

**Lucent Technologies**  
Bell Labs Innovations



**DEFINITY<sup>®</sup>**  
**Enterprise Communications Server**  
Release 6  
Installation for Adjuncts and Peripherals

555-230-125  
Comcode 108215567  
Issue 4  
May 1998

## Notice

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

## Your Responsibility for Your System's Security

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

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

## Lucent Technologies Fraud Intervention

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

## Federal Communications Commission Statement

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

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

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

### Trademarks

See the preface of this document.

### Ordering Information

**Call:** Lucent Technologies BCS Publications Center  
Voice 1 800 457-1235 International Voice 317 322-6416  
Fax 1 800 457-1764 International Fax 317 322-6699

**Write:** Lucent Technologies BCS Publications Center  
2855 N. Franklin Road  
Indianapolis, IN 46219

**Order:** Document No. 555-230-125  
Comcode 108215567  
Issue 4, May 1998

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.

# Contents

<a href="#">Contents</a>	<a href="#">iii</a>
<a href="#">About This Book</a>	<a href="#">ix</a>
■ <a href="#">Related Documents</a>	<a href="#">x</a>
■ <a href="#">How to Order Documentation</a>	<a href="#">xi</a>
■ <a href="#">How to Comment on This Document</a>	<a href="#">xi</a>
■ <a href="#">Trademarks</a>	<a href="#">xi</a>
■ <a href="#">Standards Compliance</a>	<a href="#">xii</a>
■ <a href="#">LASER Product</a>	<a href="#">xiii</a>
■ <a href="#">Electromagnetic Compatibility Standards</a>	<a href="#">xiii</a>
<a href="#">European Union Standards</a>	<a href="#">xiv</a>
■ <a href="#">Where to Call for Technical Support</a>	<a href="#">xv</a>
■ <a href="#">Anti-Static Protection</a>	<a href="#">xv</a>
■ <a href="#">Security Issues</a>	<a href="#">xv</a>
■ <a href="#">Federal Communications Commission Statement</a>	<a href="#">xvi</a>
<a href="#">Part 68: Statement</a>	<a href="#">xvi</a>
<b>1</b> <a href="#">Install Adjunct and Peripheral Equipment</a>	<a href="#">1-1</a>
■ <a href="#">Install Auxiliary Equipment</a>	<a href="#">1-1</a>
<a href="#">Console and DCP Terminal Power Supplies</a>	<a href="#">1-1</a>
<a href="#">External Equipment</a>	<a href="#">1-3</a>
■ <a href="#">External Ringing</a>	<a href="#">1-5</a>
■ <a href="#">Queue Warning Indicator</a>	<a href="#">1-5</a>
■ <a href="#">1145B Power Supply</a>	<a href="#">1-6</a>
<a href="#">Wall-Mounting Plates</a>	<a href="#">1-7</a>
<a href="#">Mount the 1146B Power Distribution Unit</a>	<a href="#">1-9</a>
<a href="#">Battery Mounting/Wiring</a>	<a href="#">1-9</a>
<a href="#">Install the Expanded Power Distribution Unit</a>	<a href="#">1-10</a>
<a href="#">Power Up and Test</a>	<a href="#">1-12</a>
<a href="#">Wire the 1146B Power Distribution Unit</a>	<a href="#">1-13</a>
<a href="#">Reset LEDs on Power Distribution Unit</a>	<a href="#">1-14</a>
■ <a href="#">1151A and 1151A2 Power Supplies</a>	<a href="#">1-16</a>
<a href="#">Important Safety Instructions</a>	<a href="#">1-16</a>

<a href="#">The 1151A and 1151A2 Power Supplies</a>	<a href="#">1-17</a>
<a href="#">Connect the 1151A or 1151A2 Power Supplies</a>	<a href="#">1-18</a>
■ <a href="#">909A/B Universal Coupler</a>	<a href="#">1-19</a>
■ <a href="#">Loudspeaker Paging and Music-on-Hold</a>	<a href="#">1-22</a>
<a href="#">Loudspeaker Paging without Paging Adapter</a>	<a href="#">1-22</a>
<a href="#">Loudspeaker Paging Access (Without Universal Coupler)</a>	<a href="#">1-24</a>
<a href="#">Loudspeaker Paging with Universal Coupler</a>	<a href="#">1-24</a>
■ <a href="#">PagePac Plus Paging System</a>	<a href="#">1-26</a>
<a href="#">PagePac D20</a>	<a href="#">1-26</a>
<a href="#">PagePac 20/100/300</a>	<a href="#">1-28</a>
■ <a href="#">Music-on-Hold, Dial Dictation, or Recorded Announcement Access</a>	<a href="#">1-29</a>
<a href="#">Registered Music Source</a>	<a href="#">1-30</a>
<a href="#">Non-Registered Music Source</a>	<a href="#">1-30</a>
■ <a href="#">Malicious Call Trace</a>	<a href="#">1-33</a>
■ <a href="#">Asynchronous Data Units</a>	<a href="#">1-35</a>
■ <a href="#">Data Modules</a>	<a href="#">1-36</a>
<a href="#">7400A/B/C/D and 8400B Plus Data Modules</a>	<a href="#">1-36</a>
<a href="#">Install Data Modules Into Data Mounting</a>	<a href="#">1-41</a>
<a href="#">Data Module Equipment Connections</a>	<a href="#">1-42</a>
<a href="#">7400A Data Module</a>	<a href="#">1-43</a>
<a href="#">7500B Data Module</a>	<a href="#">1-44</a>
<a href="#">8400B Plus Data Module</a>	<a href="#">1-45</a>
■ <a href="#">CallVisor ASAI Over the DEFINITY LAN Gateway R2 (J58890MA-1)</a>	<a href="#">1-46</a>
<a href="#">Equipment Connections</a>	<a href="#">1-48</a>
■ <a href="#">DEFINITY AUDIX R3</a>	<a href="#">1-50</a>
<a href="#">Single-Carrier Cabinet</a>	<a href="#">1-50</a>
<a href="#">Multi-Carrier Cabinet</a>	<a href="#">1-52</a>
<a href="#">Single-Carrier and Multi-Carrier Installation</a>	<a href="#">1-54</a>
<a href="#">Install the Terminal(s)</a>	<a href="#">1-55</a>
■ <a href="#">DEFINITY INADS</a>	<a href="#">1-63</a>
<a href="#">Analog Loopback Installation</a>	<a href="#">1-63</a>
<a href="#">DEFINITY ECS Administration</a>	<a href="#">1-65</a>
<a href="#">Partner Installation</a>	<a href="#">1-66</a>

<a href="#">INADS Connection (with Power Fail Transfer)</a>	<a href="#">1-66</a>
<a href="#">INADS Connection (without Power Fail Transfer)</a>	<a href="#">1-70</a>
<a href="#">PARTNER Administration</a>	<a href="#">1-72</a>
<a href="#">DEFINITY ECS Administration</a>	<a href="#">1-73</a>
<a href="#">Installation Test (All Installations)</a>	<a href="#">1-74</a>
<a href="#">References</a>	<a href="#">1-74</a>
■ <a href="#">DEFINITY LAN Gateway System</a>	<a href="#">1-75</a>
<a href="#">Single-Carrier Cabinet</a>	<a href="#">1-75</a>
<a href="#">Multi-Carrier Cabinet</a>	<a href="#">1-77</a>
<a href="#">Single-Carrier and Multi-Carrier Installation</a>	<a href="#">1-79</a>
<a href="#">Install the Terminal(s)</a>	<a href="#">1-80</a>
■ <a href="#">Distributed Communications System</a>	<a href="#">1-89</a>
■ <a href="#">Property Management System Interface</a>	<a href="#">1-90</a>
<a href="#">Printers and Terminals</a>	<a href="#">1-91</a>
■ <a href="#">PRI Converters (SCC)</a>	<a href="#">1-92</a>
<a href="#">PRI to DASS and PRI to DPNSS Converters</a>	<a href="#">1-92</a>
<a href="#">PRI to BRI Converter</a>	<a href="#">1-93</a>
■ <a href="#">PRI Converters (MCC)</a>	<a href="#">1-94</a>
<a href="#">PRI to DASS and PRI to DPNSS Converters</a>	<a href="#">1-94</a>
<a href="#">PRI to BRI Converter</a>	<a href="#">1-95</a>
■ <a href="#">ExpressRoute 1000 Data Module</a>	<a href="#">1-96</a>
■ <a href="#">DEFINITY DCP Extender (Stand Alone)</a>	<a href="#">1-97</a>
■ <a href="#">DEFINITY DCP Extender (Rack Mount)</a>	<a href="#">1-100</a>
■ <a href="#">Multimedia Application Server Interface</a>	<a href="#">1-101</a>
<a href="#">Direction Connection</a>	<a href="#">1-102</a>
<a href="#">MDF Connection</a>	<a href="#">1-103</a>
■ <a href="#">Wideband Endpoints</a>	<a href="#">1-104</a>
<a href="#">Non-Signaling Configuration</a>	<a href="#">1-104</a>
<a href="#">Signaling Configuration</a>	<a href="#">1-105</a>
■ <a href="#">PassageWay Adapter (2- or 4-Wire)</a>	<a href="#">1-107</a>
■ <a href="#">PC Console</a>	<a href="#">1-108</a>
<a href="#">PC Console (United States)</a>	<a href="#">1-108</a>
<a href="#">PC Console (Non-United States)</a>	<a href="#">1-109</a>
■ <a href="#">Integrated Channel Service Unit Module</a>	<a href="#">1-110</a>
<a href="#">120A CSU Module Installation</a>	<a href="#">1-110</a>

<a href="#"><u>Install the 120A Module</u></a>	<a href="#"><u>1-113</u></a>
■ <a href="#"><u>DS1 CPE Loopback Jack (T1 Only)</u></a>	<a href="#"><u>1-115</u></a>
<a href="#"><u>loopback jack Installation</u></a>	<a href="#"><u>1-115</u></a>
<a href="#"><u>Administration</u></a>	<a href="#"><u>1-116</u></a>
<a href="#"><u>DS1 Span Test</u></a>	<a href="#"><u>1-116</u></a>
<a href="#"><u>Loopback Jack Fault Isolation Procedures</u></a>	<a href="#"><u>1-119</u></a>
<a href="#"><u>Configurations Without a Smart Jack</u></a>	<a href="#"><u>1-124</u></a>
<a href="#"><u>Configurations Using Fiber Multiplexers</u></a>	<a href="#"><u>1-127</u></a>
<a href="#"><u>Operating Characteristics</u></a>	<a href="#"><u>1-127</u></a>
■ <a href="#"><u>CONVERSANT System</u></a>	<a href="#"><u>1-128</u></a>
■ <a href="#"><u>Two-Wire DCP Endpoint</u></a>	<a href="#"><u>1-129</u></a>
<a href="#"><u>Two-wire Voice Terminals</u></a>	<a href="#"><u>1-129</u></a>
<a href="#"><u>Two-Wire Voice and Data Terminals</u></a>	<a href="#"><u>1-130</u></a>
■ <a href="#"><u>Busy Tone Disconnect</u></a>	<a href="#"><u>1-131</u></a>
■ <a href="#"><u>External Modem</u></a>	<a href="#"><u>1-132</u></a>
■ <a href="#"><u>Asynchronous Transfer Mode</u></a>	<a href="#"><u>1-133</u></a>
<a href="#"><u>DEFINITY ATM New Installation</u></a>	<a href="#"><u>1-138</u></a>
<a href="#"><u>ATM Fiber Cable Installation</u></a>	<a href="#"><u>1-140</u></a>
<a href="#"><u>DEFINITY ATM Upgrade Installation</u></a>	<a href="#"><u>1-157</u></a>
■ <a href="#"><u>ESPA Radio Paging</u></a>	<a href="#"><u>1-167</u></a>
■ <a href="#"><u>3150/3160 Channel Service Unit</u></a>	<a href="#"><u>1-168</u></a>
■ <a href="#"><u>Multimedia Call Handling (MMCH)</u></a>	<a href="#"><u>1-171</u></a>
<a href="#"><u>Connect the Endpoints</u></a>	<a href="#"><u>1-171</u></a>
<a href="#"><u>Setup and Test the MMCH Installation</u></a>	<a href="#"><u>1-172</u></a>
<a href="#"><u>Place Conversion Test Call</u></a>	<a href="#"><u>1-179</u></a>
<a href="#"><u>Expansion Services Module</u></a>	<a href="#"><u>1-180</u></a>
<a href="#"><u>Administer the System</u></a>	<a href="#"><u>1-181</u></a>
<a href="#"><u>Place Test Call</u></a>	<a href="#"><u>1-182</u></a>
<a href="#"><u>Troubleshooting</u></a>	<a href="#"><u>1-182</u></a>
■ <a href="#"><u>Connect Stratum 3 Clock</u></a>	<a href="#"><u>1-183</u></a>
<a href="#"><u>Set Clock Options</u></a>	<a href="#"><u>1-183</u></a>
<a href="#"><u>Cabling the Stratum 3 Clock</u></a>	<a href="#"><u>1-184</u></a>
<a href="#"><u>Stratum 3 Clock Wiring Installation Procedure</u></a>	<a href="#"><u>1-186</u></a>
■ <a href="#"><u>DEFINITY Wireless Business System</u></a>	<a href="#"><u>1-189</u></a>
■ <a href="#"><u>Forum PCM</u></a>	<a href="#"><u>1-189</u></a>

■ <a href="#">Connector and cable Diagrams (Pinout Charts)</a>	<a href="#">1-190</a>
<b><a href="#">2</a> <a href="#">Setting Options</a></b>	<b><a href="#">2-1</a></b>
■ <a href="#">Data Module Option Settings</a>	<a href="#">2-1</a>
<a href="#">DCS Switch Settings</a>	<a href="#">2-1</a>
■ <a href="#">7400D Data Module Option Settings</a>	<a href="#">2-3</a>
<a href="#">Set 7400D Options</a>	<a href="#">2-4</a>
<a href="#">Modem Pooling (Combined) Option Settings</a>	<a href="#">2-4</a>
<a href="#">7400A and 7400B Option Settings</a>	<a href="#">2-5</a>
■ <a href="#">8400B Data Module Option Settings</a>	<a href="#">2-7</a>
■ <a href="#">External Modem Option Settings</a>	<a href="#">2-8</a>
<a href="#">The COMSPHERE 3700, 3800, and 3900 Series</a>	<a href="#">2-8</a>
<a href="#">U.S. Robotics Model 839</a>	<a href="#">2-11</a>
■ <a href="#">Printer Option Settings</a>	<a href="#">2-17</a>
■ <a href="#">Call Detail Recording Option Settings</a>	<a href="#">2-20</a>
■ <a href="#">AUDIX Interface Option Settings</a>	<a href="#">2-22</a>
■ <a href="#">TN760D Tie Trunk Option Settings</a>	<a href="#">2-23</a>
■ <a href="#">TN464E/F Option Settings</a>	<a href="#">2-26</a>
<b><a href="#">IN</a> <a href="#">Index</a></b>	<b><a href="#">IN-1</a></b>



## About This Book

---

This document provides procedures and information for installing adjunct and peripheral equipment for DEFINITY release G3V5 through Release 6, with emphasis on R6.

For details about changes for Release 6, refer to *DEFINITY Enterprise Communications Server Release 6.3, Change Description*.

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

- The term *Release 6* (R6) is a general term encompassing all Release 5 (R5) and R6 systems.
- The word *system*, is a general term and includes references to the DEFINITY enterprise communications server
- Specific DEFINITY Release 6 Systems are called: Release 6vs; Release 6csi, Release 6si, and Release 6r
- All occurrences of R5si, R6si, R5si + memory, and Release 6si + memory are called R6si unless a specific configuration is required to differentiate between product offerings
- Information in this document is applicable for G3V5 through R6, unless otherwise specified
- DEFINITY enterprise communications server is abbreviated DEFINITY ECS
- All physical dimensions in this book are in foot pound second (FPS) followed by metric (centimeter grams second) (CGS) in parenthesis. Wire gauge measurements are in AWG followed by the diameter in millimeters in parenthesis.

## **Related Documents**

---

The following documents are useful for system-related information:

- *DEFINITY Enterprise Communications Server Release 6 System Description Pocket Reference, 555-230-211*
- *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multi-Carrier Cabinets, 555-230-112*
- *DEFINITY Enterprise Communications Server Release 6 Upgrades and Additions for R6vs/sj, 555-230-120*
- *DEFINITY Enterprise Communications Server Release 6 Upgrades and Additions for R6r, 555-230-121*
- *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r, 555-230-126*
- *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6vs/sj, 555-230-127*
- *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Compact Modular Cabinets, 555-230-128*
- *DEFINITY Enterprise Communications Server Release 6 Maintenance for Compact Modular Cabinets, 555-230-129*
- *AT&T Network and Data Connectivity Reference, 555-025-201*
- *BCS Products Security Handbook, 555-025-600*
- *Switch Administration for DEFINITY AUDIX, 585-300-509*
- *DEFINITY Wireless Business System Users Guide, 555-232-105*
- *DEFINITY Wireless Business System Installation and Test Guide, 555-232-102*
- *DEFINITY AUDIX Installation and Upgrade, 585-300-118*
- *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description, 555-230-522*
- *Intuity Integration with System 75 and DEFINITY Communications System G1 and G3, 585-310-214*
- *CentreVU Call Management System Release 3 Version 5 SunSparc Server Installation and Maintenance, 585-215-827*
- *Forum Personal Communications Manager Release 1.1 Support Guide, 585-232-101*
- *Personal Communicator - 2055 User Guide, 585-232-702SPL*
- *Getting Started with Forum Manager, 585-232-501*

## How to Order Documentation

---

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

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

## How to Comment on This Document

---

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

If the reader comment card is missing, FAX your comments to 1-303-538-1741 or to your Lucent Technologies representative, and mention this document's name and number, *DEFINITY Enterprise Communication Server Release 6 Installation for Adjuncts and Peripherals*, 555-230-125.

