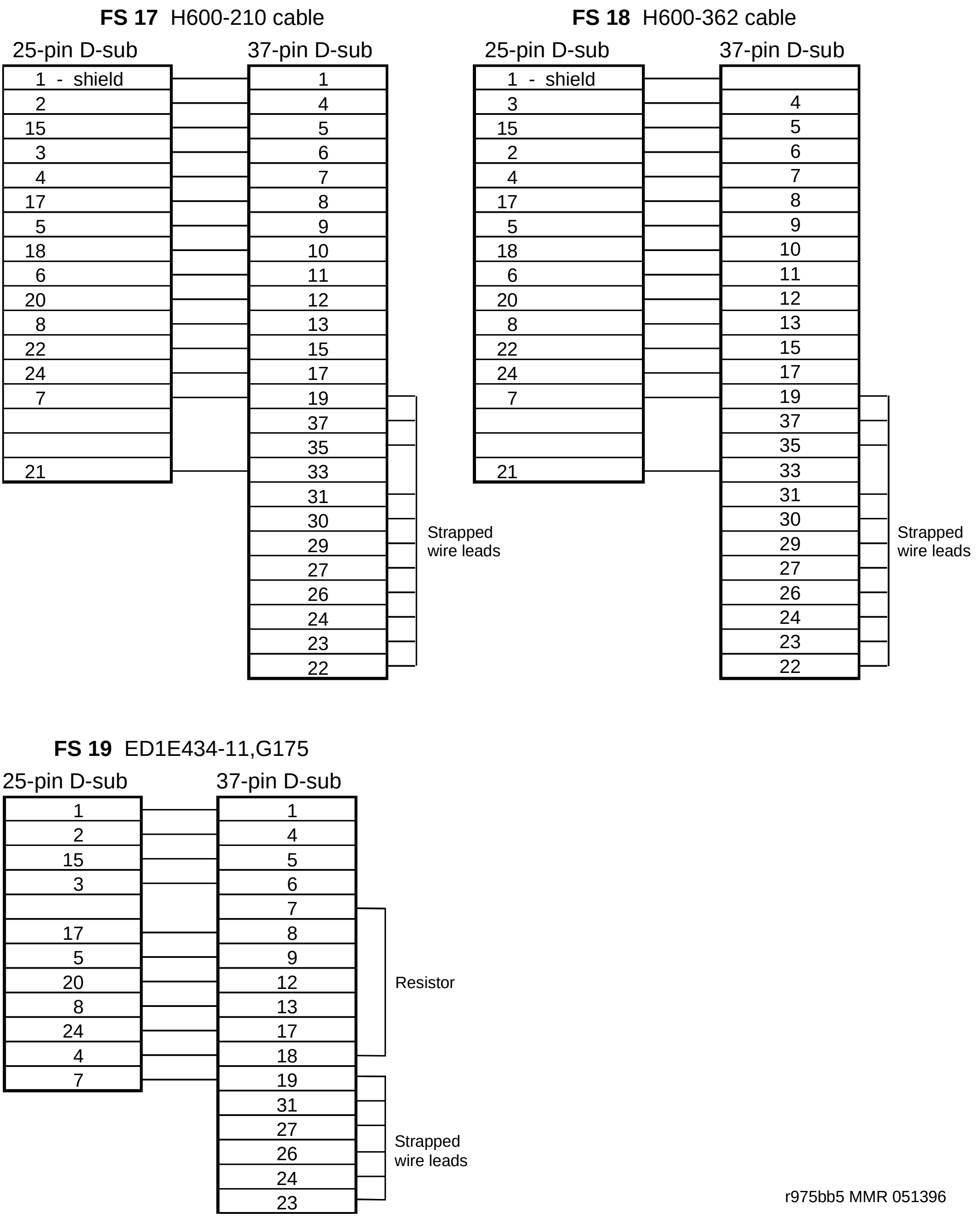
Figure D-5. Sample Pinouts



FS 17 H600-210 cable

25-pin D-sub	37-pin D-sub
1 - shield	1
2	4
15	5
3	6
4	7
17	8
5	9
18	10
6	11
20	12
8	13
22	15
24	17
7	19
	37
	35
21	33
	31
	30
	29
	27
	26
	24
	23
	22

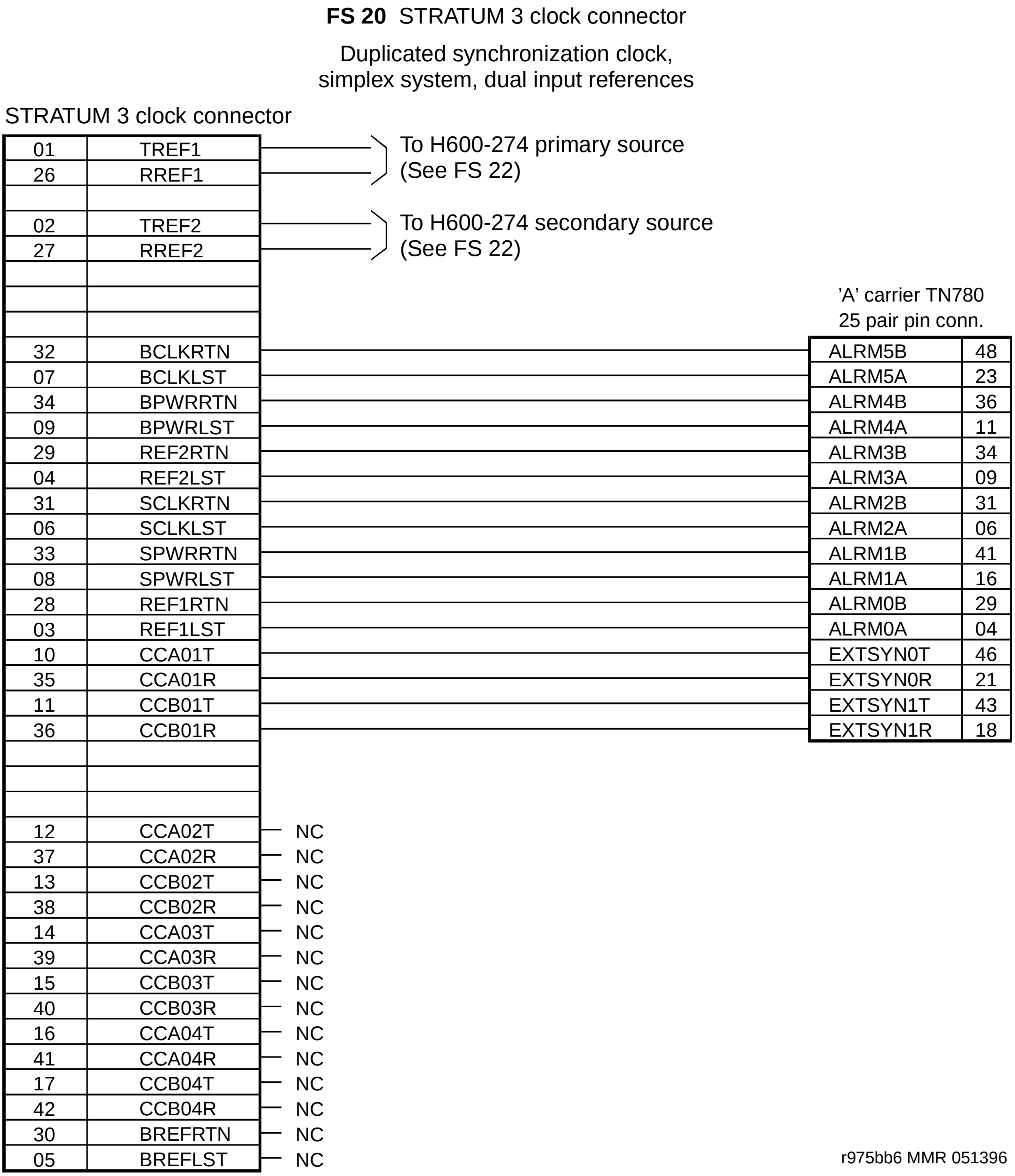
FS 18 H600-362 cable

25-pin D-sub	37-pin D-sub
1 - shield	
3	4
15	5
2	6
4	7
17	8
5	9
18	10
6	11
20	12
8	13
22	15
24	17
7	19
	37
	35
21	33
	31
	30
	29
	27
	26
	24
	23
	22

FS 19 ED1E434-11,G175

25-pin D-sub	37-pin D-sub
1	1
2	4
15	5
3	6
	7
17	8
5	9
20	12
8	13
24	17
4	18
7	19
	31
	27
	26
	24
	23

Figure D-6. Sample Cable Pinouts



FS 20 STRATUM 3 clock connector

Duplicated synchronization clock,
simplex system, dual input references

STRATUM 3 clock connector

'A' carrier TN780
25 pair pin conn.

01	TREF1	To H600-274 primary source (See FS 22)		
26	RREF1			
02	TREF2	To H600-274 secondary source (See FS 22)		
27	RREF2			
32	BCLKRTN		ALRM5B	48
07	BCLKLST		ALRM5A	23
34	BPWRRTN		ALRM4B	36
09	BPWRLST		ALRM4A	11
29	REF2RTN		ALRM3B	34
04	REF2LST		ALRM3A	09
31	SCLKRTN		ALRM2B	31
06	SCLKLST		ALRM2A	06
33	SPWRRTN		ALRM1B	41
08	SPWRLST		ALRM1A	16
28	REF1RTN		ALRM0B	29
03	REF1LST		ALRM0A	04
10	CCA01T		EXTSYN0T	46
35	CCA01R		EXTSYN0R	21
11	CCB01T		EXTSYN1T	43
36	CCB01R		EXTSYN1R	18
12	CCA02T	NC		
37	CCA02R	NC		
13	CCB02T	NC		
38	CCB02R	NC		
14	CCA03T	NC		
39	CCA03R	NC		
15	CCB03T	NC		
40	CCB03R	NC		
16	CCA04T	NC		
41	CCA04R	NC		
17	CCB04T	NC		
42	CCB04R	NC		
30	BREFRTN	NC		
05	BREFLST	NC		