## Trademarks

---

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

- ACCUNET<sup>®</sup>
- AUDIX<sup>®</sup>
- Callmaster<sup>®</sup>
- CallVisor<sup>®</sup>
- CONVERSANT<sup>®</sup>
- DEFINITY<sup>®</sup>
- FORUM<sup>™</sup>
- MEGACOM<sup>®</sup>
- SYSTIMAX<sup>®</sup>
- TRANSTALK<sup>™</sup>

The following products are trademarked by their appropriate vendor:

- Audichron<sup>®</sup> is a registered trademark of Audichron Company
- LINX<sup>™</sup> is a trademark of Illinois Tool Works, Inc.
- Music Mate<sup>®</sup> is a registered trademark of Harris Corporation

- PagePac® is a registered trademark of Harris Corporation, Dracon Division
- Shockwatch® is a registered trademark of Media Recovery, Incorporated
- Styrofoam® is a registered trademark of Styrofoam Corporation
- Tiltwatch® is a registered trademark of Media Recovery, Incorporated
- Zone Mate® is a registered trademark of Harris Corporation

## **Standards Compliance**

---

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

- ITU-T (Formerly CCITT)
- ECMA
- ETSI
- IPNS
- DPNSS
- National ISDN-1
- National ISDN-2
- ISO-9000
- ANSI
- FCC Part 15 and Part 68
- EN55022
- EN50081
- EN50082
- CISPR22
- Australia AS3548 (AS/NZ3548)
- Australia AS3260
- IEC 825
- IEC 950
- UL1459
- UL 1950
- CSA C222 Number 225
- TS001

## LASER Product

---

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

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

### CLASS 1 LASER PRODUCT IEC 825 1993



#### **CAUTION:**

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

Contact your Lucent Technologies representative for more information.

## Electromagnetic Compatibility Standards

---

This product complies with and conforms to the following:

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

The “CE” (Conformité Européenne) mark indicates conformance to the European Union Electromagnetic Compatibility Directive (89/336/EEC) Low Voltage Directive (73/23/EEC) and Telecommunication Terminal Equipment (TTE) Directive (91/263/EEC) and with i-CTR3 Basic Rate Interface (BRI) and i-CTR4 Primary Rate Interface (PRI) as applicable. The “CE” mark is applied to the following Release 6 products:

- Global AC powered Multi-Carrier Cabinet (MCC) with 25-Hz and 50-Hz ring generator
- 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
- AC powered Compact Modular Cabinet (CMC) with 25-Hz and 50-Hz ring generator
- Enhanced DC Power System

## Where to Call for Technical Support

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

Region	Phone Number
Streamlined implementation (for missing equipment)	1-800-772-5409
USA/Canada technical service center	1-800-248-1234
Technical service center (INADS database administration)	1-800-248-1111
Asia/Pacific regional support center	65-872-8686
Western Europe/South Africa/Middle East	441-252-774-800
Business Communications Europe	441-252-391-789
Eastern/Central Europe	361-345-4334
Latin/Central America & Caribbean - ITAC	1-303-804-3778
ITAC	1-303-804-3777
DEFINITY Helpline	1-800-225-7585
Lucent Technologies Toll Fraud Intervention	1-800-643-2353
Lucent Technologies Technical Service Center	1-800-242-2121
Lucent Technologies Corporate Security	1-800-822-9009

## 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.*

## Security Issues

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

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

## 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.

<b>Manufacturer's Port Identifier</b>	<b>FIC Code</b>	<b>SOC/REN/ A.S. Code</b>	<b>Network Jacks</b>
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	3.0A	RJ21X
Tie Trunk	TL31M	9.0F	RJ2GX
1.544 Digital Interface	04DU9-B,C	6.0F	RJ48C, RJ48M
1.544 Digital Interface	04DU9-BN,KN	6.0F	RJ48C, RJ48M
120A2 Channel Service Unit	04DU9-DN	6.0F	RJ48C

If the terminal equipment (DEFINITY<sup>®</sup> 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 Adjunct and Peripheral Equipment

# 1

The wiring procedures are similar for most DEFINITY adjunct and peripheral equipment. This section provides wiring examples of these similar procedures. These are examples only and actual wiring procedures may vary at each site.

## Install Auxiliary Equipment

### Console and DCP Terminal Power Supplies

#### Local and Phantom Power

A 302C1 console's maximum distance from the system is shown in [Table 1-1](#).

**Table 1-1. Attendant Console Cabling Distances**

Enhanced Attendant Console (302C1)	24 AWG Wire (0.26 mm <sup>2</sup> )		26 AWG Wire (0.14 mm <sup>2</sup> )	
	Feet	Meters	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**

The nonessential functions of an attendant console, its optional 26B1 selector console, and DCP terminals derive their power from an auxiliary power source. One console can connect to Release 6vs and Release 6 csi, and 3 consoles can connect to each cabinet stack or Release 6r. Each cabinet can derive auxiliary power from the system and through the auxiliary cable located in the trunk/auxiliary field. Auxiliary power for a primary attendant console should be provided through this cable so the console remains fully operational during short power outages.

An attendant console can also derive auxiliary power from:

- Individual 1151A1 or 1151A2 power supply
- 258A-type adapter
- Bulk power supply such as the 1145B

A console's maximum distance from its 1145B auxiliary power source is:

- 800 feet (244 m) for a 302A1
- 350 feet (107 m) for a 301B1 and 302C1

## **External Equipment**

---

The following external equipment represents some of the items that can connect to the DEFINITY ECS System. Contact your Lucent Technologies representative for more information about connecting additional equipment.

### **Queue Warning Indicator**

#### **CONVERSANT<sup>®</sup> Voice Information System**

#### **PC Console**

#### **External Ringing**

The system provides access to a relay contact to operate a customer-provided ringing device. The circuitry and power source are customer-provided.

#### **Asynchronous Data Units**

#### **Data Modules**

Data modules provide an interface to:

- AUDIX
- Customer-provided terminals and computers
- CDR

#### **909A/B universal coupler**

The universal coupler is used when the equipment is not FCC-registered (or equivalent):

- Music-on-hold
- Deluxe queuing
- Loudspeaker paging access
- Recorded telephone dictation trunk
- Recorded announcement systems
- AUX trunk paging (with or without background music)
- Malicious call trace (MCT)

## **Model 15A Announcement System**

The 15A system is FCC-registered and does not require a voice coupler. See the following price element (PEC) codes:

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

## **PagePac Paging System**

Three models are available:

- PagePac D20
- PagePac D100
- PagePac D300

## External Ringing

---

Connections for external ringing are at an information outlet. The system side of the main distribution frame (MDF) is connected to a TN2183 (or equivalent) analog line circuit pack.

### NOTE:

A maximum of three devices can be connected to one analog line circuit pack port.

1. Wire the ringing device to the information outlet.
2. Administer per *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*.

## Queue Warning Indicator

---

The connections for the queue warning indicator are the same as external ringing. An AC indicator (light) such as a 21C49 can be used in a Uniform Call Distribution/Direct Departmental Calling (UCD/DDC) queue.

The light is connected to an information outlet. The system side of the MDF is connected to an analog line circuit pack located in a port carrier.

1. Wire the queue warning indicator to the information outlet.
2. Administer per *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*.

## 1145B Power Supply

---

The 1145B closet power arrangement provides an uninterruptible -48 VDC power source with optional battery and 1145B 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 200 Watts total output. Each output circuit is current limited by a thermistor that limits the maximum output to 12 Watts. Each 1145B output has an LED to indicate the status of the thermistor. If the LED is on, the thermistor has a short on that power pair.

Not all outputs can simultaneously provide 12 Watts. The average power per output cannot exceed 6.25 Watts ( $200/32 = 6.25$ ). 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:

- Any 8520 terminal
- Attendant console 302C1
- PassageWay adapter interface
- Any 7500-series terminal whether in passive bus, or point to point (one per BRI port)
- Any 7500- or 8500-series terminal with an asynchronous data module
- Any 8510 terminal in passive bus or with an asynchronous data module (unless the 8510 will not be used to support data or video)
- Any 6400-series terminal with XM24 expansion module
- Any 7400-series terminal with adjuncts 7407, 74 34 or 7444
- Any 8400-series terminal with adjuncts 8411 or 8434

[Figure 1-1](#) shows how the standard power supply and wall-mounting plates fit together. [Figure 1-2](#) 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.

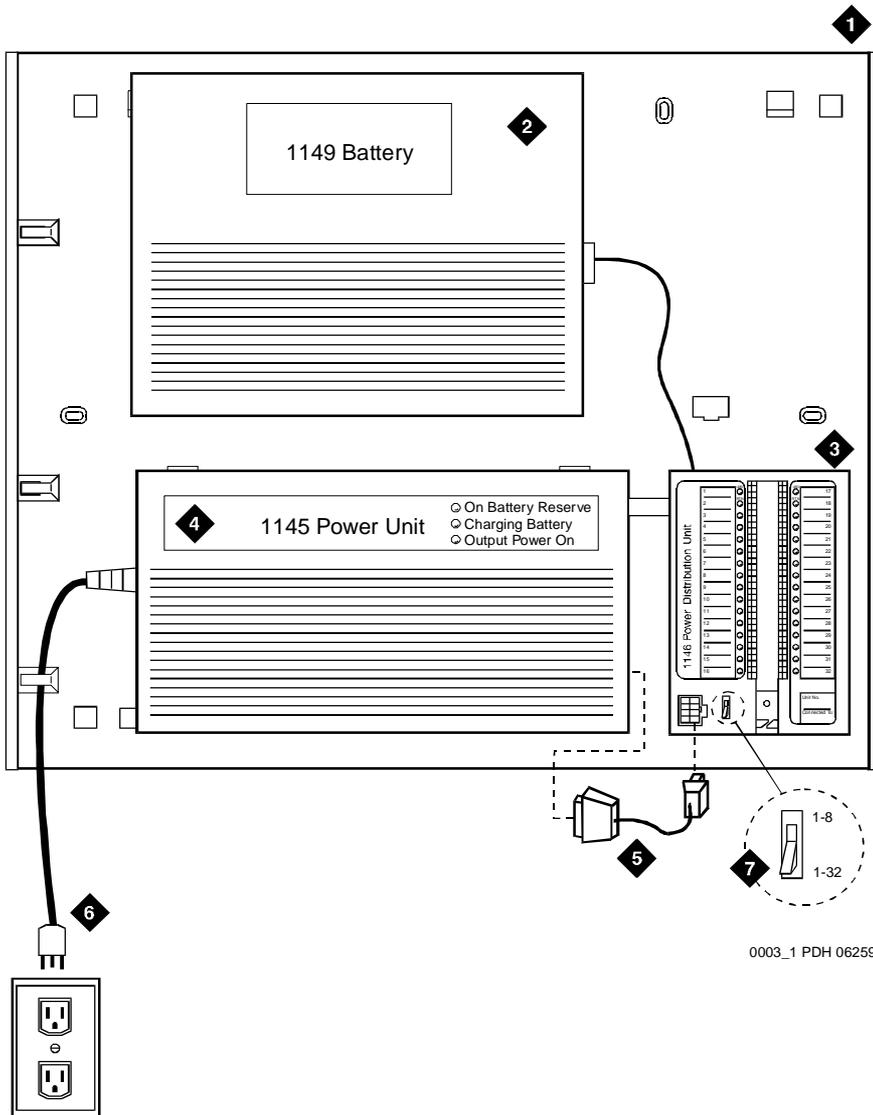
1. Locate one plate directly below the other one such that the AC power cord (6.5 feet or 2 meters) reaches the electrical outlet from a power supply mounted on the bottom plate. Both plates should be located so the raised letters are right side up.



**NOTE:**

A maximum of four power supplies can be powered from one 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 (#12) (1.2 mm) 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            | 5. Power cable  |
| 2. Optional battery (1149B shown) | 6. Unswitched outlet (120 VAC, 20 A or 230 VAC, 15 A) |
| 3. 1146B power distribution unit  | 7. Battery backup switch setting                      |
| 4. 1145B power unit               |   |

Figure 1-1. 1145B/1146B Mounting Arrangement

## Mount the 1146B Power Distribution Unit

---

1. Insert and securely tighten the two supplied #8-32 x 1/2-inch shoulder screws (they have an unthreaded section at the top) into the top holes designated for 1146B Power Distribution Unit on the bottom plate. Mount the unit on these two 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 1-2](#) provides the rating and PEC code of each battery.

**Table 1-2. Back-Up Battery PEC Codes**

---

Battery	Rating	PEC Code
1148B	2.5 Ah	24700
1149B	5 Ah	24701
1147B	8 Ah	24703

---

1. Insert (do not tighten) 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 two 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 200 Watts. The maximum ISDN terminal mixture is twenty four 7500-series and twenty four 8500-series terminals.*

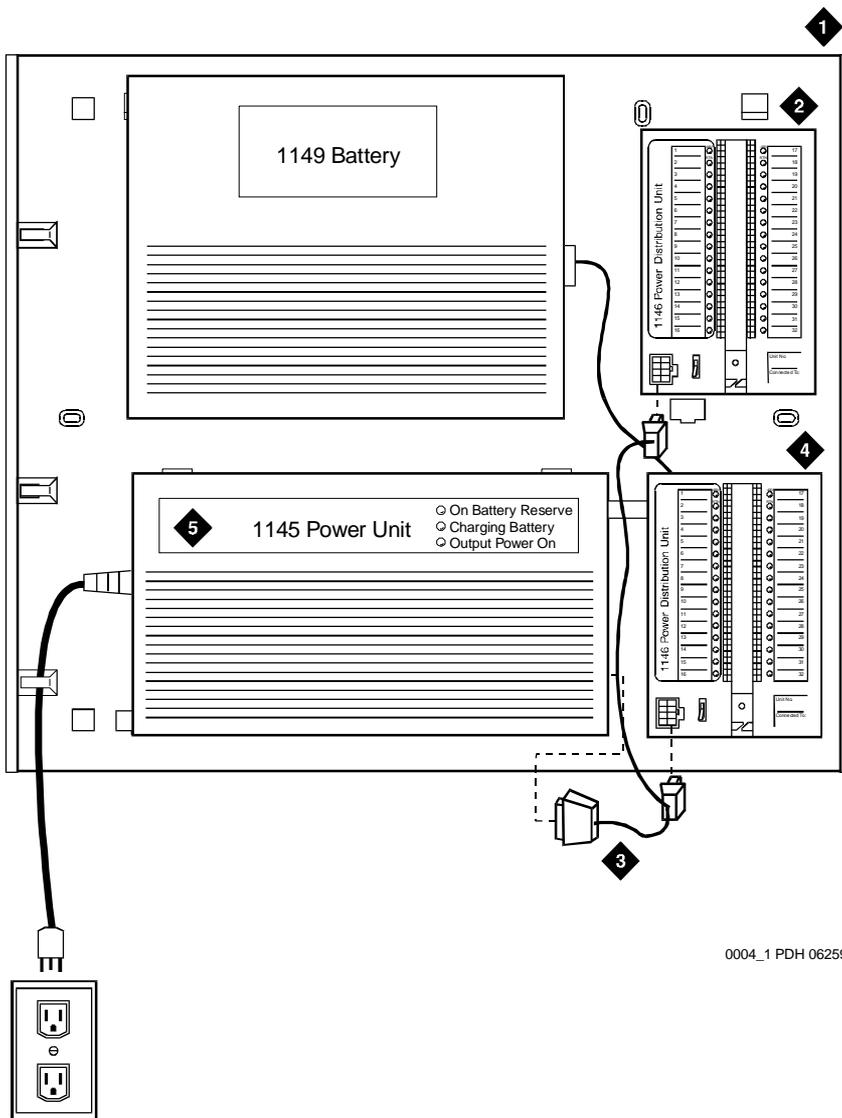
*The maximum DCP terminal mixture is twenty four 7400-series and twenty four 8400-series or sixty four 8400-series terminals. The maximum mixture of 6400-series terminals is 64 if the average power per terminal will not exceed 3.125 W.*

The following items are supplied with each expanded power distribution unit kit:

- a. One 1146B power distribution unit (comcode 107250995)
- b. One "T" cable (comcode 847529872)
- c. Two #8-32 x 1/2-inch shoulder screws
- d. One #8-32 x 1 inch screw
- e. One spacer bracket (comcode 847554441)

Refer to [Figure 1-2](#) 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 the figure 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.



0004\_1 PDH 062596

**Figure Notes**

- 1. Wall-mounting plate
- 2. Optional 1146B power distribution unit
- 3. T cable (H600-347-G7)
- 4. Standard 1146B power distribution unit
- 5. 1145B power unit

**Figure 1-2. Expanded Power Distribution Unit**

## Power Up and Test

---

The following table describes the meaning of the power supply LEDs when lit.

LED Color	Meaning
Green	Power supply is providing power
Yellow	Battery is charging
Red	Power supply is on battery reserve

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 four power supplies can be powered from one dedicated 110 VAC, 20 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 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 20 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.

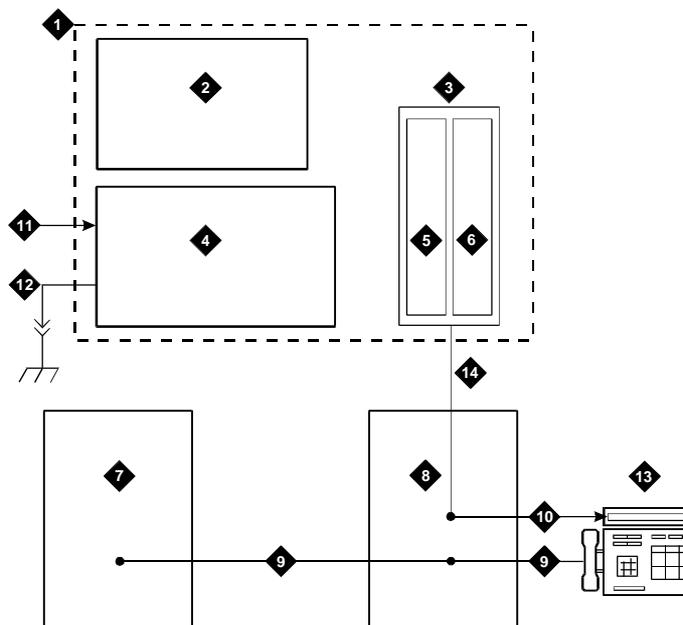
**FAIL:** If either green or red LED is not lit after disconnecting AC power, check the connections. If the connections are good, replace the power unit or batteries.