r975bb6 MMR 051396

Figure D-7. STRATUM 3 Clock Connector Pinout

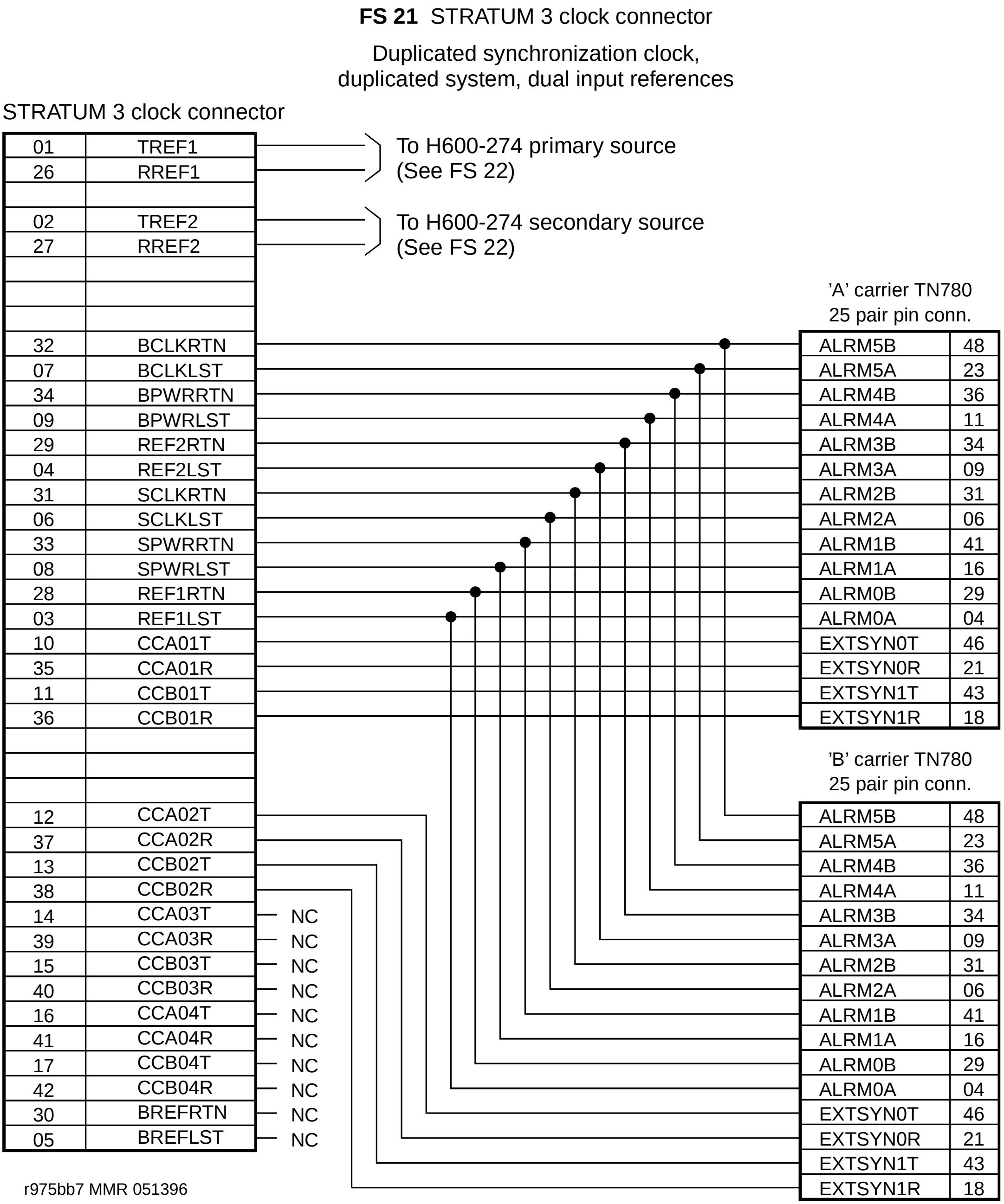


Figure D-8. STRATUM 3 Clock Connector

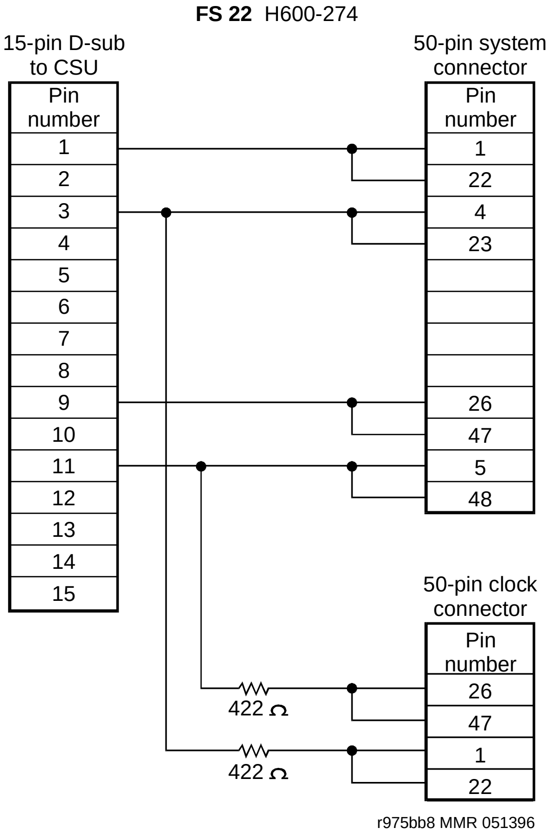


Figure D-9. Sample H600-274 Cable

Access Security Gateway

E

This appendix provides information on how to administer and use Access Security Gateway (ASG). ASG employs a challenge/response protocol to confirm the validity of a user and reduce the opportunity for unauthorized access. ASG authentication will be imposed for Lucent services logins as indicated below:

- init - all types of access require ASG authentication
- inads - all types of access require ASG authentication
- craft - if accessing remotely, ASG authentication is required.

NOTE:
Craft login sessions from a direct connect management terminal continue to rely on password authentication.

Using the ASG Mobile

1. Double click on the ASG Mobile V1.1 on your desktop and an ASG Mobile V1.1 Login window appears.
2. In the `Tech ID` field, type your login ID, which is the name of the attached file (without the ".asg"). Your login ID is the same as your Lucent login (or an abbreviated part of it).
3. Type the password twice. Note that the password is case-sensitive.

   NOTE:
   Your new password will be sent to you in a separate email.

4. Click the OK button and an ASG Mobile V1.1 Authentication window appears.
5. Use your communications package (for example, DNA, ProComm, or TerraNova) to dial the switch you need to contact.
6. Log into your communications package window as either **init**, **inads**, or **craft**. Instead of a password prompt, a seven-digit (challenge) number appears in the window of your communications package.
7. Move to the ASG Mobile V1.1 Authentication window.
8. Type the 10-digit Product ID in the `Equipment ID` field. The default ID is 10 zeros (0000000000).
9. Type **init**, **inads**, or **craft** in the `Equipment Login` field. The craft login ID is the default.
10. Type the challenge number (from your communications package window) into the `Challenge` field. Do not use the "-" character.
11. Type the trouble ticket number in the `Ticket Number` field. If there is no ticket number, you can use this field as a one-word comment field or leave it blank.
12. Click the Start button. The `Activity Status` field displays "Started" and the `Response` field displays a new seven-digit number.
13. Move to your communications package window.
14. Type the new seven-digit (response) number in the `Response` field. Do not use the "-" character.

    DEFINITY ECS verifies the response. If correct, DEFINITY logs you on. If the response is incorrect, return to step 1. If this is the third rejection, see the maintenance book for your system.

Glossary and Abbreviations

Numerics

800 service
A service in the United States that allows incoming calls from certain areas to an assigned number for a flat-rate charge based on usage.

A

AA
Archangel. See angel.

AAC
ATM access concentrator

AAR
See Automatic Alternate Routing (AAR).

abandoned call
An incoming call in which the caller hangs up before the call is answered.

Abbreviated Dialing (AD)
A feature that allows callers to place calls by dialing just one or two digits.

AC
1. Alternating current.
2. See Administered Connection (AC).

AAR
Automatic Alternate Routing

ACA
See Automatic Circuit Assurance (ACA).

ACB
See Automatic Callback (ACB).

ACD
See Automatic Call Distribution (ACD).

ACD agent
See agent.

ACU
See Automatic calling unit (ACU)

ACW
See after-call work (ACW) mode.

access code
A 1-, 2-, or 3-digit dial code used to activate or cancel a feature, or access an outgoing trunk.

access endpoint

Either a nonsignaling channel on a DS1 interface or a nonsignaling port on an analog tie-trunk circuit pack that is assigned a unique extension.

access tie trunk

A trunk that connects a main communications system with a tandem communications system in an electronic tandem network (ETN). An access tie trunk can also be used to connect a system or tandem to a serving office or service node. Also called access trunk.

access trunk

See access tie trunk.

ACCUNET

A trademarked name for a family of digital services offered by AT&T in the United States.

ACD

See Automatic Call Distribution (ACD). ACD also refers to a work state in which an agent is on an ACD call.

ACD work mode

See work mode.

active-notification association

A link that is initiated by an adjunct, allowing it to receive event reports for a specific switch entity, such as an outgoing call.

active-notification call

A call for which event reports are sent over an active-notification association (communication channel) to the adjunct. Sometimes referred to as a monitored call.

active notification domain

VDN or ACD split extension for which event notification has been requested.

ACU

See Automatic calling unit (ACU).

AD

See Abbreviated Dialing (AD).

ADAP

AUDIX Data Acquisition Package

ADC

See analog-to-digital converter (ADC).

adjunct

A processor that does one or more tasks for another processor and that is optional in the configuration of the other processor. See also application.

adjunct-control association

A relationship initiated by an application via *Third Party Make Call*, the *Third Party Take Control,* or *Domain (Station) Control* capabilities to set up calls and control calls already in progress.

adjunct-controlled call

Call that can be controlled using an adjunct-control association. Call must have been originated via *Third Party Make Call* or *Domain (Station) Control* capabilities or must have been taken control of via *Third Party Take Control* or *Domain (Station) Control* capabilities.

adjunct-controlled split

An ACD split that is administered to be under adjunct control. Agents logged into such splits must do all telephony work, ACD login/ logout, and changes of work mode through the adjunct (except for auto-available adjunct-controlled splits, whose agents may not log in/out or change work mode).

adjunct-monitored call

An adjunct-controlled call, active-notification call, or call that provides event reporting over a domain-control association.

Adjunct-Switch Application Interface (ASAI)

A recommendation for interfacing adjuncts and communications systems, based on the CCITT Q.932 specification for layer 3.

ADM

Asynchronous data module

administer

To access and change parameters associated with the services or features of a system.

Administered Connection (AC)

A feature that allows the switch to automatically establish and maintain end-to-end connections between access endpoints (trunks) and/or data endpoints (data modules).

administration group

See capability group.

administration terminal

A terminal that is used to administer and maintain a system. See also terminal.

Administration Without Hardware (AWOH)

A feature that allows administration of ports without associated terminals or other hardware.

ADU

See asynchronous data unit (ADU).

AE

See access endpoint.

after-call work (ACW) mode

A mode in which agents are unavailable to receive ACD calls. Agents enter the ACW mode to perform ACD-related activities such as filling out a form after an ACD call.

AG

ASAI Gateway

agent

A person who receives calls directed to a split. A member of an ACD hunt group or ACD split. Also called an ACD agent.

agent report

A report that provides historical traffic information for internally measured agents.

AIM

Asynchronous interface module

AIOD

Automatic Identification of Outward Dialing

ALBO
Automatic Line Build Out

All trunks busy (ATB)
The state in which no trunks are available for call handling.

ALM-ACK
Alarm acknowledge

American Standard Code for Information Interchange
See ASCII (American Standard Code for Information Interchange).

AMW
Automatic Message Waiting

AN
Analog

analog
The representation of information by continuously variable physical quantities such as amplitude, frequency, and phase. See also digital.

analog data
Data that is transmitted over a digital facility in analog (PCM) form. The data must pass through a modem either at both ends or at a modem pool at the distant end.

analog telephone
A telephone that receives acoustic voice signals and sends analog electrical signals along the telephone line. Analog telephones are usually served by a single wire pair (tip and ring). The model-2500 telephone set is a typical example of an analog telephone.

analog-to-digital converter (ADC)
A device that converts an analog signal to digital form. See also digital-to-analog converter (DAC).

angel
A microprocessor located on each port card in a processor port network (PPN). The angel uses the control-channel message set (CCMS) to manage communications between the port card and the archangel on the controlling switch-processing element (SPE). The angel also monitors the status of other microprocessors on a port card and maintains error counters and thresholds.