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 (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 1-3](#)



### Figure Notes

- |   |  |
|---|--|
| 1. Power supply kit                           | 8. MDF                                     |
| 2. 2.5, 5.0, or 8.0 A hour battery (optional) | 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 1-3. Typical Wiring to a Terminal**

2. Mark lead destinations on the label next to each connector. Also mark the unit number and connectivity information on the label.

## 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 four 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 three 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.*

**1** Install Adjunct and Peripheral Equipment  
1145B Power Supply

Page 1-15

- *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 six months old.*

## **1151A and 1151A2 Power Supplies**

---

The 1151A and 1151A2 power supplies comply with the UL Standard UL 1459, second edition. Safety instructions follow the table of certifications.

Complies	UL 1459
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 1151A and 1151A2 Power Supplies

The 1151A and 1151A2 power supplies can be used to supply local power to ISDN-T 6400-, 7500-, 8400-, and 8500-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 A, 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:

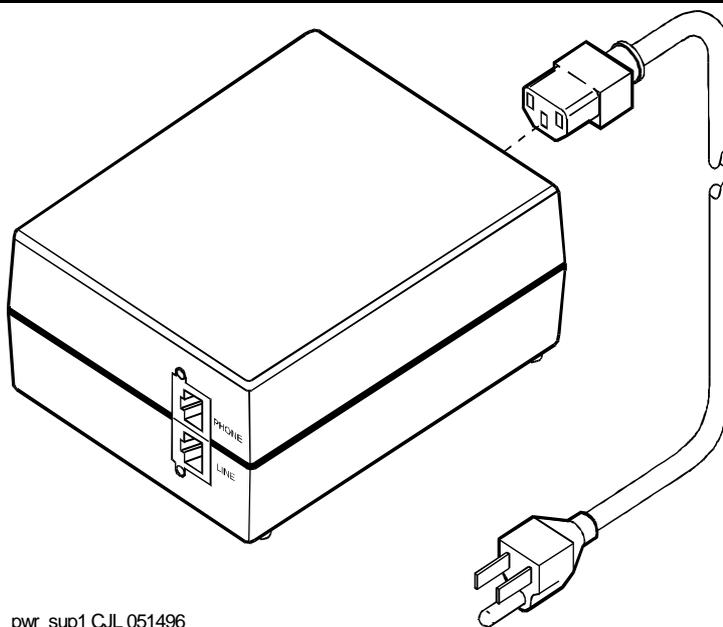
*Do not locate the unit within six inches (15.25 cm) of the floor.*

## Connect the 1151A or 1151A2 Power Supplies

---

The 1151A is a standard (no battery backup) power supply unit. The 1151A2 is a battery backup version of the 1151A. Either power supply can support one 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 1-4](#) shows a 1151A power supply. The 1151A2 looks similar.

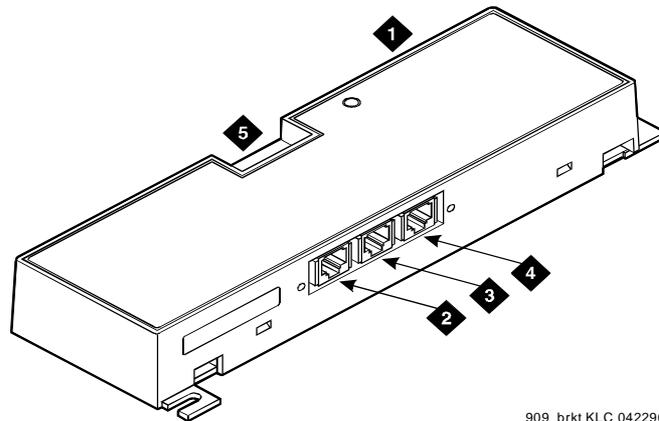


---

**Figure 1-4. Typical 1151A Power Supply (Front)**

## 909A/B Universal Coupler

[Figure 1-5](#) shows a typical 909A/B universal coupler. If the music source is FCC-registered (or equivalent) the 909A/B is not required. For installation and switch setting information, refer to *909A/909B Universal Coupler Installation Instructions*, (Comcode 847369030).



909\_brkt KLC 042296

### Figure Notes

- |                             |                          |
|-----------------------------|--------------------------|
| 1. 909A/B universal coupler | 4. J3 6-Pin modular jack |
| 2. J1 8-Pin modular jack    | 5. DIP switch location   |
| 3. J2 8-Pin modular jack    |                          |

### Figure 1-5. Typical 909A/B Universal Coupler

The 909A is the DC version of the coupler and -48 VDC power is supplied from cabinet power. The 909B is the AC powered version and power is supplied from a separate power supply (such as the KS-22911L2).

The DIP switches on the unit set:

- Protection/Paging selection — For AUX trunk paging and malicious call trace, set to C2. Set the switch to C1 for all other applications.
- Output attenuation (-9 or -15 dBm) — Setting depends on output level of music source.
- Output impedance (8, 1.5k, and 50k Ohms) — This switch only requires setting if the Protection/Paging switch is set to C2 and the coupler is supplying background music to a customer-supplied paging amplifier.

The pinouts for J1, J2, and J3 are provided in [Table 1-3](#), [Table 1-4](#), and [Table 1-5](#). Refer to these tables when connecting music or paging equipment.

**Table 1-3. J1 Pin Assignments (System Connections)**

<b>Pin</b>	<b>Color</b>	<b>Designation</b>	<b>Description</b>
1	White-Orange	—	Not Used
2	Orange	PG2/BZ2	Seizure control lead, connected to -48 VDC from the system or from the 909A/B when the protection paging switch is set to C2, or to -48 VDC on the 909A/B when protection/paging switch is set to C1
3	White-Green	PG1/BZ1	Seizure control lead, connected to SZ lead from the AUX trunk when the protection/paging switch is set to C2, or to -48 VDC on the 909A/B when the protection/paging switch is set to C1
4	Blue	R	Ring lead
5	White-Blue	T	Tip lead
6	Green	BSY2/BY2	Busy/busy-out lead, connected to S1 lead from the AUX trunk
7	White-Brown	BSY1/BY1	Busy/busy-out lead, connected to S lead from the AUX trunk
8	Brown	—	Not Used

**Table 1-4. J2 Pin Assignments (Accessory Connections)**

<b>Pin</b>	<b>Color</b>	<b>Designation</b>	<b>Description</b>
1	White-Orange	CMS1/M1	Customer-supplied music source
2	Orange	CMS2/M2	Customer-supplied music source
3	White-Green	COS1	Remote busy-out control contact closure from music source
4	Blue	CR	Customer ring lead
5	White-Blue	CT	Customer tip lead
6	Green	COS2	Remote busy-out control contact closure from music source
7	White-Brown	CBS1/C1	Seizure indication provided to music source
8	Brown	CBS2/C2	Seizure indication provided to music source

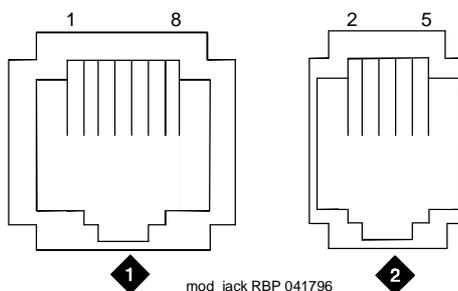
**CAUTION:**

Damage to the 909A/B may occur if the cable is plugged into J3 **before** all cross-connects are completed.

**Table 1-5. J3 Pin Assignments (Power Connections)**

Pin	Color	Designation	Description
1, 3, 4, & 6	—	—	Not used
2	Black	GRD	-48 RET or ground lead from system or from positive lead of power supply
5	Yellow	-48 VDC	-48 VDC from system or from negative lead of power supply

Figure 1-6 shows the physical locations of the pins for J1, J2, and J3.



**Figure Notes**

- 1. J1 and J2 8-Pin modular jacks
- 2. J3 6-Pin modular jack

**Figure 1-6. Typical Modular Jack Pinout**

## Loudspeaker Paging and Music-on-Hold

---

The loudspeaker paging feature provides a connection from a TN763B/C/D auxiliary trunk circuit pack (or equivalent) to a customer-supplied paging amplifier. The music-on-hold feature provides a connection from a TN2183 analog line circuit pack (or equivalent) or auxiliary trunk circuit pack to a customer-supplied music source.

### Loudspeaker Paging without Paging Adapter

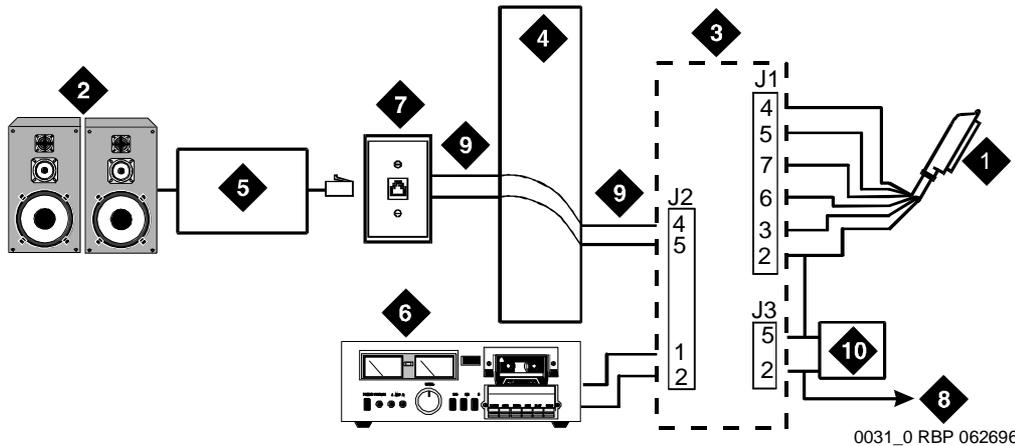
[Figure 1-7](#) shows the connections for the loudspeaker paging feature. These connections are used when the loudspeaker interface equipment is not located in the equipment room. If the equipment is located in the equipment room, the information outlet is not required. The connections shown are for one zone.

[Figure 1-7](#) shows connections from the music source to the loudspeaker system through a paging amplifier. The figure also shows connections to the loudspeaker system through a 909A/B coupler. A wiring block must be locally engineered.

#### NOTE:

If the loudspeaker paging system provides a talk-back microphone at the speakers, the microphone must be FCC approved (or equivalent) or a 909A/B universal coupler is required.

Refer to the tables at the end of this chapter for pinouts of the auxiliary trunk circuit pack.



### Figure Notes

- |   |  |
|---|--|
| 1. 25-pair cable to TN763B/C/D auxiliary trunk circuit pack (SZ1 connects to GRD on key 10) | 5. Paging amplifier                                    |
| 2. Loudspeaker system   | 6. Music source for background music over loudspeakers |
| 3. 909A/B universal coupler (if required)   | 7. 103A or modular wall jack                           |
| 4. Part of MDF circuits 1-16  | 8. To SZ1 on TN763 connector                           |
|   | 9. Tip and ring wires                                  |
|   | 10. -48 VDC power supply for 909B                      |

Figure 1-7. Connections for Loudspeaker Paging

## **Loudspeaker Paging Access (Without Universal Coupler)**

---

1. Determine port assignment of paging zone(s) from loudspeaker paging form.
2. At the MDF, locate the connecting block and terminals assigned to the selected port.
3. On the locally engineered wiring block, place a strap between terminals S and SZ. Place a strap between terminals S1 and SZ1.
4. Install patch cord/jumper wires at the MDF.
5. Connect a 2-pair line cord (modular plug at one end) from the information outlet to the paging amplifier (to the loudspeaker system).
6. Install loudspeaker equipment per the manufacturer's instructions.
7. Administer per *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*.

## **Loudspeaker Paging with Universal Coupler**

---

Access to loudspeaker paging is provided by an information outlet. The system side of the MDF is connected to a 909A/B universal coupler. Provisions must be made for obtaining the DC power required by the 909A/B universal coupler. An 1151A, 1151A2, or other approved -48VDC power supply can be used.

Six leads (T, R, SZ, SZ1, S, and S1) connect the adapter to an auxiliary trunk circuit pack located in a port carrier.

1. Determine port assignment of paging zone(s) from loudspeaker Paging form.
2. Identify carrier slot and label both ends of an A25D (male to male) cable.
3. Connect a cable from the 909A/B to the system side of the MDF. A wiring block must be locally engineered.
4. Refer to [Table 1-3](#), [Table 1-4](#) and [Table 1-5](#) to make connections from the 909A/B universal coupler to the wiring blocks.



### **CAUTION:**

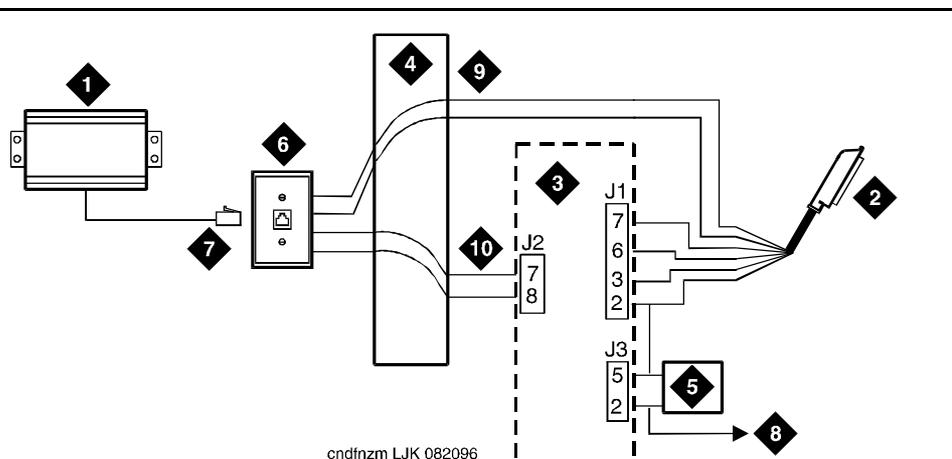
*Damage to the 909A/B may occur if the cable is plugged into J3 before all cross-connects are completed.*

5. On the 909A/B universal coupler:
  - Connect seizure control voltage of from -9 to -60 Volts to the PG2/BZ2 connection (pin 2 of J1). Switching voltage to the PG2/BZ2 connection can be from the 909's -48 Volt supply.
  - Connect a -48 VDC power source to the -48 and GRD terminals on the 909A/B.
6. Install patch cord/jumper wires at the MDF.
7. Connect a 2-pair line cord (modular plug at one end) from the information outlet to the loudspeaker system.
8. Install loudspeaker equipment per the manufacturer's instructions.
9. Connect an approved -48 VDC power source to the **-48** and **GRD** terminals (pins 5 and 2, respectively, of J3).
10. Administer per *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*.

## PagePac Plus Paging System

### PagePac D20

The PagePac D20 is a 20 watt amplicenter and controller that can be used alone or with a zone expansion unit to provide multiple paging zones. If the PagePac D20 amplicenter and controller are used alone, a 909A/B universal coupler is required. See [Figure 1-8](#).



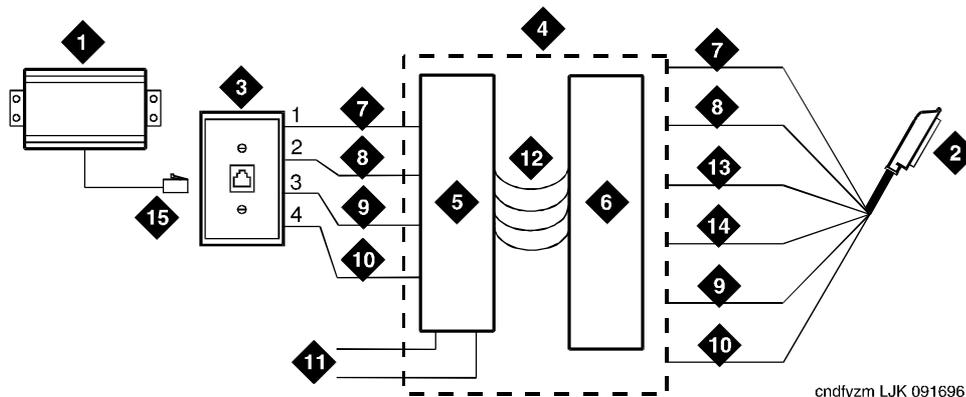
#### Figure Notes

- |   |                              |
|---|------------------------------|
| 1. PagePac D20 amplicenter and controller                                     | 6. 103A or modular wall jack |
| 2. 25-pair cable to TN763 auxiliary trunk circuit pack (T, R, S, S1, SZ, SZ1) | 7. 4-pair modular cord       |
| 3. Universal coupler  | 8. To SZ1 on TN763 connector |
| 4. Part MDF   | 9. Tip and ring wires        |
| 5. Power supply for universal coupler   | 10. CBS1/C1 and CBS2/C2      |

**Figure 1-8. Connections for PagePac 20 Without Zone-Mate**

- A wiring block must be locally engineered if a 909A/B is used.