ANI
See Automatic Number Identification (ANI).

ANSI
American National Standards Institute**.** A United States professional/technical association supporting a variety of standards.

answerback code
A number used to respond to a page from a code-calling or loudspeaker-paging system, or to retrieve a parked call.

AOL
Attendant-offered load

AP
Applications processor

APLT
Advanced Private-Line Termination

appearance
A software process that is associated with an extension and whose purpose is to supervise a call. An extension can have multiple appearances. Also called call appearance, line appearance, and occurrence. See also call appearance.

application
An adjunct that requests and receives ASAI services or capabilities. One or more applications can reside on a single adjunct. However, the switch cannot distinguish among several applications residing on the same adjunct and treats the adjunct, and all resident applications, as a single application. The terms application and adjunct are used interchangeably throughout this document.

applications processor
A micro-computer based, program controlled computer providing application services for the DEFINITY switch. The processor is used with several user-controlled applications such as traffic analysis and electronic documentation.

application service element
See capability group.

architecture
The organizational structure of a system, including hardware and software.

ARS
See Automatic Route Selection (ARS).

ASAI
See Adjunct-Switch Application Interface (ASAI)

ASCII (American Standard Code for Information Interchange)
The standard code for representing characters in digital form. Each character is represented by an 8-bit code (including parity bit).

association
A communication channel between adjunct and switch for messaging purposes. An active association is one that applies to an existing call on the switch or to an extension on the call.

asynchronous data transmission
A method of transmitting data in which each character is preceded by a start bit and followed by a stop bit, thus permitting data characters to be transmitted at irregular intervals. This type transmission is advantageous when transmission is not regular (characters typed at a keyboard). Also called asynchronous transmission. See also synchronous data transmission.

asynchronous data unit (ADU)
A device that allows direct connection between RS-232C equipment and a digital switch.

asynchronous Transfer Mode (ATM)
A packet-like switching technology in which data is transmitted in fixed-size (53-byte) cells. ATM provides high-speed access for data communication in LAN, campus, and WAN environments.

ATB
See All trunks busy (ATB).

ATD
See Attention dial (ATD).

attendant
A person at a console who provides personalized service for incoming callers and voice-services users by performing switching and signaling operations. See also attendant console.

ATM
See asynchronous Transfer Mode (ATM).

attendant console
The workstation used by an attendant. The attendant console allows the attendant to originate a call, answer an incoming call, transfer a call to another extension or trunk, put a call on hold, and remove a call from hold. Attendants using the console can also manage and monitor some system operations. Also called console. See also attendant.

Attention dial (ATD)
A command in the Hayes modem command set for asynchronous modems.

Audio Information Exchange (AUDIX)
A fully integrated voice-mail system. Can be used with a variety of communications systems to provide call-history data, such as subscriber identification and reason for redirection.

AUDIX
See Audio Information Exchange (AUDIX).

auto-in trunk group
Trunk group for which the CO processes all of the digits for an incoming call. When a CO seizes a trunk from an auto-in trunk group, the switch automatically connects the trunk to the destination — typically an ACD split where, if no agents are available, the call goes into a queue in which callers are answered in the order in which they arrive.

Auto-In Work mode
One of four agent work modes: the mode in which an agent is ready to process another call as soon as the current call is completed.

Automatic Alternate Routing (AAR)
A feature that routes calls to other than the first-choice route when facilities are unavailable.***

Automatic Callback (ACB)
A feature that enables internal callers, upon reaching a busy extension, to have the system automatically connect and ring both parties when the called party becomes available.

Automatic Call Distribution (ACD)
A feature that answers calls, and then, depending on administered instructions, delivers messages appropriate for the caller and routes the call to an agent when one becomes available.

Automatic Call Distribution (ACD) split
A method of routing calls of a similar type among agents in a call center. Also, a group of extensions that are staffed by agents trained to handle a certain type of incoming call.

Automatic calling unit (ACU)
A device that places a telephone call.

Automatic Circuit Assurance (ACA)
A feature that tracks calls of unusual duration to facilitate troubleshooting. A high number of very short calls or a low number of very long calls may signify a faulty trunk.

Automatic Number Identification (ANI)
Representation of the calling number, for display or for further use to access information about the caller. Available with Signaling System 7.

automatic restoration
A service that restores disrupted connections between access endpoints (nonsignaling trunks) and data endpoints (devices that connect the switch to data terminal and/or communications equipment). Restoration is done within seconds of a service disruption so that critical data applications can remain operational.

Automatic Route Selection (ARS)
A feature that allows the system to automatically choose the least-cost way to send a toll call.

automatic trunk
A trunk that does not require addressing information because the destination is predetermined. A request for service on the trunk, called a seizure, is sufficient to route the call. The normal destination of an automatic trunk is the communications-system attendant group. Also called automatic incoming trunk and automatic tie trunk.

AUX
Auxiliary

auxiliary equipment
Equipment used for optional system features, such as Loudspeaker Paging and Music-on-Hold.

auxiliary trunk
A trunk used to connect auxiliary equipment, such as radio-paging equipment, to a communications system.

Aux-Work mode
A work mode in which agents are unavailable to receive ACD calls. Agents enter Aux-Work mode when involved in non-ACD activities such as taking a break, going to lunch, or placing an outgoing call.

AVD
Alternate voice/data

AWOH
See Administration Without Hardware (AWOH).

AWG
American Wire Gauge

AWT
Average work time

B

B8ZS
Bipolar Eight Zero Substitution.

bandwidth
The difference, expressed in hertz, between the defined highest and lowest frequencies in a range.

barrier code
A security code used with the Remote Access feature to prevent unauthorized access to the system.

baud

A unit of transmission rate equal to the number of signal events per second. See also bit rate and bits per second (bps).

BCC

See Bearer capability class (BCC).

BCMS

Basic Call Management System

BCT

See business communications terminal (BCT).

Bearer capability class (BCC)

Code that identifies the type of a call (for example, voice and different types of data). Determination of BCC is based on the caller's characteristics for non-ISDN endpoints and on the Bearer Capability and Low-Layer Compatibility Information Elements of an ISDN endpoint. Current BCCs are 0 (voice-grade data and voice), 1 (DMI mode 1, 56 kbps data transmission), 2 (DMI mode 2, synchronous/asynchronous data transmission up to 19.2 kbps) 3 (DMI mode 3, 64 kbps circuit/packet data transmission), 4 (DMI mode 0, 64 kbps synchronous data), 5 (temporary signaling connection, and 6 (wideband call, 128–1984 kbps synchronous data).

BER

Bit error rate

BHCC

Busy-hour call completions

bit (binary digit)

One unit of information in binary notation, having two possible values: 0 or 1.

bits per second (bps)

The number of binary units of information that are transmitted or received per second. See also baud and **bit rate**.

bit rate

The speed at which bits are transmitted, usually expressed in bits per second. Also called data rate. See also baud and bits per second (bps).

BLF

Busy Lamp Field

BN

Billing number

BOS

Bit-oriented signaling

BPN

Billed-party number

bps

See bits per second (bps).

bridge (bridging)

The appearance of a voice terminal's extension at one or more other voice terminals.

BRI

The ISDN Basic Rate Interface specification.

bridged appearance
A call appearance on a voice terminal that matches a call appearance on another voice terminal for the duration of a call.

BTU
British Thermal Unit

buffer
1. In hardware, a circuit or component that isolates one electrical circuit from another. Typically, a buffer holds data from one circuit or process until another circuit or process is ready to accept the data.
2. In software, an area of memory that is used for temporary storage.

bus
A multiconductor electrical path used to transfer information over a common connection from any of several sources to any of several destinations.

business communications terminal (BCT)
A digital data terminal used for business applications. A BCT can function via a data module as a special-purpose terminal for services provided by a processor or as a terminal for data entry and retrieval.

BX.25
A version of the CCITT X.25 protocol for data communications. BX.25 adds a fourth level to the standard X.25 interface. This uppermost level combines levels 4, 5, and 6 of the ISO reference model.

bypass tie trunks
A 1-way, outgoing tie trunk from a tandem switch to a main switch in an ETN. Bypass tie trunks, provided in limited quantities, are used as a last-choice route when all trunks to another tandem switch are busy. Bypass tie trunks are used only if all applicable intertandem trunks are busy.

byte
A sequence of (usually eight) bits processed together.

C

CACR
Cancellation of Authorization Code Request

cabinet
Housing for racks, shelves, or carriers that hold electronic equipment.

cable
Physical connection between two pieces of equipment (for example, data terminal and modem) or between a piece of equipment and a termination field.

cable connector
A jack (female) or plug (male) on the end of a cable. A cable connector connects wires on a cable to specific leads on telephone or data equipment.

CAG
Coverage answer group

call appearance

1. For the attendant console, six buttons, labeled a–f, used to originate, receive, and hold calls. Two lights next to the button show the status of the call appearance.
2. For the voice terminal, a button labeled with an extension and used to place outgoing calls, receive incoming calls, or hold calls. Two lights next to the button show the status of the call appearance.

call-control capabilities

Capabilities (*Third Party Selective Hold, Third Party Reconnect, Third Party Merge*) that can be used in either of the Third Party Call Control ASE (cluster) subsets (Call Control and Domain Control).

Call Detail Recording (CDR)

A feature that uses software and hardware to record call data (same as CDRU).

Call Detail Recording utility (CDRU)

Software that collects, stores, optionally filters, and outputs call-detail records.

Call Management System (CMS)

An application, running on an adjunct processor, that collects information from an ACD unit. CMS enables customers to monitor and manage telemarketing centers by generating reports on the status of agents, splits, trunks, trunk groups, vectors, and VDNs, and enables customers to partially administer the ACD feature for a communications system.

call-reference value (CRV)

An identifier present in ISDN messages that associates a related sequence of messages. In ASAI, CRVs distinguish between associations.

call vector

A set of up to 15 vector commands to be performed for an incoming or internal call.

callback call

A call that automatically returns to a voice-terminal user who activated the Automatic Callback or Ringback Queuing feature.

call-waiting ringback tone

A low-pitched tone identical to ringback tone except that the tone decreases in the last 0.2 seconds (in the United States). Call-waiting ringback tone notifies the attendant that the Attendant Call Waiting feature is activate and that the called party is aware of the waiting call. Tones in international countries may sound different.

call work code

A number, up to 16 digits, entered by ACD agents to record the occurrence of customer-defined events (such as account codes, social security numbers, or phone numbers) on ACD calls.

CAMA

Centralized Automatic Message Accounting

carrier

An enclosed shelf containing vertical slots that hold circuit packs.

carried load

The amount of traffic served by traffic-sensitive facilities during a given interval.

CARR-POW

Carrier Port and Power Unit for AC Powered Systems

CAS

Centralized Attendant Service or Call Accounting System

CCS or hundred call seconds
A unit of call traffic. Call traffic for a facility is scanned every 100 seconds. If the facility is busy, it is assumed to have been busy for the entire scan interval. There are 3600 seconds per hour. The Roman numeral for 100 is the capital letter C. The abbreviation for call seconds is CS. Therefore, 100 call seconds is abbreviated CCS. If a facility is busy for an entire hour, then it is said to have been busy for 36 CCS. See also **Erlang.**

capability
A request or indication of an operation. For example, *Third Party Make Call* is a request for setting up a call; *event report* is an indication that an event has occurred.

capability group
Set of capabilities, determined by switch administration, that can be requested by an application. Capability groups denote association types. For example, *Call Control* is a type of association that allows certain functions (the ones in the capability group) to be performed over this type of association. Also referred to as administration groups or application service elements (ASEs).

CA-TSC
Call-Associated Temporary Signaling Connection

cause value
A value is returned in response to requests or in event reports when a denial or unexpected condition occurs. ASAI cause values fall into two coding standards: Coding Standard 0 includes any cause values that are part of AT&T and CCITT ISDN specifications; Coding standard 3 includes any other ASAI cause values. This document uses a notation for cause value where the coding standard for the cause is given first, then a slash, then the cause value. Example: CS0/100 is coding standard 0, cause value 100.

CBC
Call-by-call or coupled bonding conductor

CC
Country code

CCIS
Common-Channel Interoffice Signaling

CCITT
CCITT (Comitte Consultatif International Telephonique et Telegraphique), now called *International Telecommunications Union* (ITU). See International Telecommunications Union (ITU).

CCMS
Control-Channel Message Set

CCS
See CCS or hundred call seconds.

CCSA
Common-Control Switching Arrangement

CDM
Channel-division multiplexing

CDOS
Customer-dialed and operator serviced

CDR
See Call Detail Recording (CDR).

CDRP
Call Detail Record Poller

CDRR
Call Detail Recording and Reporting

CDRU
See Call Detail Recording utility (CDRU).

CEM
Channel-expansion multiplexing

center-stage switch (CSS)
The central interface between the processor port network and expansion port networks in a CSS-connected system.

central office (CO)
The location housing telephone switching equipment that provides local telephone service and access to toll facilities for long-distance calling.

central office (CO) codes
The first three digits of a 7-digit public-network telephone number in the United States.

central office (CO) trunk
A telecommunications channel that provides access from the system to the public network through the local CO.

CEPT1
European Conference of Postal and Telecommunications Rate 1

channel
1. A circuit-switched call.
2. A communications path for transmitting voice and data.
3. In wideband, all of the time slots (contiguous or noncontiguous) necessary to support a call. Example: an H0-channel uses six 64-kbps time slots.
4. A DS0 on a T1 or E1 facility not specifically associated with a logical circuit-switched call; analogous to a single trunk.

channel negotiation
The process by which the channel offered in the Channel Identification Information Element (CIIE) in the SETUP message is negotiated to be another channel acceptable to the switch that receives the SETUP message and ultimately to the switch that sent the SETUP. Negotiation is attempted only if the CIIE is encoded as *Preferred*. Channel negotiation is not attempted for wideband calls.

CI
Clock input

circuit
1. An arrangement of electrical elements through which electric current flows.
2. A channel or transmission path between two or more points.

circuit pack
A card on which electrical circuits are printed, and IC chips and electrical components are installed. A circuit pack is installed in a switch carrier.

CISPR
International Special Committee on Radio Interference

Class of Restriction (COR)

A feature that allows up to 64 classes of call-origination and call-termination restrictions for voice terminals, voice-terminal groups, data modules, and trunk groups. See also Class of Service (COS).

Class of Service (COS)

A feature that uses a number to specify if voice-terminal users can activate the Automatic Callback, Call Forwarding All Calls, Data Privacy, or Priority Calling features. See also Class of Restriction (COR).

cm

Centimeter

CM

Connection Manager

CMC

Compact Modular Cabinet

CMDR

Centralized Message Detail Recording

CMS

Call Management System

CO

See central office (CO).

common-control switching arrangement (CCSA)

A private telecommunications network using dedicated trunks and a shared switching center for interconnecting company locations.

communications system

The software-controlled processor complex that interprets dialing pulses, tones, and keyboard characters and makes the proper connections both within the system and external to the system. The communications system itself consists of a digital computer, software, storage device, and carriers with special hardware to perform the connections. A communications system provides voice and data communications services, including access to public and private networks, for telephones and data terminals on a customer's premises. See also switch.

confirmation tone

A tone confirming that feature activation, deactivation, or cancellation has been accepted.

connectivity

The connection of disparate devices within a single system.

console

See attendant console.

contiguous

Adjacent DS0s within one T1 or E1 facility or adjacent TDM or fiber time slots. The first and last TDM bus, DS0, or fiber time slots are not considered contiguous (no wraparound). For an E1 facility with a D-channel, DS0s 15 and 17 are considered contiguous.

control cabinet

See control carrier.

control carrier

A carrier in a multi-carrier cabinet that contains the SPE circuit packs and, unlike an R5r control carrier, port circuit packs. Also called control cabinet in a single-carrier cabinet. See also switch-processing element (SPE).

controlled station

A station that is monitored and controlled via a domain-control association.

COR

See Class of Restriction (COR).

COS

See Class of Service (COS).

coverage answer group

A group of up to eight voice terminals that ring simultaneously when a call is redirected to it by Call Coverage. Any one of the group can answer the call.

coverage call

A call that is automatically redirected from the called party's extension to an alternate answering position when certain coverage criteria are met.

coverage path

The order in which calls are redirected to alternate answering positions.

coverage point

An extension or attendant group, VDN, or ACD split designated as an alternate answering position in a coverage path.

covering user

A person at a coverage point who answers a redirected call.

CP

Circuit pack

CPE

Customer-premises equipment

CPN

Called-party number

CPN/BN

Calling-party number/billing number

CPTR

Call-progress-tone receiver

CRC

Cyclical Redundancy Checking

critical-reliability system

A system that has the following duplicated items: control carriers, tone clocks, EI circuit packs, and cabling between port networks and center-stage switch in a CSS-connected system. See also duplicated common control, and duplication.

CSA

Canadian Safety Association or Customer Software Administrator

CSCC

Compact single-carrier cabinet

CSCN
Center-stage control network

CSD
Customer-service document

CSM
Centralized System Management

CSS
See center-stage switch (CSS).

CSSO
Customer Services Support Organization

CSU
Channel service unit

CTS
Clear to Send

CWC
See call work code.

D

DAC
1. Dial access code or Direct Agent Calling
2. See digital-to-analog converter (DAC).

data channel
A communications path between two points used to transmit digital signals.

data-communications equipment (DCE)
The equipment (usually a modem, data module, or packet assembler/disassembler) on the network side of a communications link that makes the binary serial data from the source or transmitter compatible with the communications channel.

data link
The configuration of physical facilities enabling end terminals to communicate directly with each other.

data module
An interconnection device between a BRI or DCP interface of the switch and data terminal equipment or data communications equipment.

data path
The end-to-end connection used for a data communications link. A data path is the combination of all elements of an interprocessor communication in a DCS.

data port
A point of access to a computer that uses trunks or lines for transmitting or receiving data.

data rate
See bit rate.

data service unit (DSU)
A device that transmits digital data on transmission facilities.

data terminal
An input/output (I/O) device that has either switched or direct access to a host computer or to a processor interface.

data terminal equipment (DTE)
Equipment consisting of the endpoints in a connection over a data circuit. In a connection between a data terminal and host, the terminal, the host, and their associated modems or data modules make up the DTE.

dB
Decibel

dBA
Decibels in reference to amperes.

dBrnC
Decibels above reference noise with C filter.

DC
Direct current

DCE
Data-communications equipment

D-channel backup
Type of backup used with Non-Facility Associated Signaling (NFAS). A primary D-channel provides signaling for an NFAS D-channel group (two or more PRI facilities). A second D-channel, on a separate PRI facility of the NFAS D-channel group, is designated as backup for the D-channel. Failure of the primary D-channel causes automatic transfer of call-control signaling to the backup D-channel. The backup becomes the primary D-channel. When the failed channel returns to service, it becomes the backup D-channel.

DCO
Digital central office

DCP
Digital Communications Protocol

DCS
Distributed Communications System

DDC
Direct Department Calling

DDD
Direct Distance Dialing

delay-dial trunk
A trunk that allows dialing directly into a communications system (digits are received as they are dialed).

denying a request
Sending a negative acknowledgement (NAK), done by sending an FIE with a *return error* component (and a cause value). It should not be confused with the denial event report that applies to calls.

designated voice terminal

The specific voice terminal to which calls, originally directed to a certain extension, are redirected. Commonly used to mean the forwarded-to terminal when Call Forwarding All Calls is active.

dial-repeating trunks

A PBX tie trunk that is capable of handling PBX station-signaling information without attendant assistance.

dial-repeating tie trunk

A tie trunk that transmits called-party addressing information between two communications systems.

DID

Direct Inward Dialing

digit conversion

A process used to convert specific dialed numbers into other dialed numbers.

digital

The representation of information by discrete steps. See also analog.

digital communications protocol (DCP)

- A proprietary protocol used to transmit both digitized voice and digitized data over the same communications link. A DCP link is made up of two 64-kbps information (I-) channels and one 8-kbps signaling (S-) channel. Digital Communications Protocol. The DCP protocol supports 2 information-bearing channels, and thus two telephones/data modules. The I1 channel is the DCP channel assigned on the first page of the 8411 station form. The I2 channel is the DCP channel assigned on the analog adjunct page of the 8411 station form or on the data module page.
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digital data endpoints

In DEFINITY ECS, devices such as the 510D terminal or the 515-type business communications terminal (BCT).

digital multiplexed interface (DMI)

An interface that provides connectivity between a communications system and a host computer or between two communications systems using DS1 24th-channel signaling. DMI provides 23 64-kbps data channels and 1 common-signaling channel over a twisted-pair connection. DMI is offered through two capabilities: bit-oriented signaling (DMI-BOS) and message-oriented signaling (DMI-MOS).

digital signal level 0 (DS0)

A single 64-kbps voice channel. A DS0 is a single 64-kbps channel in a T1 or E1 facility and consists of eight bits in a T1 or E1 frame every 125 microseconds.

digital signal level 1 (DS1)

A single 1.544-Mbps (United States) or 2.048-Mbps (outside the United States) digital signal carried on a T1 transmission facility. A DS1 converter complex consists of a pair, one at each end, of DS1 converter circuit packs and the associated T1/E1 facilities.

digital terminal data module (DTDM)
An integrated or adjunct data module that shares with a digital telephone the same physical port for connection to a communications system. The function of a DTDM is similar to that of a PDM and MPDM in that it converts RS-232C signals to DCP signals.

digital-to-analog converter (DAC)
A device that converts data in digital form to the corresponding analog signals. See also analog-to-digital converter (ADC).

digital transmission
A mode of transmission in which information to be transmitted is first converted to digital form and then transmitted as a serial stream of pulses.

digital trunk
A circuit that carries digital voice and/or digital data in a telecommunications channel.

DIOD
Direct Inward and Outward Dialing

direct agent
A feature, accessed only via ASAI, that allows a call to be placed in a split queue but routed only to a specific agent in that split. The call receives normal ACD call treatment (for example, announcements) and is measured as an ACD call while ensuring that a particular agent answers.

Direct Extension Selection (DXS)
A feature on an attendant console that allows an attendant direct access to voice terminals by pressing a group-select button and a DXS button.