Figure 1-9 shows a PagePac D20 amplicenter and controller with a zone expansion unit incorporated into the PagePac D20. The 909A/B is not required when a zone expansion is installed.



cnfyzm LJK 091696

### Figure Notes

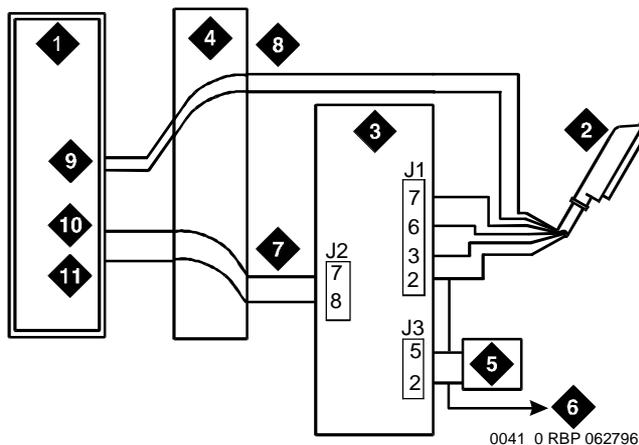
- |   |  |
|---|--|
| 1. PagePac D20 controller<br>(With zone expansion unit)             | 8. Ring (red)                                  |
| 2. B25A 25-pair cable to TN763B/C/D<br>auxiliary trunk circuit pack | 9. S   |
| 3. 103A or modular wall jack  | 10. S1   |
| 4. Part of MDF  | 11. SZ and SZ1 are not used on station<br>side |
| 5. Station side (yellow field)                                      | 12. 110P6A patch cord or jumpers               |
| 6. System side  | 13. SZ   |
| 7. Tip (green)  | 14. SZ1  |
|   | 15. 4-pair modular cord                        |

Figure 1-9. Connections for PagePac 20 With Zone-Mate

- A wiring block must be locally engineered.

## PagePac 20/100/300

The 20/100/300 PagePac paging system can be wall-mounted. The unit provides three output wattages: 20, 100 and 300. See [Figure 1-10](#). If the PagePac 20/100/300 amplicenter is used alone, a 909A/B universal coupler is required.



### Figure Notes

- |   |                              |
|---|------------------------------|
| 1. PagePac 20/100/300 system  | 6. To SZ1 on TN763 connector |
| 2. 25-pair cable to auxiliary trunk circuit pack (T, R, S, S1, Sz, SZ1) | 7. CBS1/C1 and CBS2/C2       |
| 3. 909A/B universal coupler   | 8. Tip and ring wires        |
| 4. Part of MDF  | 9. Page in connections       |
| 5. Power supply for universal coupler                                   | 10. Music/page connection    |
| 11. Signal ground connection  |                              |

**Figure 1-10. Connections for PagePac 20/100/300 System**

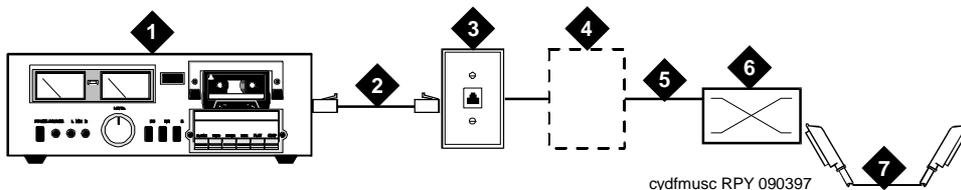
- A wiring block must be locally engineered.

## Music-on-Hold, Dial Dictation, or Recorded Announcement Access

[Figure 1-11](#) shows the connections for music-on-hold, dial dictation, or recorded announcement features when the music source is Federal Communications Commission (FCC) registered (or equivalent). [Figure 1-12 on page 1-31](#) shows the connections when the music source is not FCC-registered (or equivalent).

### NOTE:

Use the following connection instructions when the music source is not located in the equipment room. If the music source is located in the equipment room, do not route the connections through the information outlet.



### Figure Notes

- |  |  |
|--|--|
| 1. Music source                                      | 5. Tip (green) and ring (red)  |
| 2. 4-pair modular cord                               | 6. Part of MDF   |
| 3. 103A or modular wall jack                         | 7. A25D 25 pair cable (male-to-male) to auxiliary trunk circuit pack |
| 4. 122A music adapter (if required) primarily france |  |

### Figure 1-11. Typical Registered Equipment Connections (Auxiliary Access)

1. If the music source is registered, the system side of the MDF connects directly to the system.
2. If the music source is not registered, the system side of the MDF connects to a 909A/B universal coupler.

## **Registered Music Source**

---

Refer to [Figure 1-11](#) to install a registered music source.

1. Determine feature port assignment from Feature-Related System Parameters Form.
2. Install music source per the manufacturer's instructions.
3. Install patch cord/jumper wires at the MDF.
4. Administer per *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*.

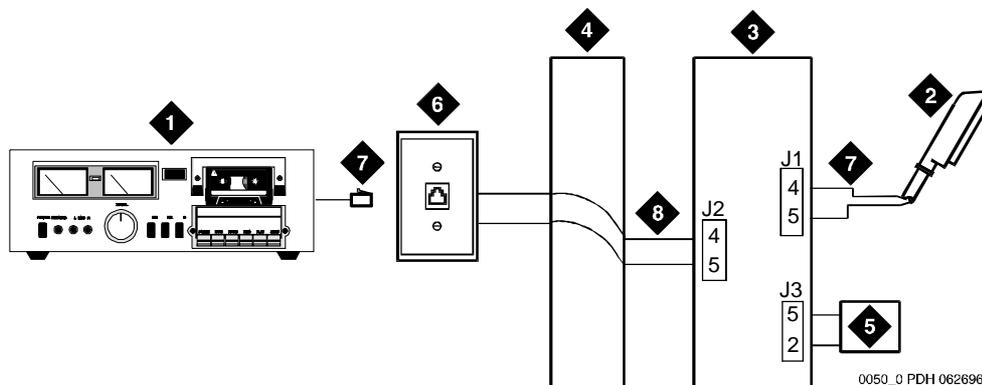
## **Non-Registered Music Source**

---

Refer to [Figure 1-12](#) to install a non-registered music source.

1. Determine feature port assignment from feature-related system parameters form.
2. Install the music source per the manufacturer's instructions.
3. Connect a cable from the assigned port carrier slot to J1 on the 909A/B. A wiring block must be locally engineered.
4. At the 909A/B universal coupler:
  - Connect the T-lead at pin 5 and the R-lead at pin 4 of J1 on the 909A/B to the corresponding leads from the TN2183
  - Connect the CT-lead at pin 5 and the CR-lead at pin 4 of J2 on the 909A/B to the MDF
  - Install patch cord/jumper wires at the MDF to connect tip and ring to the information outlet at the music source
  - Set the Protection/Paging switch to C1
5. Connect a modular cord from the information outlet to the music source.
6. Connect -48V to pin 5 and -48V RET to pin 2 of J3 on the 909A/B. The power source may be an 1151A, 1151A2, or other approved power supply.
7. Administer per *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*.

Figure 1-12 shows a system connecting to a non-registered customer-supplied music source via auxiliary access.



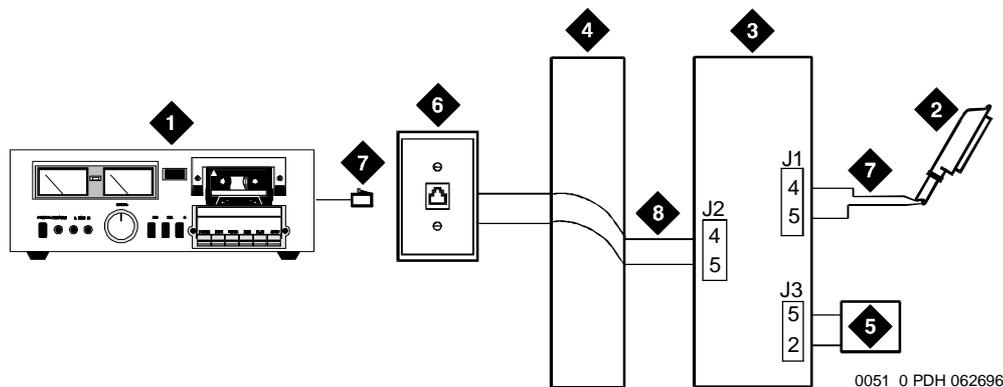
### Figure Notes

- |   |                                       |
|---|---------------------------------------|
| 1. Customer-supplied music Source                     | 5. Power supply for universal coupler |
| 2. A25D 25-pair cable to auxiliary trunk circuit pack | 6. 103A or modular wall jack          |
| 3. 909A/B universal coupler                           | 7. 4-pair modular cord                |
| 4. Part of MDF  | 8. Tip and ring wires                 |

### Figure 1-12. Typical Non-Registered Equipment Connections (Auxiliary Access)

- A wiring block must be locally engineered.

Figure 1-13 shows a system connecting to a non-registered customer-supplied music source via an analog line.



### Figure Notes

- |  |                                       |
|--|---------------------------------------|
| 1. Customer-supplied music Source            | 5. Power supply for universal coupler |
| 2. 25-pair cable to analog line circuit pack | 6. 103A or modular wall jack          |
| 3. 909A/B universal coupler                  | 7. 4-pair modular Cord                |
| 4. Part of MDF                               | 8. Tip and ring wires                 |

Figure 1-13. Connections to Non-Registered Music-on-Hold via Analog Line

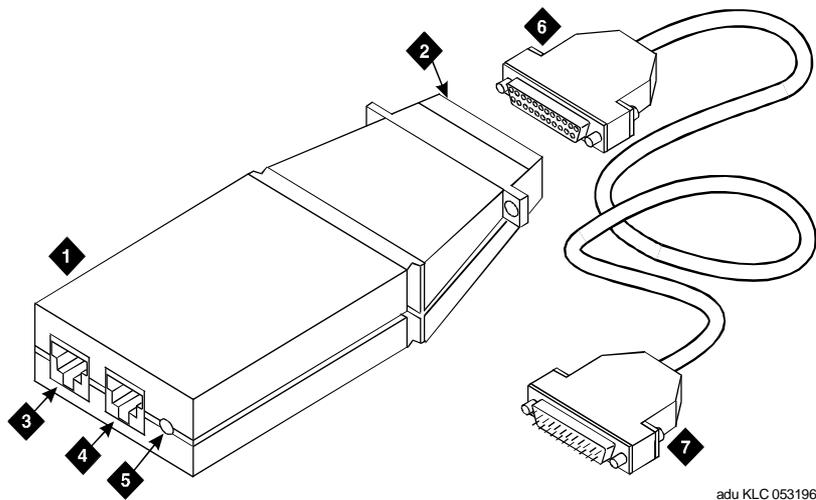
- A wiring block must be locally engineered.



3. Connect the SZ, SZ1, S, and S1 leads from the 909A/B to an auxiliary trunk circuit pack.
  - a. Tip and ring connect from the voice recorder to the auxiliary trunk circuit pack (J1 on the 909A/B).
  - b. CBS1/C1 and CBS2/C2 connect from the voice recorder to J2 on the 909A/B.
4. On the 909A/B universal coupler:
  - a. Connect seizure control voltage of from -9 to -60 Volts to the PG2/BZ2 connection (pin 2 of J1). Switching voltage to the PG2/BZ2 connection can be from the 909A/B -48 VDC supply.
  - b. Connect SZ1 to the ground lead of the DC power source used for PG2/BZ2.
  - c. Set S1 to the "C2" position. Set S2 position 6 to "OPEN".
  - d. Connect an approved -48 VDC power source to the **-48** and **GRD** terminals (pins 5 and 2, respectively, of J3 on the 909A/B).
5. Administer per *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*.

## Asynchronous Data Units

Figure 1-15 shows a typical Z3A2 ADU assembly (without a cable). Add a female to male EIA-232 cable (shown) to make a Z3A1 ADU assembly. Add a female to female EIA-232 cable (not shown) to make a Z3A4 ADU assembly.



### Figure Notes

1. Z3A2 ADU
2. 25-pin male D-connector (EIA-232-D) to DTE
3. Wall jack connector (To data line circuit pack or analog line circuit pack or equivalent)
4. Telephone jack (to analog telephone)
5. Originate/disconnect jack
6. Female connector on EIA-232-D cable
7. Male connector on EIA-232-D cable

### Figure 1-15. Z3A2 Asynchronous Data Unit (ADU)

Refer to the tables at the end of this chapter for the pinouts of the data line circuit pack (TN726) and TN2183 analog line circuit pack (or equivalent) in the cabinet.

## Data Modules

### 7400A/B/C/D and 8400B Plus Data Modules

The interface between the system and many types of data equipment is provided by a data module connected to a digital line circuit pack (such as a TN754B). The following types of equipment can be connected by a data module:

- AUDIX adjunct
- AUDIX terminal
- System printer or journal printer
- Customer-supplied terminals and host computers
- Call detail recording (CDR) devices

### Data Module Types

[Figure 1-16](#) shows the front and rear of a 7400A asynchronous data module. This unit is used for connecting data processing or DCE equipment (such as modem pooling) to the system. The 7400A does not provide voice functions. The options for the 7400A are set from the front panel interface. Refer to *7400A Data Module User's Manual*, 555-020-706, for procedures.

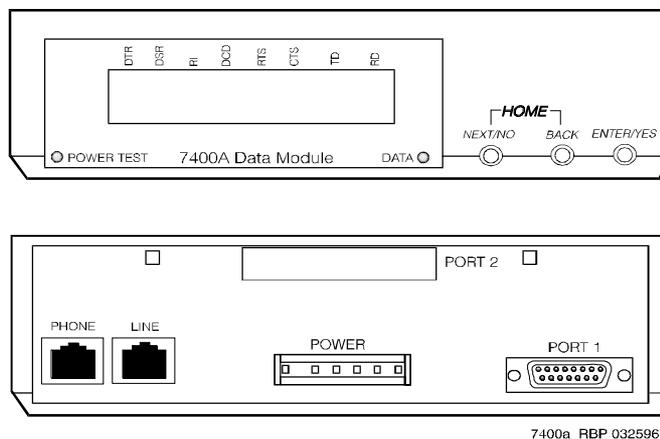
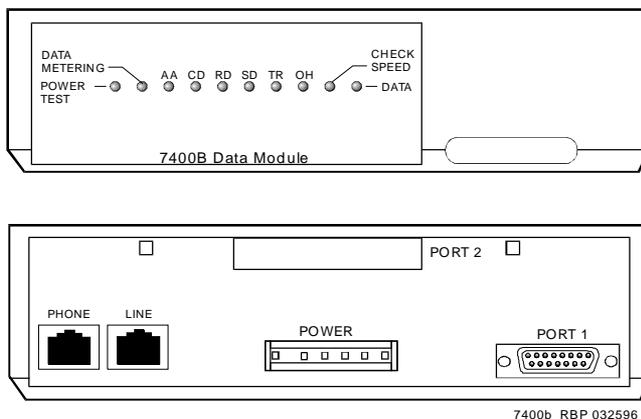


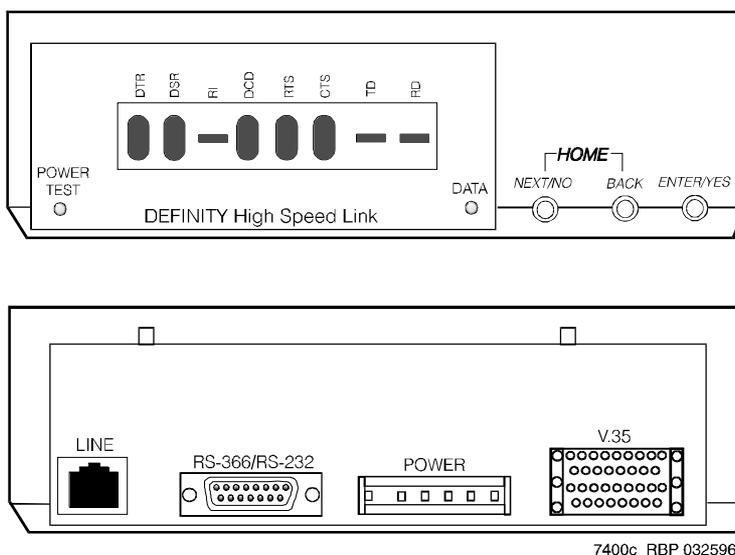
Figure 1-16. 7400A Data Module

[Figure 1-17](#) shows the front and rear of a 7400B asynchronous data module. An EIA-232-D standard interface connects voice terminals and 602A1 Callmaster voice terminals to the 7400B. A standard DCP interface connects the 7400B to the system. Refer to *AT&T 7400B Data Module User's Guide*, 555-020-707, before installing the unit.



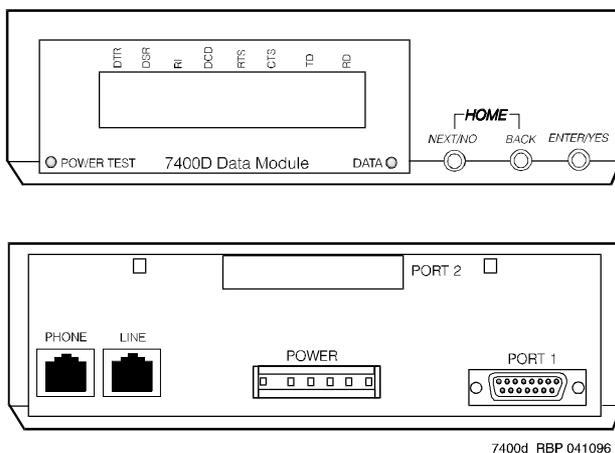
**Figure 1-17. 7400B Data Module**

[Figure 1-18](#) shows the front and rear of a 7400C synchronous data module. Use the 7400C for video conferencing, group 4 FAX, and LAN interconnect. The options for the 7400C are set from the front panel interface. Refer to *DEFINITY Communications System High Speed Link User's Guide*, 555-020-711, for procedures.