Direct Inward Dialing (DID)
A feature that allows an incoming call from the public network (not FX or WATS) to reach a specific telephone without attendant assistance.

Direct Inward Dialing (DID) trunk
An incoming trunk used for dialing directly from the public network into a communications system without help from the attendant.

disk drive
An electromechanical device that stores data on and retrieves data from one or more disks.

distributed communications system (DCS)
A network configuration linking two or more communications systems in such a way that selected features appear to operate as if the network were one system.

DIVA
Data In/Voice Answer

DLC
Data line circuit

DLDM
Data-line data module

DMI
Digital-multiplexed interface

DND
Do not disturb

DNIS
Dialed-Number Identification Service

DOD
Direct Outward Dialing

domain
VDNs, ACD splits, and stations. The VDN domain is used for active-notification associations. The ACD-split domain is for active-notification associations and domain-control associations. The station domain is used for the domain-control associations.

domain-control association
A *Third Party Domain Control Request* capability initiates a unique CRV/link number combination, which is referred to as a domain-control association.

domain-controlled split
A split for which *Third Party Domain Control* request has been accepted. A domain-controlled split provides an event report for logout.

domain-controlled station
A station for which a *Third_Party_Domain_Control* request has been accepted. A domain-controlled station provides event reports for calls that are alerting, connected, or held at the station.

domain-controlled station on a call
A station that is active on a call, and which provides event reports over one or two domain-control associations.

DOSS
Delivery Operations Support System

DOT
Duplication Option Terminal

DPM
Dial Plan Manager

DPR
Dual-port RAM

DS1
Digital Signal Level 1

DS1C
Digital Signal Level-1 protocol C

DS1 CONV
Digital Signal Level-1 converter

DSI
Digital signal interface

DSU
Data service unit

DTDM
Digital-terminal data module

DTE
Data-terminal equipment

DTGS
Direct Trunk Group Select

DTMF
Dual-tone multifrequency

DTS
Disk-tape system

duplicated common control
Two processors ensuring continuous operation of a communications system. While one processor is online, the other functions as a backup. The backup processor goes online periodically or when a problem occurs.

duplication
The use of redundant components to improve availability. When a duplicated subsystem fails, its backup redundant system automatically takes over.

duplication option
A system option that duplicates the following: control carrier containing the SPE, EI circuit packs in carriers, fiber-optic cabling between port networks, and center-stage switch in a CSS-connected system.

DWBS
DEFINITY Wireless Business System

DXS
Direct extension selection

E

E1
A digital transmission standard that carries traffic at 2.048 Mbps. The E1 facility is divided into 32 channels (DS0s) of 64 kbps information. Channel 0 is reserved for framing and synchronization information. A D-channel occupies channel 16.

E & M
Ear and mouth (receive and transmit)

EA
Expansion archangel

EAL
Expansion archangel link

ear and mouth (E & M) signaling
Trunk supervisory signaling, used between two communications systems, whereby signaling information is transferred through 2-state voltage conditions (on the E and M leads) for analog applications and through a single bit for digital applications.

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

EIA-232
A physical interface specified by the EIA. EIA-232 transmits and receives asynchronous data at speeds of up to 19.2 kbps over cable distances of up to 50 feet. EIA-232 replaces RS-232 protocol in some DEFINITY applications.

electronic tandem network (ETN)
A tandem tie-trunk network that has automatic call-routing capabilities based on the number dialed and the most preferred route available. Each switch in the network is assigned a unique private network office code (RNX), and each voice terminal is assigned a unique extension.

Electronics Industries Association (EIA)
A trade association of the electronics industry that establishes electrical and functional standards.

emergency transfer
If a major system failure occurs, automatic transfer is initiated to a group of telephones capable of making outgoing calls. The system operates in this mode until the failure is repaired and the system automatically returns to normal operation. Also called power-failure transfer.

EMI
Electromagnetic interference

end-to-end signaling
The transmission of touch-tone signals generated by dialing from a voice terminal to remote computer equipment. These digits are sent over the trunk as DTMF digits whether the trunk signaling type is marked as tone or rotary and whether the originating station is tone or rotary. Example: a call to a voice-mail machine or automated-attendant service. A connection is first established over an outgoing trunk. Then additional digits are dialed to transmit information to be processed by the computer equipment.

enhanced private-switched communications service (EPSCS)
An analog private telecommunications network based on the No. 5 crossbar and 1A ESS that provides advanced voice and data telecommunications services to companies with many locations.

EPN
Expansion-port network

EPROM
Erasable programmable read-only memory

EPSCS
Enhanced Private Switched Communications Services

ERL
Echo return loss

Erlang
A unit of traffic intensity, or load, used to express the amount of traffic needed to keep one facility busy for one hour. One Erlang is equal to 36 CCS. See also CCS or hundred call seconds.

ESF

Extended superframe format

ESPA

European Standard Paging Access

ETA

Extended Trunk Access; also Enhanced Terminal Administration

ETN

Electronic tandem network

ETSI

European Telecommunications Standards Institute

expansion archangel (EAA)

A network-control microprocessor located on an expansion interface (EI) port circuit pack in an expansion port network. The EA provides an interface between the EPN and its controlling switch-processing element.

expansion-archangel link (EAL)

A link-access function on the D-channel (LAPD) logical link that exists between a switch-processing element and an expansion archangel (EA). The EAL carries control messages from the SPE to the EA and to port circuit packs in an expansion port network.

expansion control cabinet

See expansion control carrier.

expansion control carrier

A carrier in a multicarrier cabinet that contains extra port circuit packs and a maintenance interface. Also called expansion control cabinet in a single-carrier cabinet.

expansion interface (EI)

A port circuit pack in a port network that provides the interface between a PN's TDM bus/ packet bus and a fiber-optic link. The EI carries circuit-switched data, packet-switched data, network control, timing control, and DS1 control. In addition, an EI in an expansion port network communicates with the master maintenance circuit pack to provide the EPN's environmental and alarm status to the switch-processing element.

expansion port network (EPN)

A port network (PN) that is connected to the TDM bus and packet bus of a processor port network (PPN). Control is achieved by indirect connection of the EPN to the PPN via a port-network link (PNL). See also port network (PN).

extension-in

Extension-In (ExtIn) is the work state agents go into when they answer (receive) a non-ACD call. If the agent is in Manual-In or Auto-In and receives an extension-in call, it is recorded by CMS as an AUX-In call.

extension-out

The work state that agents go into when they place (originate) a non-ACD call.

external measurements

Those ACD measurements that are made by the External CMS adjunct.

extension

A 1- to 5-digit number by which calls are routed through a communications system or, with a Uniform Dial Plan (UDP) or main-satellite dialing plan, through a private network.

external call

A connection between a communications system user and a party on the public network or on another communications system in a private network.

F

FAC

Feature Access Code

facility

A telecommunications transmission pathway and associated equipment.

facility-associated signaling (FAS)

Signaling for which a D-channel carries signaling only for those channels on the same physical interface.

FAS

Facility-associated signaling

FAT

Facility access trunk

FAX

Facsimile

FCC

Federal Communications Commission

FEAC

Forced Entry of Account Codes

feature

A specifically defined function or service provided by the system.

feature button

A labeled button on a telephone or attendant console used to access a specific feature.

FEP

Front-end processor

FIC

Facility interface codes

fiber optics

A technology using materials that transmit ultrawideband electromagnetic light-frequency ranges for high-capacity carrier systems.

fixed

A trunk allocation term. In the fixed allocation scheme, the time slots necessary to support a wideband call are contiguous, and the first time slot is constrained to certain starting points.

flexible

A trunk allocation term. In the flexible allocation scheme, the time slots of a wideband call can occupy noncontiguous positions within a single T1 or E1 facility.

floating
A trunk allocation term. In the floating allocation scheme, the time slots of a wideband call are contiguous, but the position of the first time slot is not fixed.

FNPA
Foreign Numbering-Plan Area

foreign-exchange (FX)
A CO other than the one providing local access to the public telephone network.

foreign-exchange trunk
A telecommunications channel that directly connects the system to a CO other than its local CO.

foreign numbering-plan area code (FNPAC)
An area code other than the local area code, that must be dialed to call outside the local geographical area.

FRL
Facilities Restriction Level

FX
Foreign exchange

G

G3-MA
Generic 3 Management Applications

G3-MT
Generic 3 Management Terminal

G3r
Generic 3, RISC (Reduced Instruction Set Computer)

generalized route selection (GRS)
An enhancement to Automatic Alternate Routing/Automatic Route Selection (AAR/ARS) that performs routing based on call attributes, such as Bearer Capability Classes (BCCs), in addition to the address and facilities restriction level (FRL), thus facilitating a Uniform Dial Plan (UDP) that is independent of the type of call being placed.

glare
The simultaneous seizure of a 2-way trunk by two communications systems, resulting in a standoff.

GM
Group manager

GPTR
General-purpose tone receiver

grade of service
The number of call attempts that fail to receive service immediately. Grade of service is also expressed as the quantity of all calls that are blocked or delayed.

ground-start trunk
A trunk on which, for outgoing calls, the system transmits a request for services to a distant switching system by grounding the trunk ring lead. To receive the digits of the called number, that system grounds the trunk tip lead. When the system detects this ground, the digits are sent.

GRS

Generalized Route Selection

H

H0

An ISDN information transfer rate for 384-kbps data defined by CCITT and ANSI standards.

H11

An ISDN information transfer rate for 1536-kbps data defined by CCITT and ANSI standards.

H12

An ISDN information transfer rate for 1920-kbps data defined by CCITT and ANSI standards.

handshaking logic

A format used to initiate a data connection between two data module devices.

hertz (Hz)

A unit of frequency equal to one cycle per second.

high-reliability system

A system having the following: two control carriers, duplicate expansion interface (EI) circuit packs in the PPN (in R5r with CSS), and duplicate switch node clock circuit packs in the switch node (SN) carriers. See also duplicated common control, duplication, duplication option, and critical-reliability system.

HNPA

See home numbering-plan area code (HNPA).

holding time

The total length of time in minutes and seconds that a facility is used during a call.

home numbering-plan area code (HNPA)

The local area code. The area code does not have to be dialed to call numbers within the local geographical area.

hop

Nondirect communication between two switch communications interfaces (SCI) where the SCI message passes automatically without intermediate processing through one or more intermediate SCIs.

host computer

A computer, connected to a network, that processes data from data-entry devices.

hunt group

A group of extensions that are assigned the Station Hunting feature so that a call to a busy extension reroutes to an idle extension in the group. See also ACD work mode.

Hz

See hertz (Hz).

I

I1
The first information channel of DCP.

I2
The second information channel of DCP.

I2 Interface
A proprietary interface used for the DEFINITY Wireless Business System for the radio-controller circuit packs. Each interface provides communication between the radio-controller circuit pack and up to two wireless fixed bases.

I3 Interface
A proprietary interface used for the DEFINITY Wireless Business System for the cell antenna units. Each wireless fixed base can communicate to up to four cell antenna units.

IAS
Inter-PBX Attendant Service

ICC
Intercabinet cable or intercarrier cable

ICD
Inbound Call Director

ICDOS
International Customer-Dialed Operator Service

ICHT
Incoming call-handling table

ICI
Incoming call identifier

ICM
Inbound Call Management

IDDD
International Direct Distance Dialing

IDF
Intermediate distribution frame

IE
Information element

immediate-start tie trunk
A trunk on which, after making a connection with a distant switching system for an outgoing call, the system waits a nominal 65 ms before sending the digits of the called number. This allows time for the distant system to prepare to receive digits. On an incoming call, the system has less than 65 ms to prepare to receive the digits.

IMT
Intermachine trunk

in
Inch

INADS

Initialization and Administration System

incoming gateway

A PBX that routes an incoming call on a trunk *not* administered for Supplementary Services Protocol B to a trunk *not* administered for Supplementary Services Protocol B.

information exchange

The exchange of data between users of two different systems, such as the switch and a host computer, over a LAN.

Information Systems Network (ISN)

A WAN and LAN with an open architecture combining host computers, minicomputers, word processors, storage devices, PCs, high-speed printers, and nonintelligent terminals into a single packet-switching system.

INS

ISDN Network Service

inside call

A call placed from one telephone to another within the local communications system.

Integrated Services Digital Network (ISDN)

A public or private network that provides end-to-end digital communications for all services to which users have access by a limited set of standard multipurpose user-network interfaces defined by the CCITT. Through internationally accepted standard interfaces, ISDN provides digital circuit-switched or packet-switched communications within the network and links to other ISDNs to provide national and international digital communications. See also Integrated Services Digital Network Basic Rate Interface (ISDN-BRI) and Integrated Services Digital Network Primary Rate Interface (ISDN-PRI).

Integrated Services Digital Network Basic Rate Interface (ISDN-BRI)

The interface between a communications system and terminal that includes two 64-kbps B-channels for transmitting voice or data and one 16-kbps D-channel for transmitting associated B-channel call control and out-of-band signaling information. ISDN-BRI also includes 48 kbps for transmitting framing and D-channel contention information, for a total interface speed of 192 kbps. ISDN-BRI serves ISDN terminals and digital terminals fitted with ISDN terminal adapters. See also Integrated Services Digital Network (ISDN) and Integrated Services Digital Network Primary Rate Interface (ISDN-PRI).

Integrated Services Digital Network Primary Rate Interface (ISDN-PRI)

The interface between multiple communications systems that in North America includes 24 64-kbps channels, corresponding to the North American digital signal level-1 (DS1) standard rate of 1.544 Mbps. The most common arrangement of channels in ISDN-PRI is 23 64-kbps B-channels for transmitting voice and data and 1 64-kbps D-channel for transmitting associated B-channel call control and out-of-band signaling information. With nonfacility-associated signaling (NFAS), ISDN-PRI can include 24 B-channels and no D-channel. See also Integrated Services Digital Network (ISDN) and Integrated Services Digital Network Basic Rate Interface (ISDN-BRI).

intercept tone

An tone that indicates a dialing error or denial of the service requested.

interface

A common boundary between two systems or pieces of equipment.

internal call

A connection between two users within a system.

International Telecommunications Union (ITU)

Formerly known as International Telegraph and Telephone Consultative Committee (CCITT), ITU is an international organization that sets universal standards for data communications, including ISDN. ITU members are from telecommunications companies and organizations around the world. See alsoBX.25.

International Telegraph and Telephone Consultative Committee

See International Telecommunications Union (ITU).

interflow

The ability for calls to forward to other splits on the same PBX or a different PBX using the Call Forward All Calls feature.

intraflow

The ability for calls to redirect to other splits on the same PBX on a conditional or unconditional basis using call coverage busy, don’t answer, or all criteria.

internal measurements

BCMS measurements that are made by the system. ACD measurements that are made external to the system (via External CMS) are referred to as external measurements.

in-use lamp

A red light on a multiappearance voice terminal that lights to show which call appearance will be selected when the handset is lifted or which call appearance is active when a user is off-hook.

INWATS

Inward Wide Area Telephone Service

IO

Information outlet

ISDN

See Integrated Services Digital Network (ISDN).

ISDN Gateway (IG)

A feature allowing integration of the switch and a host-based telemarketing application via a link to a gateway adjunct. The gateway adjunct is a 3B-based product that notifies the host-based telemarketing application of call events.

ISDN trunk

A trunk administered for use with ISDN-PRI. Also called ISDN facility.

ISDN-PRI terminal adapter

An interface between endpoint applications and an ISDN PRI facility. ISDN-PRI terminal adapters are currently available from other vendors and are primarily designed for video conferencing applications. Accordingly, currently available terminal adapters adapt the two pairs of video codec data (V.35) and dialing (RS-366) ports to an ISDN PRI facility.

IS/DTT

Integrated Services/digital tie trunk

ISN

Information Systems Network

ISO

International Standards Organization

ISV

Independent software vendor

ITP
Installation test procedure

ITU
International Telecommunications Union

IXC
Interexchange carrier code

K

kHz
Kilohertz

kbps
Kilobits per second

kbyte
Kilobyte

kg
Kilogram

L

LAN
Local area network

LAP-D
Link Access Procedure on the D-channel

LAPD
Link Access Procedure data

LATA
Local access and transport area

lb
Pound

LBO
Line buildout

LDN
Listed directory number

LDS
Long-distance service

LEC
Local exchange carrier

LED
See light-emitting diode (LED).

light-emitting diode (LED)

A semiconductor device that produces light when voltage is applied. LEDs provide a visual indication of the operational status of hardware components, the results of maintenance tests, the alarm status of circuit packs, and the activation of telephone features.

lightwave transceiver

Hardware that provides an interface to fiber-optic cable from port circuit packs and DS1 converter circuit packs. Lightwave transceivers convert electrical signals to light signals and vice versa.

line

A transmission path between a communications system or CO switching system and a voice terminal or other terminal.

line appearance

See appearance.

line buildout

A selectable output attenuation is generally required of DTE equipment because T1 circuits require the last span to lose 15–22.5 dB.

line port

Hardware that provides the access point to a communications system for each circuit associated with a telephone or data terminal.

link

A transmitter-receiver channel that connects two systems.

link-access procedure on the D-channel (LAPD)

A link-layer protocol on the ISDN-BRI and ISDN-PRI data-link layer (level 2). LAPD provides data transfer between two devices, and error and flow control on multiple logical links. LAPD is used for signaling and low-speed packet data (X.25 and mode 3) on the signaling (D-) channel and for mode-3 data communications on a bearer (B-) channel.

LINL

Local indirect neighbor link

local area network (LAN)

A networking arrangement designed for a limited geographical area. Generally, a LAN is limited in range to a maximum of 6.2 miles and provides high-speed carrier service with low error rates. Common configurations include daisy chain, star (including circuit-switched), ring, and bus.

logical link

The communications path between a processor and a BRI terminal.

loop-start trunk

A trunk on which, after establishing a connection with a distant switching system for an outgoing call, the system waits for a signal on the loop formed by the trunk leads before sending the digits of the called number.

LSU

Local storage unit

LWC

Leave Word Calling

M

MAC
Medium access

MADU
Modular asynchronous data unit

main distribution frame (MDF)
A device that mounts to the wall inside the system equipment room. The MDF provides a connection point from outside telephone lines to the PBX switch and to the inside telephone stations.

main-satellite-tributary
A private network configuration that can either stand alone or access an ETN. A main switch provides interconnection, via tie trunks, with one or more subtending switches, called satellites; all attendant positions for the main/satellite configuration; and access to and from the public network. To a user outside the complex, a main/satellite configuration appears as one switch, with one listed directory number (LDN). A tributary switch is connected to the main switch via tie trunks, but has its own attendant positions and LDN.

maintenance
Activities involved in keeping a telecommunications system in proper working condition: the detection and isolation of software and hardware faults, and automatic and manual recovery from these faults.

management terminal
The terminal that is used by the system administrator to administer the switch. The terminal may also be used to access the BCMS feature.

major alarm
An indication of a failure that has caused critical degradation of service and requires immediate attention. Major alarms are automatically displayed on LEDs on the attendant console and maintenance or alarming circuit pack, logged to the alarm log, and reported to a remote maintenance facility, if applicable.

Manual-In work mode
One of four agent work modes: the mode in which an agent is ready to process another call manually. *See* Auto-In Work mode for a contrast.

MAP
Maintenance action process

MAPD
Multiapplication platform for DEFINITY

MA-UUI
Message-Associated User-to-User Signaling

Mbps
Megabits per second

M-Bus
Memory bus

Mbyte
Megabyte

MCC
Multicarrier cabinet

MCS
Message Center Service

MCT
Malicious Call Trace

MCU
Multipoint control unit

MDF
Main distribution frame

MDM
Modular data module

MDR
Message detail record

MEM
Memory

memory
A device into which information can be copied and held, and from which information can later be obtained.

memory shadowing link
An operating-system condition that provides a method for memory-resident programs to be more quickly accessed, allowing a system to reboot faster.

message center
An answering service that supplies agents to and stores messages for later retrieval.

message center agent
A member of a message-center hunt group who takes and retrieves messages for voice-terminal users.

MET
Multibutton electronic telephone

MF
Multifrequency

MFB
Multifunction board

MFC
Multifrequency code

MHz
Megahertz

MIM
Management information message

minor alarm
An indication of a failure that could affect customer service. Minor alarms are automatically displayed on LEDs on the attendant console and maintenance or alarming circuit pack, sent to the alarm log, and reported to a remote maintenance facility, if applicable.

MIPS
Million instructions per second

MIS
Management information system

MISCID
Miscellaneous identification

MMCS
Multimedia Call Server

MMCH
Multimedia call handling

MMI
Multimedia interface

MMS
Material Management Services

MO
Maintenance object

modem
A device that converts digital data signals to analog signals for transmission over telephone circuits. The analog signals are converted back to the original digital data signals by another modem at the other end of the circuit.

modem pooling
A capability that provides shared conversion resources (modems and data modules) for cost-effective access to analog facilities by data terminals. When needed, modem pooling inserts a conversion resource into the path of a data call. Modem pooling serves both outgoing and incoming calls.

modular processor data module (MPDM)
A processor data module (PDM) that can be configured to provide several kinds of interfaces (RS-232C, RS-449, and V.35) to customer-provided data terminal equipment (DTE). See also processor data module (PDM).

modular trunk data module (MTDM)
A trunk data module that can be configured to provide several kinds of interfaces (RS-232, RS-449, and V.35) to customer-provided data terminal equipment.

modulator-demodulator
See modem.

monitored call
See active-notification call.

MOS
Message-oriented signaling

MPDM
Modular processor data module

MS
Message server

ms
Millisecond

MS/T
Main satellite/tributary

MSA
Message servicing adjunct

MSG
Message service

MSL
Material stocking location

MSM
Modular System Management

MSS
Mass storage system

MSSNET
Mass storage/network control

MT
Management terminal

MTDM
Modular trunk data module

MTP
Maintenance tape processor

MTT
Multitasking terminal

multiappearance voice terminal
A terminal equipped with several call-appearance buttons for the same extension, allowing the user to handle more than one call on that same extension at the same time.

Multicarrier cabinet
A structure that holds one to five carriers. See also single-carrier cabinet.