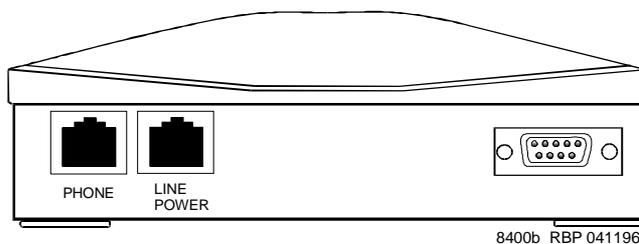
**Figure 1-18. 7400C Data Module (High Speed Link)**

[Figure 1-19](#) shows the front and rear of a 7400D Synchronous data module. 7400D is a full duplex 4-wire unit for the DCP environment. The 7400D can be used in DEFINITY AUDIX, call management system (CMS), and distributed communications system (DCS) low speed synchronous data applications. The options for the 7400D are set from the front panel interface. Refer to *AT&T 7400D Data Module User's Guide*, 555-020-712, for procedures.



**Figure 1-19. 7400D Data Module**

[Figure 1-20](#) shows the rear of a 8400B plus asynchronous data module. The unit provides integrated voice and data communications over standard twisted-pair wiring. The unit can emulate a Hayes-compatible interface for standard personal computer (PC) communication. The options for the 8400B Plus are set from the rear panel interface. Refer to *DEFINITY Communications System User's Guide*, 555-020-709, for procedures.



**Figure 1-20. 8400B Plus Data Module**

Figure 1-21 shows the front and rear of a 7500B ISDN data module. The unit is intended for connecting DTE and DCE equipment to the ISDN network. The 7500 supports EIA-232C and V.35 interfaces and RS-366 automatic calling unit. The 7500 has no voice functions.

The options for the 7500 are set from the front panel interface. Refer to *Integrated Services Digital Network (ISDN) 7500B Data Module User's Manual*, 555-021-717, for detailed procedures.

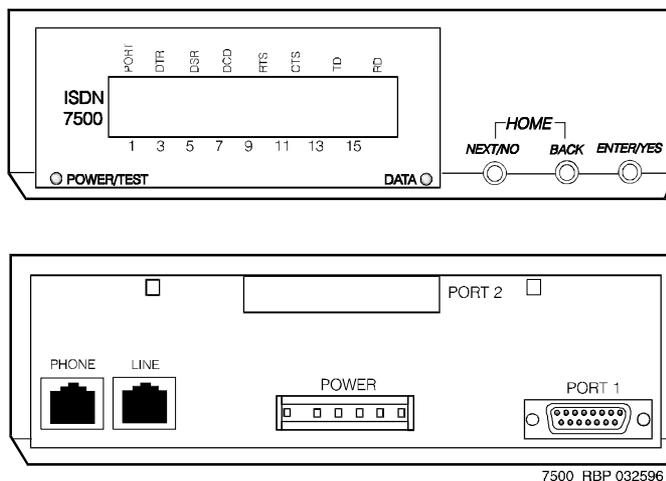
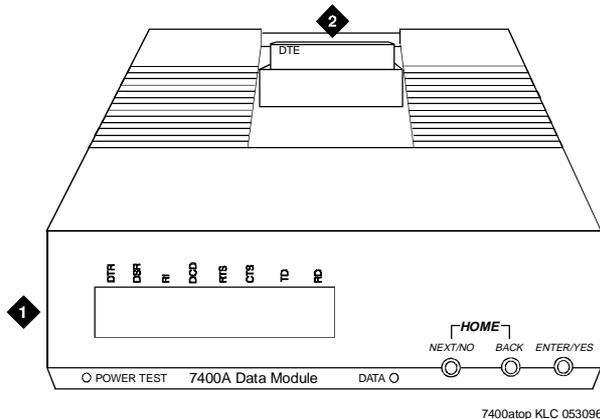


Figure 1-21. 7500B ISDN Data Module

## Mode Selection

The data modules can be set for either DCE or DTE mode by changing the position of the Electronic Industries Association (EIA) connector board inside each unit. See [Figure 1-22](#).



### Figure Notes:

1. data module (7400A Shown)
2. EIA Connector Board (Shown in “DTE” Mode)

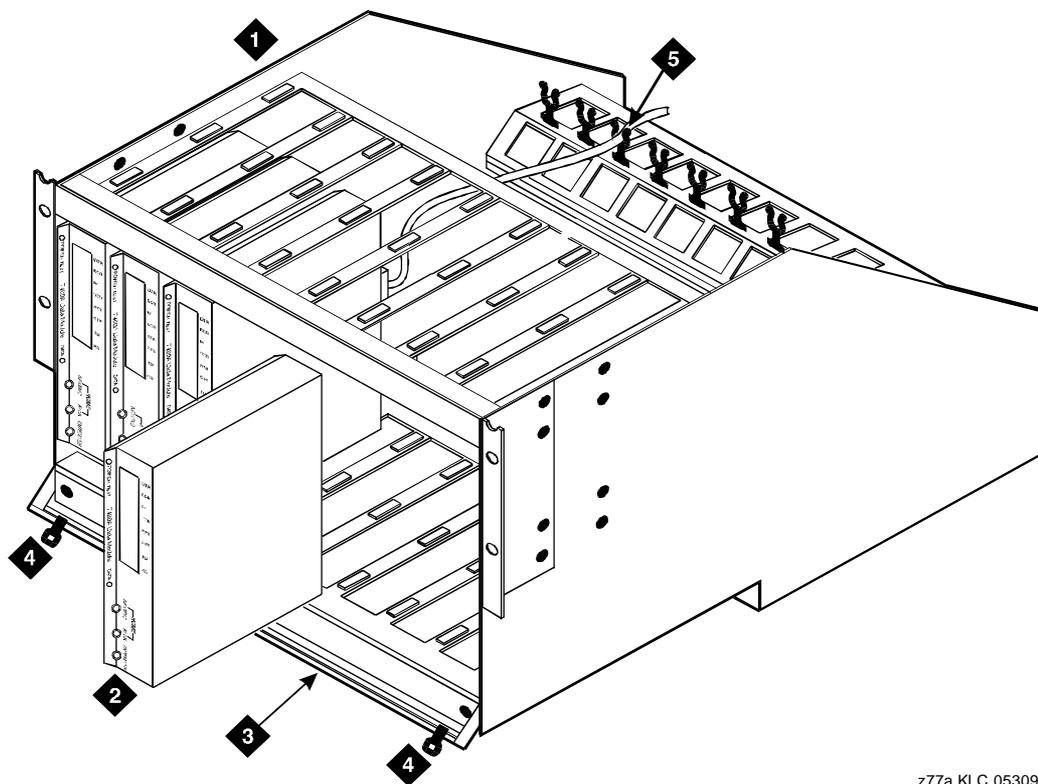
### Figure 1-22. Data Module Mode Selector

The units are factory-set to “DCE.” To change the mode:

1. Insert the tip of a pen into one of the small holes on the rear of the unit, near the label. Do not use a pencil.
2. Push the tab inward while pulling up on that side of the top cover. Repeat for the opposite side.
3. Remove the top cover. Check the position of the EIA connector board mounted vertically in the unit. If the “DTE” is facing the front, the unit is operating in DTE mode. If the “DCE” is facing the front, the unit is operating in DCE mode.
4. To change the mode, remove the board by grasping it and pulling it gently upward. Position the board so the desired mode is facing the front of the data module.
5. Press the board gently back into the holder.
6. Place the top cover back onto the unit and snap it into place.

## Install Data Modules Into Data Mounting

Up to eight data modules can be mounted in a Z77A data mounting. See [Figure 1-23](#). To install the data modules, perform the following:



z77a KLC 053096

### Figure Notes

- |                              |                               |
|------------------------------|-------------------------------|
| 1. Z77A data mounting        | 4. Retaining bar plunger      |
| 2. Data module (7400A shown) | 5. Twist-lock cable retainers |
| 3. Retaining bar             |                               |

### Figure 1-23. Z77A Data Mounting

1. From the data module Form, determine the port assignment of each data module. Set the operating mode of each unit to either DTE or DCE.
2. At the front of the data mounting, pull out the left and right plungers holding the horizontal retaining bar. Pull the retaining bar out and down.
3. Connect the supplied RS-232 cable to the 25-pin connector on the rear of the data module.

4. Route the cable through the data mounting and through the twist-lock cable retainer on the top of the data mounting. The cable is attached to DTE or DCE (Key 6 in [Figure 1-24](#)).
5. Insert the data module vertically into the data mounting. Be sure the display is to the top of the data mounting.
6. Repeat Steps 2 through 5 for each data module.
7. Return the horizontal retaining bar to its original position to secure the data modules inside the data mounting.

A data module must be connected to data equipment by an A25D/B25A cable and through the MDF to a digital line circuit pack (such as a TN754B). The following sections detail these connections.

## Data Module Equipment Connections



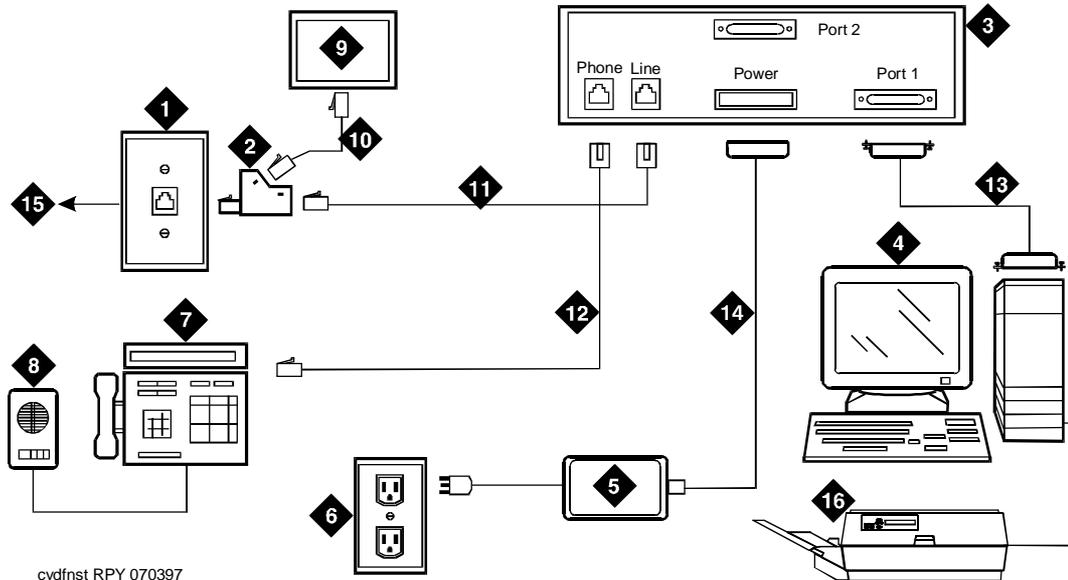
### **CAUTION:**

*In DC-powered cabinet installations, a 105C Isolator adapter is required when connecting equipment to a data module.*

The following three figures, [Figure 1-24](#), [Figure 1-25](#), and [Figure 1-26](#) respectively, show typical connections for 7400A, 7400B, and 8400B data modules.

## 7400A Data Module

Typical connections between a 7400A data module and the associated host computer call management system (CMS) interface are shown in [Figure 1-24](#).



cydfnst RPY 070397

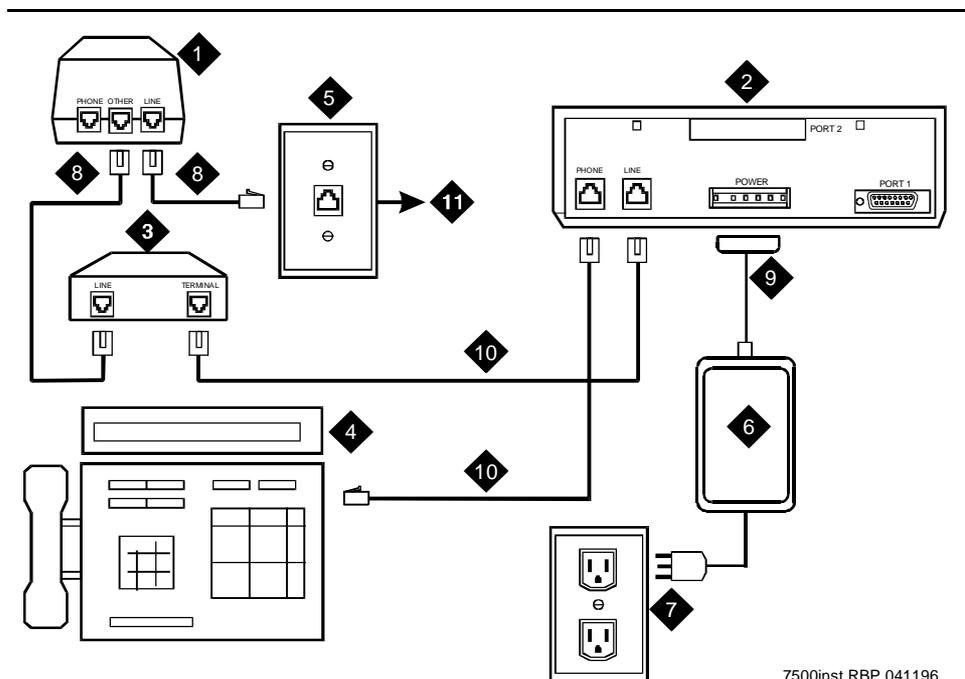
### Figure Notes

- |  |  |
|--|--|
| 1. 103A or modular wall jack                             | 10. D6AP cord  |
| 2. 400B2 adapter   | 11. D8W cord   |
| 3. Rear of data module (7400B Shown)                     | 12. Line to display telephone (D8W cord)                   |
| 4. Host computer   | 13. Electronic industries association (EIA) cable          |
| 5. Data module power supply                              | 14. Power cable (from data module power supply)            |
| 6. Electrical outlet                                     | 15. To MDF and digital line circuit pack in system cabinet |
| 7. Display telephone                                     | 16. Printer  |
| 8. S101A speakerphone                                    |  |
| 9. Auxiliary power supply for telephone and speakerphone |  |

Figure 1-24. Typical Connections to a 7400A Data Module

## 7500B Data Module

Typical connections between a 7500B data module and the associated equipment interface are shown in [Figure 1-25](#).



7500inst RBP 041196

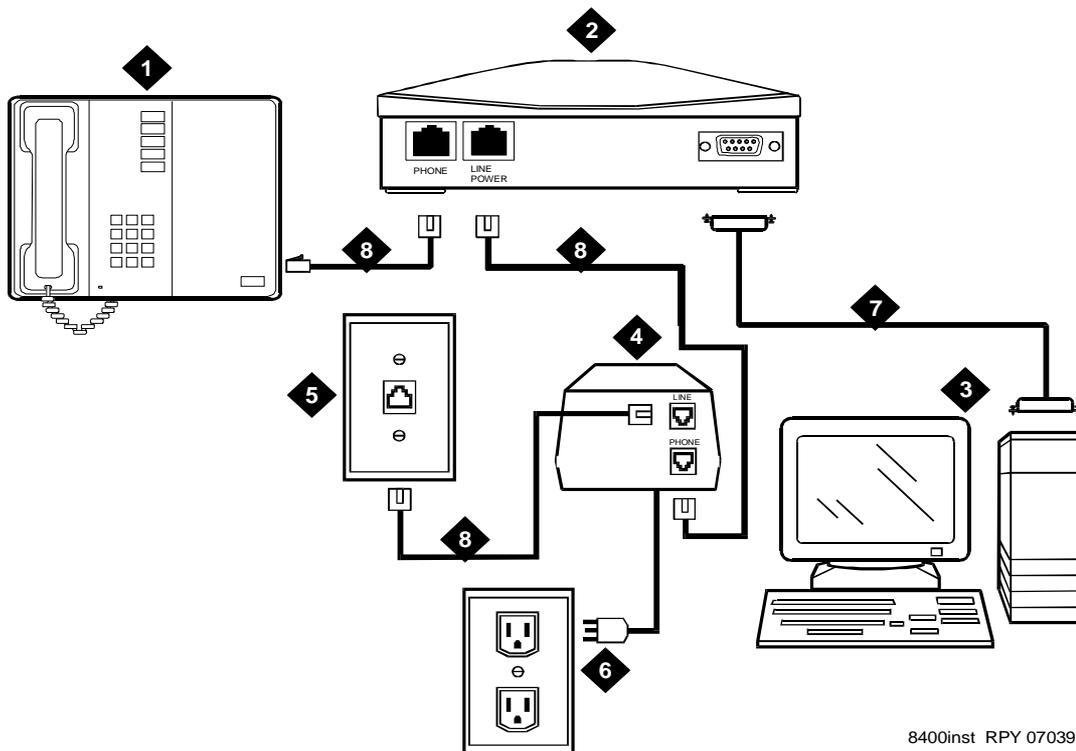
### Figure Notes

- |                                       |  |
|---------------------------------------|--|
| 1. MSP-1 power supply (or equivalent) | 7. Electrical outlet                                   |
| 2. Rear of data module (7500B shown)  | 8. D6AP cord   |
| 3. NT1 network interface              | 9. Power cable (from data module power supply)         |
| 4. ISDN display telephone             | 10. D8W cord   |
| 5. 103A or modular wall jack          | 11. To BRI line circuit pack in system cabinet via MDF |
| 6. Data module power supply           |  |

**Figure 1-25. Typical Connections to a 7500B Data Module**

## 8400B Plus Data Module

Typical connections between a 8400B Plus data module and the associated equipment are shown in [Figure 1-26](#).



8400inst RPY 070397

### Figure Notes

- |   |   |
|---|---|
| 1. 2-wire DCP telephones                        | 5. 103A or modular wall jack                        |
| 2. Rear of 8400B plus data module               | 6. Electrical outlet                                |
| 3. Host computer                                | 7. EIA-232-D cable (use M9/F25 adapter if required) |
| 4. 1151A or 1151A2 power supply (or equivalent) | 8. D8W cord   |

Figure 1-26. Typical Connections to a 8400B Plus Data Module

## CallVisor ASAI Over the DEFINITY LAN Gateway R2 (J58890MA-1)

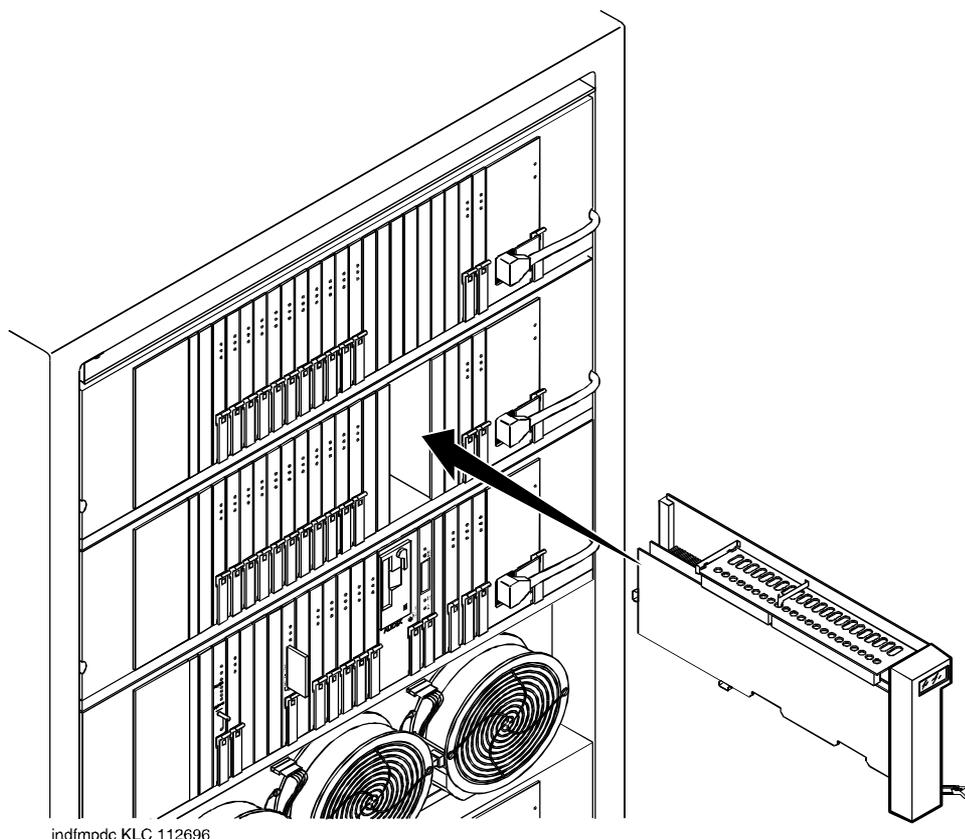
---

The J58890MA-1 platform (unit) is a processor carrier connected to a DEFINITY circuit pack that allows direct integration of PC-based applications into DEFINITY port slots. The unit provides connection between the applications and 10 base-T Ethernet LANs. The platform is based on industry-standard interfaces and busses and accommodates industry-standard PC subsystems such as pentium processors and peripheral devices such as ISA/PCI expansion boards.

The platform also connects industry-standard peripheral devices with DEFINITY busses and system interfaces. Embedded applications on the platform can run in either native or non-native mode, depending on application.

The J58890MA-1 installs in 3 adjacent slots and provides a direct connection between a DEFINITY LAN gateway R2 system and an ethernet LAN for transport of ASAI links.

---



indfmpdc KLC 112696

**Figure 1-27. Typical CallVisor Installation**

Install the CallVisor ASAI as follows:

1. Insert the circuit pack into any contiguous 3 port slots.  
See [Figure 1-27](#).
2. All electrical connections to customer-provided hardware or network systems are made from the rear of the carrier. Attach the 25-pair connector on the supplied adapter cable (H600-475 G2) to the backplane connector associated with the parent circuit pack slot.
3. The following equipment connections are possible:
  - RS-232 for a modem
  - RS-232 for a Personal Computer (PC)
  - Ethernet 10BASE-T
  - DCIU RS-232

## Equipment Connections

1. Route the adapter cable to the customer-provided equipment. See [Table 1-6](#) for the adapter cable pinout.

**Table 1-6. Adapter Cable Pinout**

<b>Pin</b>	<b>Color</b>	<b>Designation</b>	<b>Pin</b>	<b>Color</b>	<b>Designation</b>
26	W-BL	N/A	01	BL-W	N/A
27	W-O	N/A	02	O-W	N/A
28	W-G	N/A	03	G-W	N/A
29	W-BR	Ethernet RD+	04	BR-W	Ethernet RD-
30	W-SL	N/A	05	SL-W	N/A
31	R-BL	DCIU TT	06	BL-R	N/A
32	R-O	DCIU DSR	07	O-R	DCIU DTR
33	R-G	DCIU TD	08	G-R	DCIU CTS
34	R-BR	TERM GRD	09	BR-R	DCIU TC
35	R-SL	TERM TD	10	SL-R	TERM RD
36	BK-BL	RS-232 DSR	11	BL-BK	RS-232 DCD
37	BK-O	RS-232 TX	12	O-BK	RS-232 DTR
38	BK-G	N/A	13	G-BK	N/A
39	BK-BR	N/A	14	BR-BK	N/A
40	BK-SL	N/A	15	SL-BK	N/A
41	Y-BL	Ethernet TD+	16	BL-Y	Ethernet TD-
42	Y-O	N/A	17	O-Y	N/A
43	Y-G	DCIU RI	18	G-Y	DCIU DCD
44	Y-BR	DCIU SG	19	BR-Y	DCIU RTS
45	Y-SL	DCIU RC	20	SL-Y	DCIU RD
46	V-BL	TERM CTS	21	BL-V	TERM DCD
47	V-O	RS-232 RI	22	O-V	TERM RTS
48	V-G	RS-232 GRD	23	G-V	RS-232 CTS
49	V-BR	RS-232 RTS	24	BR-V	RS-232 RX
50	V-SL	N/A	25	SL-V	N/A

- 1 Install Adjunct and Peripheral Equipment  
*CallVisor ASAI Over the DEFINITY LAN Gateway R2 (J58890MA-1)*

*Page 1-49*

2. Connect the appropriate end of the cable to the customer-provided equipment. Refer to the equipment manufacturer's instructions.

## **Administration**

1. At the management terminal, enter **add station-next** and press Enter. Change the `Extension Type:` field to `MAPD-DIG-STA`.
2. Administer per *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*.

## **Power Up the CallVisor ASAI System**

1. At the CallVisor console, hold the `ctrl` key and enter **cc**.
2. Enter **5** at the prompt. In about 3 minutes, the unit boots up.
3. When the system initialization is complete, log in as **craft**.

## **Verify Program Operation**

To verify the PC program is functioning

1. Open the Windows™ application on the PC.
2. Double-click the appropriate icon to start the program.

Refer to the documentation that accompanies the unit to verify system operation and to custom-configure the program.

## DEFINITY AUDIX R3

---

The DEFINITY Audio Information Exchange (AUDIX) R3 System is used in display set mode in R6csi only. It is used in control link or display set for R6r or R6si. Refer to the *DEFINITY AUDIX System Installation and Upgrade*, 585-300-118 for complete installation procedures. When installation is complete, refer to *Switch Administration for DEFINITY AUDIX*, 585-300-509. Use the **add subscribers** command during administration, to prevent a `no port available` error. When administration is complete, enter **reset system reboot** to clear all alarms.

### Single-Carrier Cabinet

---

The DEFINITY AUDIX system installs in five adjacent slots; preferably at least one slot away from either power supply in a Single-carrier cabinet. See [Figure 1-28](#).

#### CAUTION:

*Do not power up the DEFINITY AUDIX System until instructed to do so. Refer to DEFINITY AUDIX Installation and Upgrade, 585-300-111.*

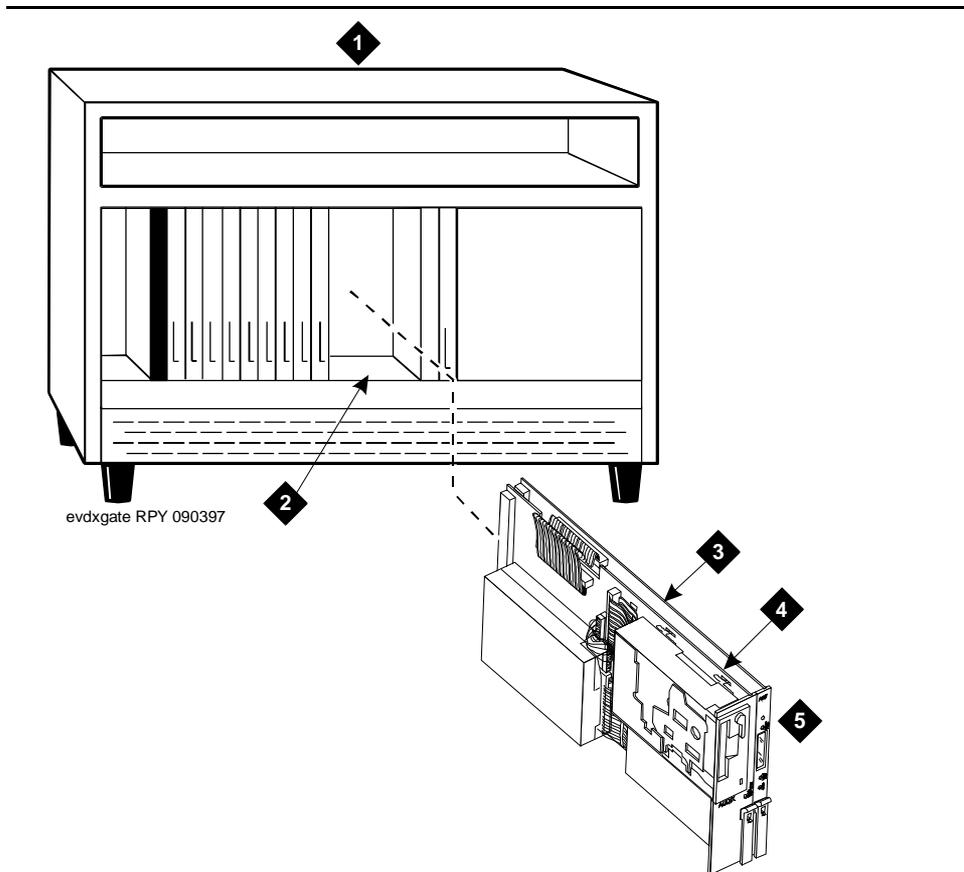
It is not necessary to power down a system before installing a DEFINITY AUDIX.

#### CAUTION:

*When the assembly is inserted, it will automatically power up (including the disk), run diagnostics, and boot. Therefore, to avoid a disk crash, never remove the assembly and never power down the DEFINITY System without first shutting down the unit and allowing the disk to completely spin down.*

#### NOTE:

The system treats a DEFINITY AUDIX like a digital Line circuit pack connecting 8 or 16 ports. These emulated stations (serving as ports) are assigned as members of a hunt group that reside in a coverage path. This coverage path is used by every station that covers an AUDIX system.



### Figure Notes

1. System cabinet
2. Five adjacent slots in cabinet
3. Multi-function circuit pack
4. Alarm circuit pack
5. DEFINITY AUDIX R3

**Figure 1-28. Typical DEFINITY AUDIX Installation**

## Multi-Carrier Cabinet

---

### CAUTION:

*Never locate a DEFINITY AUDIX in port carrier "C" of a multi-carrier cabinet. Never locate a DEFINITY AUDIX either in port slots "01" to "03" of an expansion control cabinet or in "01" to "04" of a port cabinet.*

1. If necessary, to provide five adjacent port slots in a desirable location, relocate and retranslate port circuit packs. See [Figure 1-29](#).
2. It is not necessary to power down a system before installing a DEFINITY AUDIX.

### CAUTION:

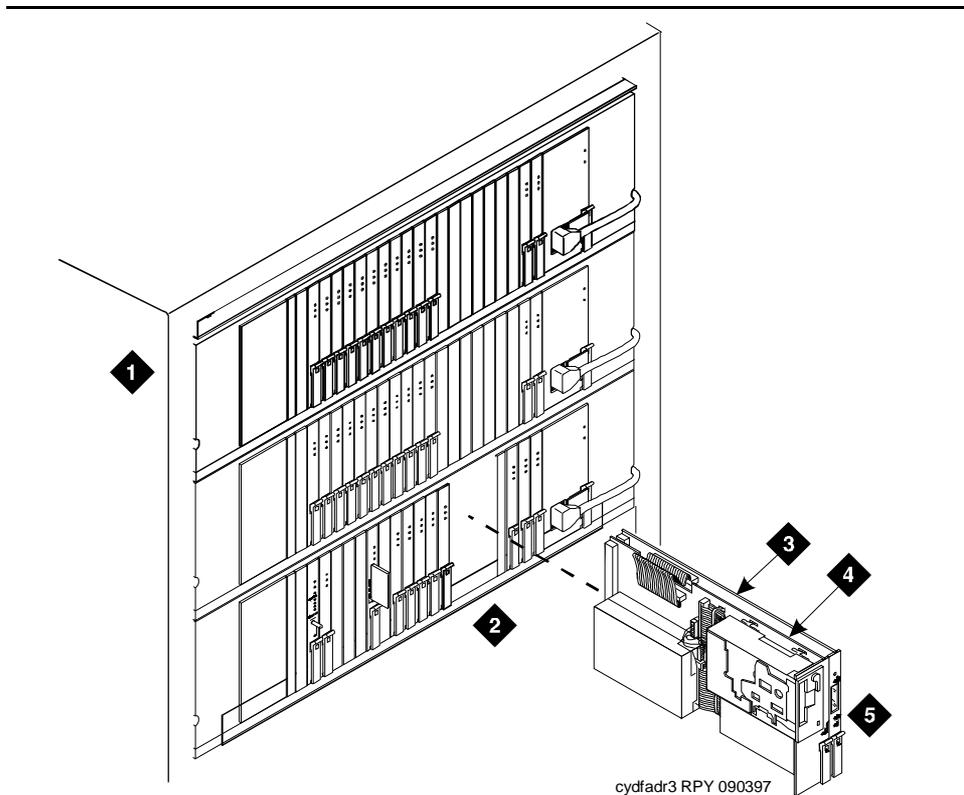
*When the assembly is inserted, it will automatically power up (including the disk), run diagnostics, and boot. Therefore, to avoid a disk crash, never remove the assembly and never power down the DEFINITY System without first shutting down the unit and allowing the disk to completely spin down.*

### NOTE:

The system treats a DEFINITY AUDIX like a digital Line circuit pack connecting 8 or 16 ports. These emulated stations (serving as ports) are assigned as members of a hunt group that reside in a coverage path. This coverage path is used by every station that covers an AUDIX system.

### CAUTION:

*Do not power up the DEFINITY AUDIX System until the installation and cabling is completed.*



**Figure Notes**

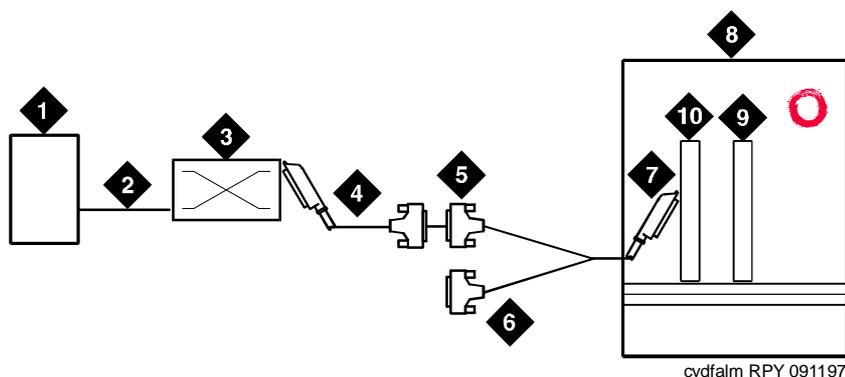
- |                                   |                       |
|-----------------------------------|-----------------------|
| 1. System cabinet                 | 4. Alarm circuit pack |
| 2. Five adjacent slots in carrier | 5. DEFINITY AUDIX R3  |
| 3. Multi-function circuit pack    |                       |

**Figure 1-29. Typical DEFINITY AUDIX Multicarrier Cabinet Installation**

## Single-Carrier and Multi-Carrier Installation

### Connect Alarm Origination Cable

The alarm cable connects to the main distribution frame and cross-connects to the customer-supplied alarm equipment. See [Figure 1-30](#) and [Table 1-7](#).



#### Figure Notes

- |   |   |
|---|---|
| 1. Customer-supplied alarm equipment              | 6. Unused RS-232 connector                      |
| 2. Cross-connections to alarm equipment           | 7. Alarm Y cable                                |
| 3. Main distribution frame (MDF)                  | 8. System cabinet                               |
| 4. Male connector on B25A cable                   | 9. Alarm circuit pack (Part of AUDIX)           |
| 5. Female <b>ALARM</b> connector on alarm Y cable | 10. Multi-function circuit pack (part of AUDIX) |

#### Figure 1-30. Connecting the Alarm Origination Cable

1. Connect the alarm Y cable to the first connector associated with the alarm circuit pack on the AUDIX System on the rear of the system cabinet.
2. Attach the male Amphenol connector on a B25A cable to the female Amphenol connector labeled **ALARM** on the alarm Y-cable.
3. Connect the opposite end of the B25A cable to the MDF.

#### NOTE:

Do not connect the RS-232 connector on the Alarm Y cable. The standard alarm origination circuit uses an on-board modem that is internally wired to the connector on the alarm Y cable.

4. Perform the cross-connects for the alarm origination connection as described on the service order. Also see [Table 1-7](#).