Multifrequency Compelled (MFC) Release 2 (R2) signaling
A signal consisting of two frequency components, such that when a signal is transmitted from a switch, another signal acknowledging the transmitted signal is received by the switch. R2 designates signaling used in the United States and in countries outside the United States.

multiplexer
A device used to combine a number of individual channels into a single common bit stream for transmission.

multiplexing
A process whereby a transmission facility is divided into two or more channels, either by splitting the frequency band into a number of narrower bands or by dividing the transmission channel into successive time slots. See also time-division multiplexing (TDM).

multirate
The new N x DS0 service (see N x DS0).

MWL
Message-waiting lamp

N

N+1
Method of determining redundant backup requirements. Example: if four rectifier modules are required for a DC-powered single-carrier cabinet, a fifth rectifier module is installed for backup.

N x DS0
N x DS0, equivalently referred to as N x 64 kbps, is an emerging standard for wideband calls separate from H0, H11, and H12 ISDN channels. The emerging N x DS0 ISDN multirate circuit mode bearer service will provide circuit-switched calls with data-rate multiples of 64 kbps up to 1536 kbps on a T1 facility or up to 1920 kbps on an E1 facility. In the switch, N x DS0 channels will range up to 1984 kbps using NFAS E1 interfaces.

NANP
North American Numbering Plan

narrowband
A circuit-switched call at a data rate up to and including 64 kbps. All nonwideband switch calls are considered narrowband.

native terminal support
A predefined terminal type exists in switch software, eliminating the need to alias the terminal (that is, manually map call appearances and feature buttons onto some other natively supported terminal type).

NAU
Network access unit

NCA/TSC
Noncall-associated/temporary-signaling connection

NCOSS
Network Control Operations Support Center

NCSO
National Customer Support Organization

NEC
National Engineering Center

NEMA
National Electrical Manufacturer’s Association

NETCON
Network-control circuit pack

network
A series of points, nodes, or stations connected by communications channels.

network-specific facility (NSF)

An information element in an ISDN-PRI message that specifies which public-network service is used. NSF applies only when Call-by-Call Service Selection is used to access a public-network service.

network interface

A common boundary between two systems in an interconnected group of systems.

NFAS

See Nonfacility-associated signaling (NFAS).

NI

Network interface

NID

Network Inward Dialing

NM

Network management

NN

National number

node

A switching or control point for a network. Nodes are either tandem (they receive signals and pass them on) or terminal (they originate or terminate a transmission path).

Nonfacility-associated signaling (NFAS)

A method that allows multiple T1 and/or E1 facilities to share a single D-channel to form an ISDN-PRI. If D-channel backup is not used, one facility is configured with a D-channel, and the other facilities that share the D-channel are configured without D-channels. If D-channel backup is used, two facilities are configured to have D-channels (one D-channel on each facility), and the other facilities that share the D-channels are configured without D-channels.

NPA

Numbering-plan area

NPE

Network processing element

NQC

Number of queued calls

NSE

Night-service extension

NSU

Network sharing unit

null modem cable

Special wiring of an RS-232-C cable such that a computer can talk to another computer (or to a printer) without a modem.

NXX

Public-network office code

O

OA
Operator assisted

occurrence
See appearance.

OCM
Outbound Call Management

offered load
The traffic that would be generated by all the requests for service occurring within a monitored interval, usually one hour.

ONS
On-premises station

OPS
Off-premises station

OPX
Off-premises extension

OQT
Oldest queued time

OSHA
Occupational Safety and Health Act

OSI
Open Systems Interconnect

OSS
Operations Support System

OSSI
Operational Support System Interface

OTDR
Optical time-domain reflectometer

othersplit
The work state that indicates that an agent is currently active on another split's call, or in ACW for another split.

OTL
Originating Test Line

OTQ
Outgoing trunk queuing

outgoing gateway
A PBX that routes an incoming call on a trunk administered for Supplementary Services Protocol B to a trunk *not* administered for Supplementary Services Protocol B.

P

PACCON

Packet control

packet

A group of bits (including a message element, which is the data, and a control information element (IE), which is the header) used in packet switching and transmitted as a discrete unit. In each packet, the message element and control IE are arranged in a specified format. See also **packet bus** and **packet switching**.

packet bus

A wide-bandwidth bus that transmits packets.

packet switching

A data-transmission technique whereby user information is segmented and routed in discrete data envelopes called packets, each with its own appended control information, for routing, sequencing, and error checking. Packet switching allows a channel to be occupied only during the transmission of a packet. On completion of the transmission, the channel is made available for the transfer of other packets. See also BX.25and **packet**.

PAD

Packet assembly/disassembly

paging trunk

A telecommunications channel used to access an amplifier for loudspeaker paging.

party/extension active on call

A party is on the call if he or she is actually connected to the call (in active talk or in held state). An originator of a call is always a party on the call. Alerting parties, busy parties, and tones are not parties on the call.

PBX

Private branch exchange

PC

See personal computer (PC).

PCM

See pulse-code modulation (PCM).

PCOL

Personal central-office line

PCOLG

Personal central-office line group

PCS

Permanent switched calls

PDM

See processor data module (PDM).

PDS

Premises Distribution System

PE

Processing element

PEC
Price element code

PEI
Processor element interchange

personal computer (PC)
A personally controllable microcomputer.

PGATE
Packet gateway

PGN
Partitioned group number

PI
Processor interface

PIB
Processor interface board

pickup group
A group of individuals authorized to answer any call directed to an extension within the group.

PIDB
Product image database

PKTINT
Packet interface

PL
Private line

PLS
Premises Lightwave System

PMS
Property Management System

PN
Port network

PNA
Private network access

POE
Processor occupancy evaluation

POP
Point of presence

port
A data- or voice-transmission access point on a device that is used for communicating with other devices.

port carrier
A carrier in a multicarrier cabinet or a single-carrier cabinet containing port circuit packs, power units, and service circuits. Also called a port cabinet in a single-carrier cabinet.

port network (PN)

A cabinet containing a TDM bus and packet bus to which the following components are connected: port circuit packs, one or two tone-clock circuit packs, a maintenance circuit pack, service circuit packs, and (optionally) up to four expansion interface (EI) circuit packs in DEFINITY ECS. Each PN is controlled either locally or remotely by a switch processing element (SPE). See also expansion port network (EPN) and processor port network (PPN).

port-network connectivity

The interconnection of port networks (PNs), regardless of whether the configuration uses direct or switched connectivity.

PPM

1. Parts per million
2. Periodic pulse metering

PPN

See processor port network (PPN).

PRI

See Primary Rate Interface (PRI).

primary extension

The main extension associated with the physical voice or data terminal.

Primary Rate Interface (PRI)

A standard ISDN frame format that specifies the protocol used between two or more communications systems. PRI runs at 1.544 Mbps and, as used in North America, provides 23 64-kbps B-channels (voice or data) and one 64-kbps D-channel (signaling). The D-channel is the 24th channel of the interface and contains multiplexed signaling information for the other 23 channels.

PRI endpoint (PE)

The wideband switching capability introduces PRI endpoints on switch line-side interfaces. A PRI endpoint consists of one or more contiguous B-channels on a line-side T1 or E1 ISDN PRI facility and has an extension. Endpoint applications have call-control capabilities over PRI endpoints.

principal

A terminal that has its primary extension bridged on one or more other terminals.

principal (user)

A person to whom a telephone is assigned and who has message-center coverage.

private network

A network used exclusively for the telecommunications needs of a particular customer.

private network office code (RNX)

The first three digits of a 7-digit private network number.

PROCR

Processor

processor carrier

See control carrier.

processor data module (PDM)

A device that provides an RS-232C DCE interface for connecting to data terminals, applications processors (APs), and host computers, and provides a DCP interface for connection to a communications system. See also modular processor data module (MPDM).

processor port network (PPN)
A port network controlled by a switch-processing element that is directly connected to that PN's TDM bus and LAN bus. See also port network (PN).

processor port network (PPN) control carrier
A carrier containing the maintenance circuit pack, tone/clock circuit pack, and SPE circuit packs for a processor port network (PPN) and, optionally, port circuit packs.

Property Management System (PMS)
A stand-alone computer used by lodging and health-services organizations for services such as reservations, housekeeping, and billing.

protocol
A set of conventions or rules governing the format and timing of message exchanges to control data movement and correction of errors.

PSC
Premises service consultant

PSDN
Packet-switch public data network

PT
Personal terminal

PTC
Positive temperature coefficient

PTT
Postal Telephone and Telegraph

public network
The network that can be openly accessed by all customers for local and long-distance calling.

pulse-code modulation (PCM)
An extension of pulse-amplitude modulation (PAM) in which carrier-signal pulses modulated by an analog signal, such as speech, are quantized and encoded to a digital, usually binary, format.

Q

QPPCN
Quality Protection Plan Change Notice

QSIG
A set of open standards for Enterprise Networking. QSIG is a protocol defining message exchanges (signalling) at the “Q” reference point between two PBXs.

quadrant
A group of six contiguous DS0s in fixed locations on an ISDN-PRI facility. Note that this term comes from T1 terminology (one-fourth of a T1), but there are five quadrants on an E1 ISDN-PRI facility (30B + D).

queue
An ordered sequence of calls waiting to be processed.

queuing

The process of holding calls in order of their arrival to await connection to an attendant, to an answering group, or to an idle trunk. Calls are automatically connected in first-in, first-out sequence.

R

RAM

See random-access memory (RAM).

random-access memory (RAM)

A storage arrangement whereby information can be retrieved at a speed independent of the location of the stored information.

RBS

Robbed-bit signaling

RC

Radio controller

RCL

Restricted call list

read-only memory (ROM)

A storage arrangement primarily for information-retrieval applications.

recall dial tone

Tones signalling that the system has completed a function (such as holding a call) and is ready to accept dialing.

redirection criteria

Information administered for each voice terminal’s coverage path that determines when an incoming call is redirected to coverage.

Redirection on No Answer

An optional feature that redirects an unanswered ringing ACD call after an administered number of rings. The call is then redirected back to the agent.

remote home numbering-plan area code (RHNPA)

A foreign numbering-plan area code that is treated as a home area code by the Automatic Route Selection (ARS) feature. Calls can be allowed or denied based on the area code and the dialed CO code rather than just the area code. If the call is allowed, the ARS pattern used for the call is determined by these six digits.

Remote Operations Service Element (ROSE)

A CCITT and ISO standard that defines a notation and services that support interactions between the various entities that make up a distributed application.

REN

Ringer equivalency number

reorder tone

A tone to signal that at least one of the facilities, such as a trunk or a digit transmitter, needed for the call was not available.

report scheduler

Software that is used in conjunction with the system printer to schedule the days of the week and time of day that the desired reports are to be printed.

RFP

Request for proposal

RHNPA

See remote home numbering-plan area code (RHNPA).

RINL

Remote indirect neighbor link

RISC

Reduced-instruction-set computer

RLT

Release-link trunk

RMATS

Remote Maintenance, Administration, and Traffic System

RNX

Route-number index (private network office code)

ROM

See read-only memory (ROM).

RPN

Routing-plan number

RS-232C

A physical interface specified by the Electronic Industries Association (EIA). RS-232C transmits and receives asynchronous data at speeds of up to 19.2 kbps over cable distances of up to 50 feet.

RS-449

Recommended Standard 449

RSC

Regional Support Center

ROSE

See Remote Operations Service Element (ROSE).

S

S1

The first logical signalling channel of DCP. The channel is used to provide signaling information for DCP's I1 channel.

S2

The second logical signaling channel of DCP. The channel is used to provide signaling information for DCP's I2 channel.