**Table 1-7. Alarm Origination Pinouts (ALB Y Cable)**

Pin Number	Definition
26	Tip (white/blue)
1	Ring (blue/white)
44	Minor RTN (Return) (yellow/brown)
19	Minor (brown/yellow)
47	Major RTN (Return) (violet/orange)
22	Major (orange/violet)

## Install the Terminal(s)

Two terminals may be installed, a local maintenance terminal and an administration terminal. The local maintenance terminal is optional but the administration terminal is required. The local maintenance terminal can only be connected via a direct cable connection. A 715BC5-2 terminal can be used to administer the DEFINITY System and the AUDIX System. Use the short cable that is shipped with the terminal. There are four ways to connect an administration terminal.

1. Via a direct connection
2. Via modems
3. Via Asynchronous Data Units (ADU)
4. Via data modules

See the *DEFINITY AUDIX System Description*, 585-300-205, for a list of the supported terminals and modems. The connectivity for all supported terminals is similar.

If connecting a DEFINITY Network Administration (DNA) PC, as the administration terminal, see *DEFINITY Network Administration Installation and Configuration*, 555-232-101, for installation instructions.

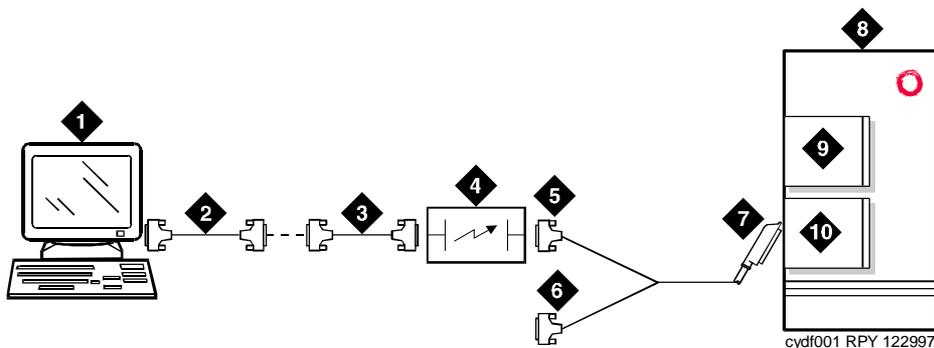
### **NOTE:**

The AUDIX is DTE, the DEFINITY System is DCE. A null modem cable may be required to complete the DTE/DCE pair when connecting the DNA.

## Install a Directly-Connected Terminal

Refer to the documentation shipped with the terminal to connect the keyboard, terminal power, and to set up the terminal after installation.

Connect as shown in figure [Figure 1-31](#).



### Figure Notes

1. Administration or Maintenance terminal
2. Short cable supplied with 715 terminals
3. RS-232 cable
4. 116A isolator (DC powered systems only)
5. Port A connector on MFB Y cable
6. Port B connector on MFB Y cable
7. Multi-function Y cable (MFB)
8. System cabinet
9. Alarm circuit pack (part of AUDIX)
10. Multi-function circuit pack (part of AUDIX)

**Figure 1-31. Typical Local Administration or Maintenance Terminal Connections**

### Testing the Connection

1. Plug the power cord on the terminal into a wall outlet.
2. Power on the terminal.
3. Set the terminal options. See *715BCS-2 Terminal User's Guide and Service Manual, 555-230-876* for a complete list of option settings.



#### NOTE:

When installing a serial printer, set the options on the printer as described in the manual supplied with the printer then set the corresponding options on the terminal to match.

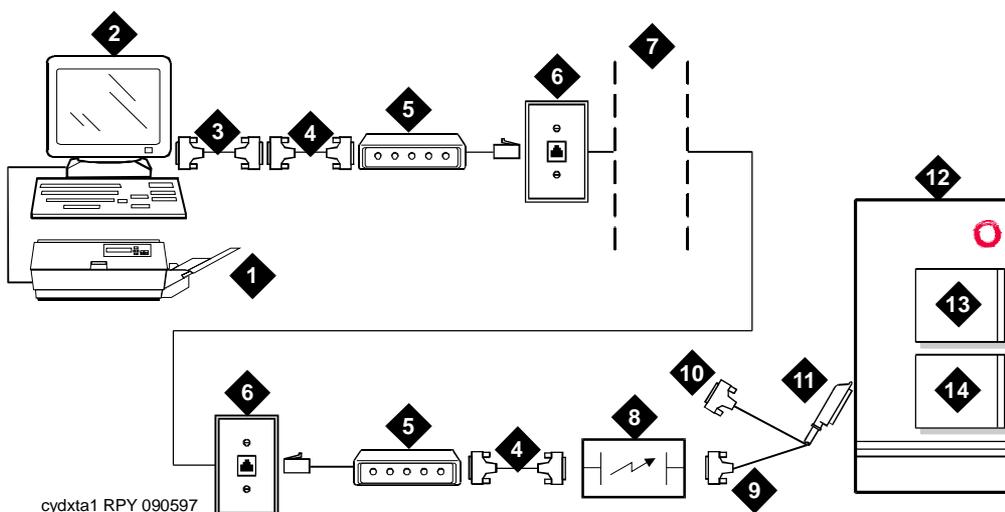
If the terminal is installed correctly (and the DEFINITY AUDIX is in either *ADX*, *OAM*, *OS* or *AINIT* state), the screen displays the `login` prompt.

If the terminal does not display the `login` prompt, write down the state displayed, then see the troubleshooting procedures for terminal connections in *DEFINITY AUDIX System Maintenance*, 585-300-110.

### Connect the Administration Terminal via Modems

Be sure the modems are on the list of supported peripherals. Refer to the *DEFINITY AUDIX System Description*, 585-300-205.

Connect as shown in figure [Figure 1-32](#).



#### Figure Notes:

- |   |   |
|---|---|
| 1. Terminal printer (optional)                              | 8. 116A isolator (DC powered systems only)      |
| 2. Administration terminal                                  | 9. Port B connector on MFB Y cable              |
| 3. Short cable supplied with 715 terminal (Comcode 7536531) | 10. Port A connector MFB Y cable                |
| 4. RS-232 cable   | 11. Multi-function Y cable (MFB)                |
| 5. Modem  | 12. System cabinet                              |
| 6. 103A or modular wall jack                                | 13. Multi-function circuit pack (part of AUDIX) |
| 7. Public switched telephone network                        | 14. Alarm circuit pack (part of AUDIX)          |

Figure 1-32. Typical Administration Terminal Connections via Modems

1 Install Adjunct and Peripheral Equipment  
DEFINITY AUDIX R3

Page 1-58

1. Attach the connector on one end of a modular cord to the modem. Attach the other connector to the modular wall jack (information outlet).
2. Connect the second modem to the wall jack at the remote terminal site.
3. Connect the printer to the terminal (if required). See "Printers and Terminals."

 **NOTE:**

When installing a serial printer, set the options on the printer as described in the manual supplied with the printer then set the corresponding options on the terminal to match.

4. Set the terminal options. See *715BCS-2 Terminal User's Guide and Service Manual*, 555-230-876 for a complete list of option settings.
5. At the terminal, enter **AT**.
6. If the modem is installed correctly, it responds with **OK** (on the terminal screen).
7. Enter **ATDT** and the telephone number of the modem connected to Port B (listed on the Installing the terminals worksheet).

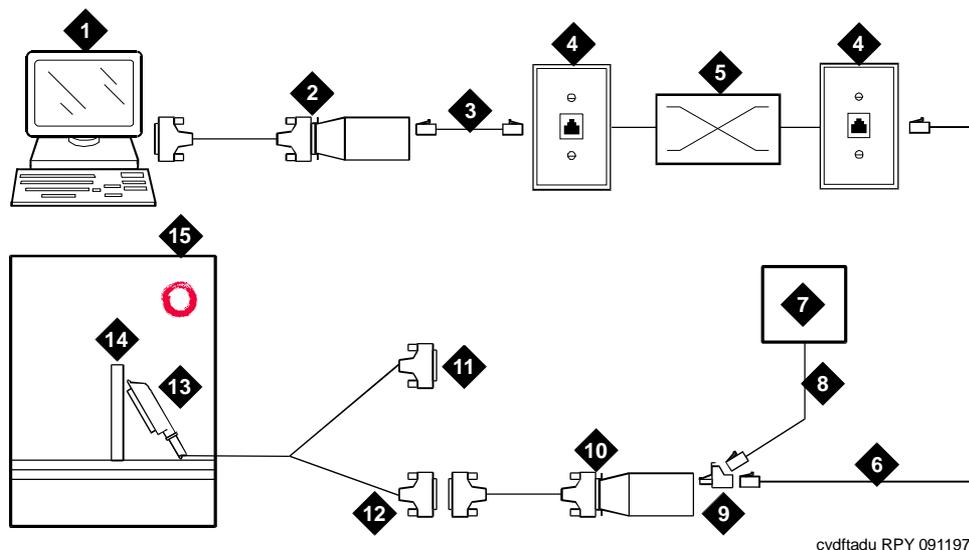
If the terminal is installed correctly (and the DEFINITY AUDIX is in either *ADX*, *OAM*, *OS* or *AINIT* state), the screen displays the `login` prompt.

If the terminal does not display the `login` prompt, write down the state displayed, then see the troubleshooting procedures for terminal connections in *DEFINITY AUDIX System Maintenance*, 585-300-110.

## Connect the Administration Terminal via Asynchronous Data Units

Connect as shown in [Figure 1-33](#).

1. Set the terminal options. See *DEFINITY AUDIX Installation*, 585-300-111, for a complete list of option settings for all supported terminals.



cydftadu RPY 091197

### Figure Notes

- |                                  |   |
|----------------------------------|---|
| 1. Administration terminal       | 9. 400B2 adapter                                |
| 2. Z3A1 ADU                      | 10. Z3A2 ADU                                    |
| 3. D8AM crossover cord           | 11. Port A connector on MFB Y cable             |
| 4. 103A or modular wall jack     | 12. Port B connector on MFB Y cable             |
| 5. Main distribution frame (MDF) | 13. 25 pair cable connector on MFB Y cable      |
| 6. D8W cord                      | 14. Multi-function circuit pack (part of AUDIX) |
| 7. 1151A power supply            | 15. System cabinet                              |
| 8. D6AP cord                     |   |

Figure 1-33. Typical Administration Terminal Connections through ADUs

1 Install Adjunct and Peripheral Equipment  
*DEFINITY AUDIX R3*

Page 1-60

2. If the terminal is installed correctly (and the DEFINITY AUDIX is in one of the *ADX*, *OAM*, *OS* or *AINIT* state), the screen displays the `login` prompt.

If the terminal does not display the `login` prompt, write down the state displayed, then see the troubleshooting procedures for terminal connections in *DEFINITY AUDIX System Maintenance*, 585-300-110.

**⇒ NOTE:**

When terminal installation is complete, refer to *Switch Administration for DEFINITY AUDIX*, 585-300-509 for further information.

## Connect the Administration Terminal via 7400A/7400B Data Modules

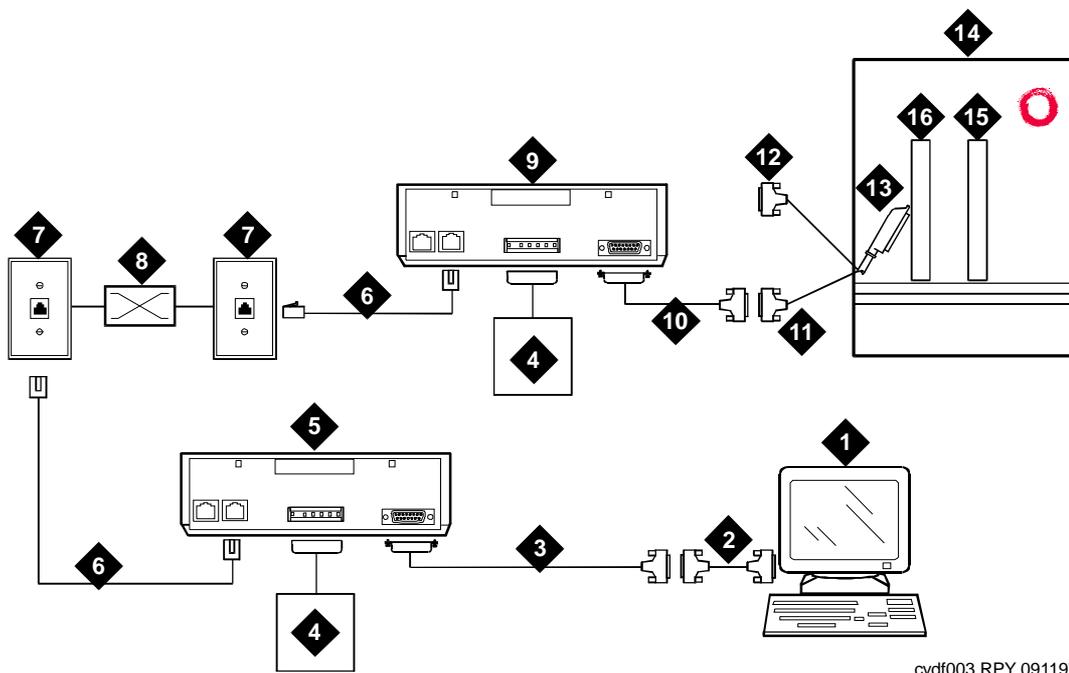
**⇒ NOTE:**

Two data modules can be used in this configuration. The DEFINITY AUDIX side of the configuration requires the 7400A. A second 7400A can be used and is connected the same as a 7400B. Set the options as described in *7400A Data Module User's Manual*, 555-020-706.

1. Make sure the EIA connector board (located inside the data module) is set to DCE (factory default). If not, unplug the card and turn it around to the DCE setting (see "Mode Selection" on page 5-84 for details).
2. Connect as shown in [Figure 1-34](#).
3. Check the dip switches inside the front panel. If a telephone is not connected with the data module, set the first dip switch (1) to the ON position. If a telephone is connected, set all dip switches OFF.
4. Set the terminal options. See *DEFINITY AUDIX Installation*, 585-300-111, for a complete list of option settings for all supported terminals.

When installing a serial printer, set the options on the printer as described in the manual supplied with the printer then set the corresponding options on the terminal to match.

5. At the terminal, enter **AT**. If the 7400B data module is connected correctly, it responds with `OK` (written on the terminal screen).
6. Enter **ATDT** and the telephone number of the 7400A data module connected to the DEFINITY AUDIX or LAN Gateway (refer to the "Installing the Terminals" worksheet for this number).
7. After a connect interval, if the terminal and 7400 data modules are installed correctly (and the DEFINITY AUDIX is in either *ADX*, *OAM*, *OS* or *AINIT* state), the screen displays the `login` prompt.
8. If the terminal does not display the `login` prompt, write down the state displayed, then see the troubleshooting procedures for terminal connections in *DEFINITY AUDIX System Maintenance*, 585-300-110.



cydf003 RPY 091197

### Figure Notes

- |   |   |
|---|---|
| 1. Administration terminal                                  | 9. 7400B data module                            |
| 2. Short cable supplied with 715 terminal (Comcode 7536531) | 10. RS-232 cable                                |
| 3. RS-232 cable   | 11. Port B connector on MFB Y cable             |
| 4. Data module power supply                                 | 12. Port A connector on MFB Y cable             |
| 5. 7400A data module  | 13. Multi-function Y cable (MFB)                |
| 6. D8W cord   | 14. System cabinet                              |
| 7. 103A or modular wall jack                                | 15. Alarm circuit pack (Part of AUDIX)          |
| 8. Main distribution frame                                  | 16. Multi-function circuit pack (part of AUDIX) |

**Figure 1-34. Typical Administration Terminal Connections Using Data Modules**

Set the options and interface baud rate on the 7400A data module. Refer to *7400A Data Module User's Manual*, 555-020-706. Set the options and interface baud rate on the 7400B data module. Refer to *AT&T 7400B Data Module User's Guide*, 555-020-707.

## Install the Printer (Optional)

See [Figure 1-32](#). The following instructions are typical for most installations. The instructions supplied with the printer should be followed.

1. Unpack and set up the printer according to the instructions supplied with the printer.
2. Be sure the printer has paper, the ribbon is properly installed, and the cover is closed.
3. Connect the printer to the administration terminal.
4. Connect one end of the printer cable to either the serial or parallel port on the terminal (depending on the type of terminal and printer). Secure the connector with the captive screws.



### NOTE:

If a serial printer is connected to the DTE connector on the terminal, a null modem cable must be connected between the printer and the terminal.

5. Connect the opposite end of the printer cable to the matching port (serial or parallel) on the printer.
6. Set the options on the printer. Refer to the document that shipped with the printer.

## **DEFINITY INADS**

---

The DEFINITY ECS Initialization and Administration System (INADS) provides analog loopback connections, and PARTNER<sup>®</sup> connections, for remote alarming and maintenance when direct connection to the public network is not possible.

 **NOTE:**

These instructions are for DEFINITY ECS Release 6r systems using the TN1648 system access/maintenance (SYSAM) circuit pack. ISDN is required.

## **Analog Loopback Installation**

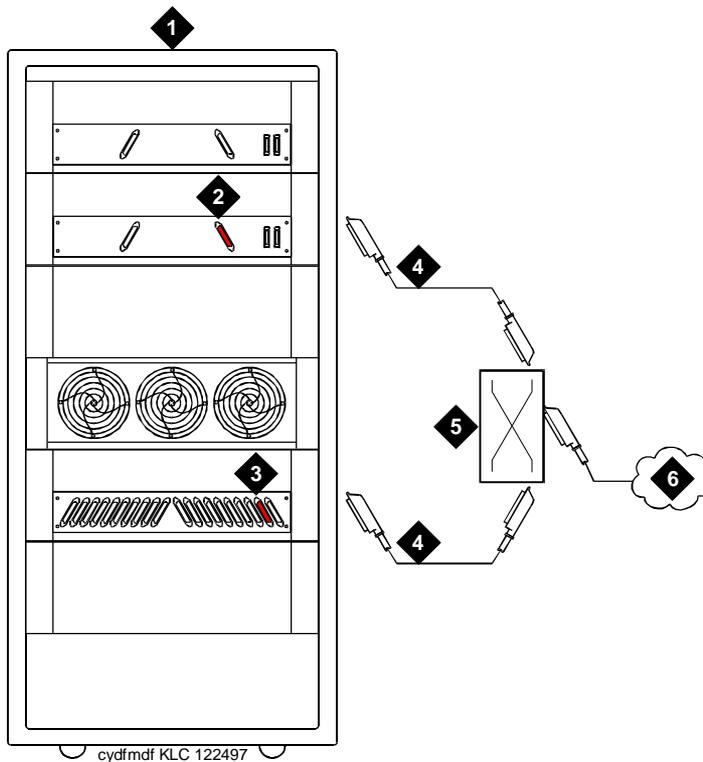
---

Analog loopback connects the INADS port to an analog station port and switches the call through the DEFINITY ECS and to the public network via an analog line circuit pack.