SABM

Set Asynchronous Balance Mode

SAC
Send All Calls

SAKI
See sanity and control interface (SAKI).

sanity and control interface (SAKI)
A custom VLSI microchip located on each port circuit pack. The SAKI provides address recognition, buffering, and synchronization between the angel and the five control time slots that make up the control channel. The SAKI also scans and collects status information for the angel on its port circuit pack and, when polled, transmits this information to the archangel.

SAT
System access terminal

SCC
1. See single-carrier cabinet.
2. Serial communications controller

SCD
Switch-control driver

SCI
Switch communications interface

SCO
System control office

SCOTCH
Switch Conferencing for TDM Bus in Concentration Highway

SCSI
See small computer system interface (SCSI).

SDDN
Software-Defined Data Network

SDI
Switched Digital International

SDLC
Synchronous data-link control

SDN
Software-defined network

SFRL
Single-frequency return loss

SID
Station-identification number

simplex system
A system that has no redundant hardware.

simulated bridged appearance
The same as a temporary bridged appearance; allows the terminal user (usually the principal) to bridge onto a call that had been answered by another party on his or her behalf.

single-carrier cabinet
A combined cabinet and carrier unit that contains one carrier. See also Multicarrier cabinet.

single-line voice terminal
A voice terminal served by a single-line tip and ring circuit (models 500, 2500, 7101A, 7103A).

SIT
Special-information tones

small computer system interface (SCSI)
An ANSI bus standard that provides a high-level command interface between host computers and peripheral devices.

SMDR
Station Message Detail Recording

SN
Switch Node

SNA
Systems Network Architecture

SNC
Switch Node Clock

SNI
Switch Node Interface

SNMP
Simple Network Management Protocol

software
A set of computer programs that perform one or more tasks.

SPE
Switch Processing Element

SPID
Service Profile Identifier

split
See ACD work mode.

split condition
A condition whereby a caller is temporarily separated from a connection with an attendant. A split condition automatically occurs when the attendant, active on a call, presses the start button.

split number
The split's identity to the switch and BCMS.

split report
A report that provides historical traffic information for internally measured splits.

split (agent) status report
A report that provides real-time status and measurement data for internally measured agents and the split to which they are assigned.

SSI
Standard serial interface

SSM
Single-site management

SSV
Station service

ST3
Stratum 3 clock board

staffed
Indicates that an agent position is logged in. A staffed agent functions in one of four work modes: Auto-In, Manual-In, ACW, or AUX-Work.

STARLAN
Star-Based Local Area Network

Station Message Detail Recording (SMDR)
An obsolete term now called CDR — a switch feature that uses software and hardware to record call data. See Call Detail Recording (CDR).

standard serial interface (SSI)
A communications protocol developed for use with 500-type business communications terminals (BCTs) and 400-series printers.

status lamp
A green light that shows the status of a call appearance or a feature button by the state of the light (lit, flashing, fluttering, broken flutter, or unlit).

stroke counts
A method used by ACD agents to record up to nine customer-defined events per call when CMS is active.

SVN
Security-violation notification

switch
Any kind of telephone switching system. See also communications system.

switchhook
The buttons located under the receiver on a voice terminal.

switch-node (SN) carrier
A carrier containing a single switch node, power units, and, optionally, one or two DS1 converter circuit packs. An SN carrier is located in a center-stage switch.

switch-node (SN) clock
The circuit pack in an SN carrier that provides clock and maintenance alarm functions and environmental monitors.

switch-node interface (SNI)
The basic building block of a switch node. An SNI circuit pack controls the routing of circuit, packet, and control messages.

switch-node link (SNL)
The hardware that provides a bridge between two or more switch nodes. The SNL consists of the two SNI circuit packs residing on the switch nodes and the hardware connecting the SNIs. This hardware can include lightwave transceivers that convert the SNI's electrical signals to light signals, the copper wire that connects the SNIs to the lightwave transceivers, a full-duplex fiber-optic cable, DS1 converter circuit cards and DS1 facilities if a company does not have rights to lay cable, and appropriate connectors.

switch-processing element (SPE)

A complex of circuit packs (processor, memory, disk controller, and bus-interface cards) mounted in a PPN control carrier. The SPE serves as the control element for that PPN and, optionally, for one or more EPNs.

SXS

Step-by-step

synchronous data transmission

A method of sending data in which discrete signal elements are sent at a fixed and continuous rate and specified times. See also association.

SYSAM

System Access and Administration

system administrator

The person who maintains overall customer responsibility for system administration. Generally, all administration functions are performed from the Management Terminal. The switch requires a special login, referred to as the system administrator login, to gain access to system-administration capabilities.

system printer

An optional printer that may be used to print scheduled reports via the report scheduler.

system report

A report that provides historical traffic information for internally measured splits.

system-status report

A report that provides real-time status information for internally measured splits.

system manager

A person responsible for specifying and administering features and services for a system.

system reload

A process that allows stored data to be written from a tape into the system memory (normally after a power outage).

T

T1

A digital transmission standard that in North America carries traffic at the DS1 rate of 1.544 Mbps. A T1 facility is divided into 24 channels (DS0s) of 64 kbps. These 24 channels, with an overall digital rate of 1.536 Mbps, and an 8-kbps framing and synchronization channel make up the 1.544-Mbps transmission. When a D-channel is present, it occupies channel 24. T1 facilities are also used in Japan and some Middle-Eastern countries.

TAAS

Trunk Answer from Any Station

TABS

Telemetry asynchronous block serial

TAC

Trunk-access code

tandem switch

A switch within an electronic tandem network (ETN) that provides the logic to determine the best route for a network call, possibly modifies the digits outpulsed, and allows or denies certain calls to certain users.

tandem through

The switched connection of an incoming trunk to an outgoing trunk without human intervention.

tandem tie-trunk network (TTTN)

A private network that interconnects several customer switching systems.

TC

Technical consultant

TCM

Traveling class mark

TDM

See time-division multiplexing (TDM).

TDR

Time-of-day routing

TEG

Terminating extension group

terminal

A device that sends and receives data within a system. See also administration terminal.

tie trunk

A telecommunications channel that directly connects two private switching systems.

time-division multiplex (TDM) bus

A bus that is time-shared regularly by preallocating short time slots to each transmitter. In a PBX, all port circuits are connected to the TDM bus, permitting any port to send a signal to any other port.

time-division multiplexing (TDM)

Multiplexing that divides a transmission channel into successive time slots. See also multiplexing.

time interval

The period of time, either one hour or one-half hour, that BCMS measurements are collected for a reports.

time slice

See **time interval**.

time slot

64 kbps of digital information structured as eight bits every 125 microseconds. In the switch, a time slot refers to either a DS0 on a T1 or E1 facility or a 64-kbps unit on the TDM bus or fiber connection between port networks.

time slot sequence integrity

The situation whereby the N octets of a wideband call that are transmitted in one T1 or E1 frame arrive at the output in the same order that they were introduced.

to control

An application can invoke *Third Party Call Control* capabilities using either an adjunct-control or domain-control association.

to monitor
An application can receive *event reports* on an active-notification, adjunct-control, or domain-control association.

TOD
Time of day

tone ringer
A device with a speaker, used in electronic voice terminals to alert the user.

TOP
Task-oriented protocol

trunk
A dedicated telecommunications channel between two communications systems or COs.

trunk allocation
The manner in which trunks are selected to form wideband channels.

trunk-data module
A device that connects off-premises private-line trunk facilities and DEFINITY ECS. The trunk-data module converts between the RS-232C and the DCP, and can connect to DDD modems as the DCP member of a modem pool.

trunk group
Telecommunications channels assigned as a group for certain functions that can be used interchangeably between two communications systems or COs.

TSC
Technical Service Center

TTI
Terminal translation initialization

TTR
Touch-tone receiver

TTT
Terminating trunk transmission

TTTN
See tandem tie-trunk network (TTTN).

TTY
Teletypewriter

U

UAP
Usage-allocation plan

UART
Universal asynchronous transmitter

UCD
Uniform call distribution

UCL
Unrestricted call list

UDP
See Uniform Dial Plan (UDP).

UL
Underwriter Laboratories

UM
User manager

Uniform Dial Plan (UDP)
A feature that allows a unique 4- or 5-digit number assignment for each terminal in a multiswitch configuration such as a DCS or main-satellite-tributary system.

UNMA
Unified Network Management Architecture

UNP
Uniform numbering plan

UPS
Uninterruptible power supply

USOP
User service-order profile

UUCP
UNIX-to-UNIX Communications Protocol

UUI
User-to-user information

V

VAR
Value-added reseller

VDN
See vector directory number (VDN).

vector directory number (VDN)
An extension that provides access to the Vectoring feature on the switch. Vectoring allows a customer to specify the treatment of incoming calls based on the dialed number.

vector-controlled split
A hunt group or ACD split administered with the vector field enabled. Access to such a split is possible only by dialing a VDN extension.

VIS
Voice Information System

VLSI
Very-large-scale integration

VM
Voltmeter

VNI
Virtual nodepoint identifier

voice terminal
A single-line or multiappearance telephone.

W

WATS
See Wide Area Telecommunications Service (WATS).

WCC
World-Class Core

WCR
World-Class Routing

WCTD
World-Class Tone Detection

WFB
Wireless fixed base

Wide Area Telecommunications Service (WATS)
A service in the United States that allows calls to certain areas for a flat-rate charge based on expected usage.

wideband
A circuit-switched call at a data rate greater than 64 kbps. A circuit-switched call on a single T1 or E1 facility with a bandwidth between 128 and 1536 (T1) or 1984 (E1) kbps in multiples of 64 kbps. H0, H11, H12, and N x DS0 calls are wideband.

wideband access endpoint
Access endpoints, extended with wideband switching to include wideband access endpoints. A wideband access endpoint consists of one or more contiguous DS0s on a line-side T1 or E1 facility and has an extension. The Administered Connections feature provides call control for calls originating from wideband access endpoints.

wink-start tie trunk
A trunk with which, after making a connection with a distant switching system for an outgoing call, the system waits for a momentary signal (wink) before sending the digits of the called number. Similarly, on an incoming call, the system sends the wink signal when ready to receive digits.

work mode
One of four states (Auto-In, Manual-In, ACW, AUX-Work) that an ACD agent can be in. Upon logging in, an agent enters AUX-Work mode. To become available to receive ACD calls, the agent enters Auto-In or Manual-In mode. To do work associated with a completed ACD call, an agent enters ACW mode.

work state

An ACD agent may be a member of up to three different splits. Each ACD agent continuously exhibits a work state for every split of which it is a member. Valid work states are Avail, Unstaffed, AUX-Work, ACW, ACD (answering an ACD call), ExtIn, ExtOut, and OtherSpl. An agent's work state for a particular split may change for a variety of reasons (example: when a call is answered or abandoned, or the agent changes work modes). The BCMS feature monitors work states and uses this information to provide BCMS reports.

write operation

The process of putting information onto a storage medium, such as a hard disk.

WSA

Waiting session accept

WSS

Wireless Subscriber System

Z

ZCS

Zero Code Suppression

Index

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DEFINITY Enterprise Communications Server Release 8 Installation and Test for Multicarrier Cabinets,
555-230-112, Issue 7, December 1999, Comcode 108596958

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