These connections are from the AUX connector on the processor carrier to an analog station port. The switch fabric connects the station port to the public switched telephone network (PSTN).

 **NOTE:**

DID is an option.



### Figure Notes

1. Release 6r PPN cabinet
2. AUX connector on processor carrier (use wire pair 50 and 25) (tip and ring)
3. Port carrier (with analog line circuit pack)
4. B25A 25-pair cable to AUX
5. Main distribution frame (MDF)
6. Public switched telephone network (PSTN)

Figure 1-35. Analog Loopback Connections

## Standard Reliability

1. Connect the INADS tip and ring port from the AUX connector to an analog station port via the MDF. See [Figure 1-35](#). Use wire pair 50 and 25.
2. If power fail transfer is used, connect the 808A2 transfer panel between the *INADS port to station port* and the *INADS port to loop start trunk*

## High Reliability

Be sure that the TN1648 SYSAM circuit packs are located in different cabinets or processor carriers. Also, be sure that the analog line circuit packs are located in the same cabinets or carriers as the TN1648 circuit packs.

1. Connect each INADS tip/ring port to an analog station port via the MDF. See [Figure 1-35](#).
2. Connect each tip/ring port to a separate analog line circuit pack.

## DEFINITY ECS Administration

---

### NOTE:

Add 2 pauses in front of the dial string when using cut-through trunks. Pauses are not required if ARS is used.

1. Type **change system-parameters maintenance** and press Enter.
2. For high reliability systems, in the `see interchange:` field, type **daily** and press Enter. This is done in case 1 of the connections between the 2 TN1648 circuit packs is down. This assures that within 24 hours, the working connection is available to report alarms.
3. Type **add station <number>** or **<next>** and press Enter.
4. In the `Type:` field, enter **500** (rotary analog telephone).
5. In the `Port:` field, enter the port number for this line.
6. For high reliability systems, repeat the above steps for the second analog line. Administer the 2 stations as part of a TEG (terminating extension group).
  - a. Type **add term-ext-group <number>** or **<next>** and press Enter.
  - b. In the `Group Extension:` field, enter the TEG extension number.
  - c. In the `Coverage Path:` field, enter the coverage path number.
  - d. Enter the Group Member Assignment station numbers. Press Enter when finished.

## Partner Installation

---

The PARTNER system connects the DEFINITY ECS INADS port to an outgoing central office (CO) line and is programmed to seize the outside line when INADS seizes an inside PARTNER station line.

Listed below are the 2 types of PARTNER platforms:

- PARTNER Atlas platforms with United States firmware and a wide input power supply (WIPS) that allows a universal power supply. The Spain platform conforms to the United States/Atlas platform
- European platforms that focus on eastern Europe and the United Kingdom

The installation procedure describes the 2 types of PARTNER platforms with or without power fail transfer.

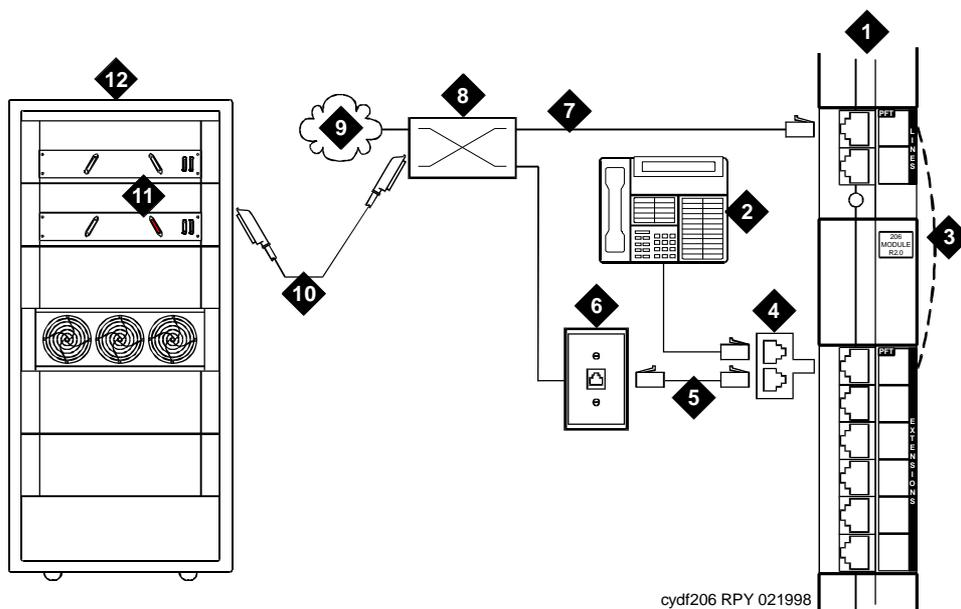
## INADS Connection (with Power Fail Transfer)

---

In this configuration, the INADS line and the emergency telephone extension are bridged together. [Figure 1-35](#) shows the US/Atlas platform. [Figure 1-38](#) shows the European platform.

### CAUTION:

*Check local regulations regarding this connection method.*



### Figure Notes

- |   |  |
|---|--|
| 1. PARTNER System   | 7. Dial tone from the CO or a DEFINITY extension           |
| 2. MLS12D telephone for programming   | 8. MDF   |
| 3. Internal connection during power failure, from CO line port 1 to station port 10 | 9. PSTN or DEFINITY extension                              |
| 4. 258A Adapter (bridged connection)  | 10. B25A 25-pair cable to AUX                              |
| 5. Standard RJ-45 telephone cord  | 11. AUX connector (use wire pair 50 and 25) (tip and ring) |
| 6. 103A or modular wall jack  | 12. DEFINITY Release 6r PPN cabinet                        |

Figure 1-36. INADS Connection (US/Atlas Platform)



## **Standard Reliability**

- Normal connection: connect the INADS tip and ring port from the AUX connector (wire pair 50 and 25) to the tip/ring pair of CO line port 1 on the PARTNER system.
- US/Atlas/Spain platform connection: connect station 10 to the INADS port.
- European platform connection: bridge the outside pair of CO line port 1 to the INADS port. A 258A adapter may be used.

## **High Reliability**

Be sure that the TN1648 SYSAM circuit packs are located in different DEFINITY cabinets or processor carriers.

1. Bridge the 2 INADS tip/ring ports. A 258A adapter may be used.
2. Connect the bridged INADS tip/ring port to a PARTNER station port.

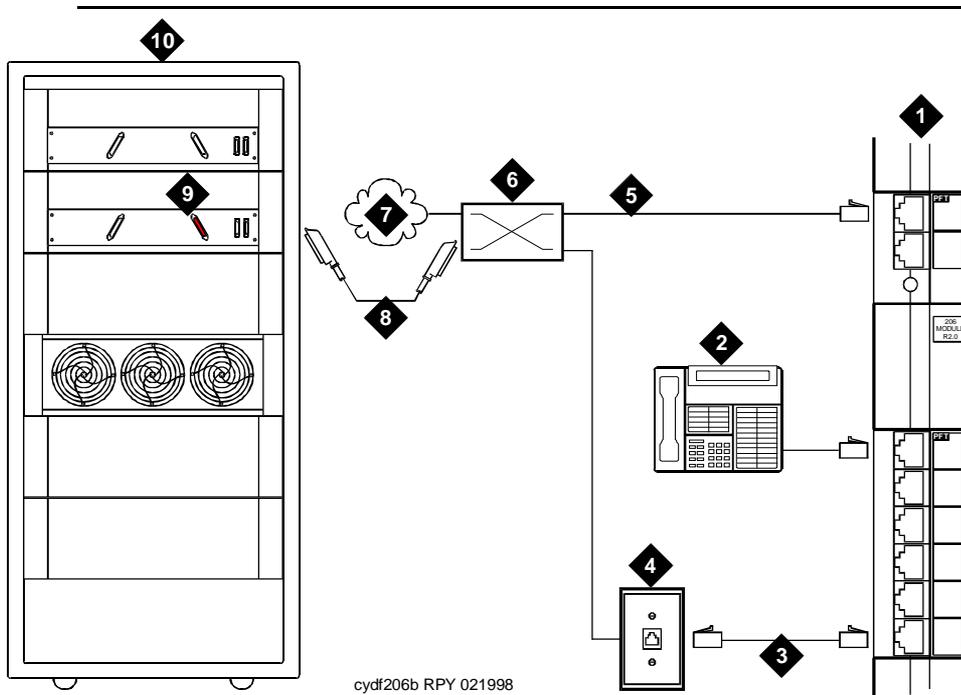
## **INADS Connection (without Power Fail Transfer)**

In this configuration, the INADS line and the emergency telephone extension are bridged together. If this connection method is not allowed, do not connect the INADS port to station 10.



### **CAUTION:**

*Check local regulations regarding this connection method.*



### Figure Notes

1. PARTNER System
2. MLS12D telephone for programming
3. Standard RJ-45 telephone cord
4. 103A or modular wall jack
5. Dial tone from the CO or a DEFINITY extension
6. MDF
7. PSTN
8. B25A 25-pair cable
9. AUX connector (use wire pair 50 and 25) (tip and ring)
10. DEFINITY Release 6r PPN cabinet

Figure 1-38. INADS Connection (all platforms)

### Standard Reliability

The three connection types of *without power fail transfer* for standard reliability are:

1. Normal connection:
  - a. Connect a system telephone to station 10 on the PARTNER system.

1 Install Adjunct and Peripheral Equipment  
DEFINITY INADS

Page 1-72

- b. Connect a standard RJ-11 telephone line cord from the PARTNER CO line to the CO line protector.
  - c. Connect the INADS tip and ring port from the AUX connector to the tip/ring pair of CO line port 1 on the PARTNER via the MDF. See [Figure 1-38](#). Use wire pair 50 and 25 on the MDF.
2. US/Atlas/Spain platform connection: select station 11-15 as the INADS port connection.
3. European platform connection: bridge the outside pair of CO line port 1 to the INADS port. A 258A adapter may be used.

## High Reliability

Be sure that the TN1648 SYSAM circuit packs are located in different cabinets or processor carriers.

1. Bridge the 2 INADS tip/ring ports. A 258A adapter may be used. See [Figure 1-38](#).
2. Connect the bridged INADS tip/ring port to a station port.

## PARTNER Administration

### Set Standard Telephone Station (European Platforms Only)

 NOTE:

Do not exit from the programming mode until instructed to do so.

1. Connect the PARTNER programming telephone (MLS12) to station 10.
2. Press Feature, followed by 0 0.
3. Press the left intercom (System Program) button twice.
4. Enter the password. The default password is **7777**. The green LED next to the left intercom button must be steady on.
5. Enter **# 3 0 8**.
6. Enter **1 0** (if station 10 is connected to the INADS port) or the station number connected to the INADS port.
7. Enter **2** to set the station port to analog rotary. Enter **1** if an analog DTMF telephone or PARTNER system telephone is connected.
8. Enter **#** to return to the start of the programming mode.

### Set PARTNER CO Line Port (All Platforms)

1. Enter **# 2 0 1**.

2. Press **1** for tone or **2** for pulse mode.
3. Enter **#** to return to the start of the programming mode.

### **Set Automatic Line Selection — Outgoing Trunk (All Platforms)**

1. Press the right intercom (Central Tel Program) button.
2. Enter **1 5** (if INADS is connected to station 15) or enter the station number connected to the INADS port.
3. Enter \* \*.
4. Press the line 1 button (above left intercom). If the 2 lines are connected to the PARTNER for added reliability or security, press Next Procedure.
5. Enter \* \*.
6. Enter **#** to return to the start of the programming mode.

### **Set Incoming Line Ringing (All Platforms)**

1. Press the right intercom (Central Tel Program) button.
2. Enter **1 5** (if INADS is connected to station 15) or enter the station number connected to the INADS port.
3. Press the line 1 button (above left intercom) until the LED changes to a steady green. This allows incoming calls to ring on line 1.
4. If AUDIX is installed, press the line 2 button until the LED changes to a steady green. This allows incoming calls to ring on line 2.
5. Enter **#** to return to the start of the programming mode.
6. Press Feature, followed by 0 0 to exit the programming mode.

## **DEFINITY ECS Administration**

---

By default, the INADS port automatically seizes an outgoing trunk on the PARTNER system. Therefore, a "9" is not required in the switch dial string.

## **Installation Test (All Installations)**

---

These tests confirm that the hardware and administration are correct.

1. Place an outgoing call from the INADS port. Check for normal talk path.
2. Place an incoming call to the INADS port. Check for normal talk path.
3. Place an outgoing data from the INADS port to verify connection.

A failure in the link between the remote service center and the TN1648's INADS port can be detected automatically.

1. Type **change system-parameters maintenance** and press Enter.
2. Set the `Test Remote Access Port:` field to **y** and press Enter.

## **References**

---

- *DEFINITY ECS Release 6 Installation and Test for Multicarrier Cabinets, 555-230-112*
- *DEFINITY ECS Release 6 Administration and Feature Description, 555-230-522*
- *BCS Products Security Handbook, 555-025-600*

## DEFINITY LAN Gateway System

---

The DEFINITY LAN Gateway system is used in display set mode only, it is not used in control link. Refer to the *DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, 555-230-223 for complete installation procedures.

Use the **add subscribers** command during administration, to prevent a `no port available` error. When administration is complete, enter **reset system reboot** to clear all alarms.

### Single-Carrier Cabinet

---

The DEFINITY LAN Gateway system installs in five adjacent slots; preferably, the five rightmost slots in a Single-Carrier Cabinet. See [Figure 1-39](#).

#### CAUTION:

*Do not power up the DEFINITY LAN Gateway System until instructed to do so. Refer to the DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway, 555-230-223*

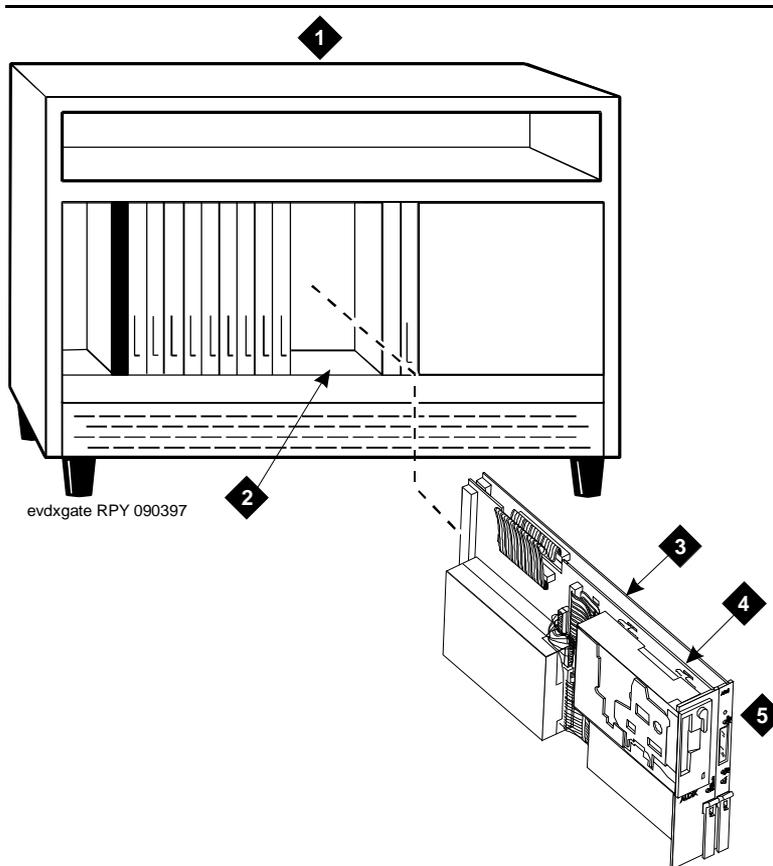
It is not necessary to power down a system before installing a DEFINITY LAN Gateway.

#### CAUTION:

*When the assembly is inserted, it will automatically power up (including the disk), run diagnostics, and boot. Therefore, to avoid a disk crash, never remove the assembly and never power down the DEFINITY System without first shutting down the unit and allowing the disk to completely spin down.*

#### NOTE:

The system treats a DEFINITY LAN Gateway like a digital line circuit pack connecting 8 or 16 ports. These emulated stations (serving as ports) are assigned as members of a hunt group that reside in a coverage path. This coverage path is used by every station that covers an LAN Gateway system.



### Figure Notes

1. System cabinet
2. Five adjacent slots in cabinet
3. Multi-function circuit pack
4. Alarm circuit pack
5. DEFINITY LAN gateway

Figure 1-39. Typical DEFINITY LAN Gateway Installation

## Multi-Carrier Cabinet

---

### CAUTION:

*Never locate a DEFINITY LAN Gateway in port carrier "C" of a multi-carrier cabinet. Never locate a DEFINITY LAN Gateway either in port slots "01" to "03" of an expansion control cabinet or in "01" to "04" of a port cabinet.*

1. If necessary, to provide five adjacent port slots in a desirable location, relocate and retranslate port circuit packs. See [Figure 1-40](#).
2. It is not necessary to power down a system before installing a DEFINITY LAN Gateway.

### CAUTION:

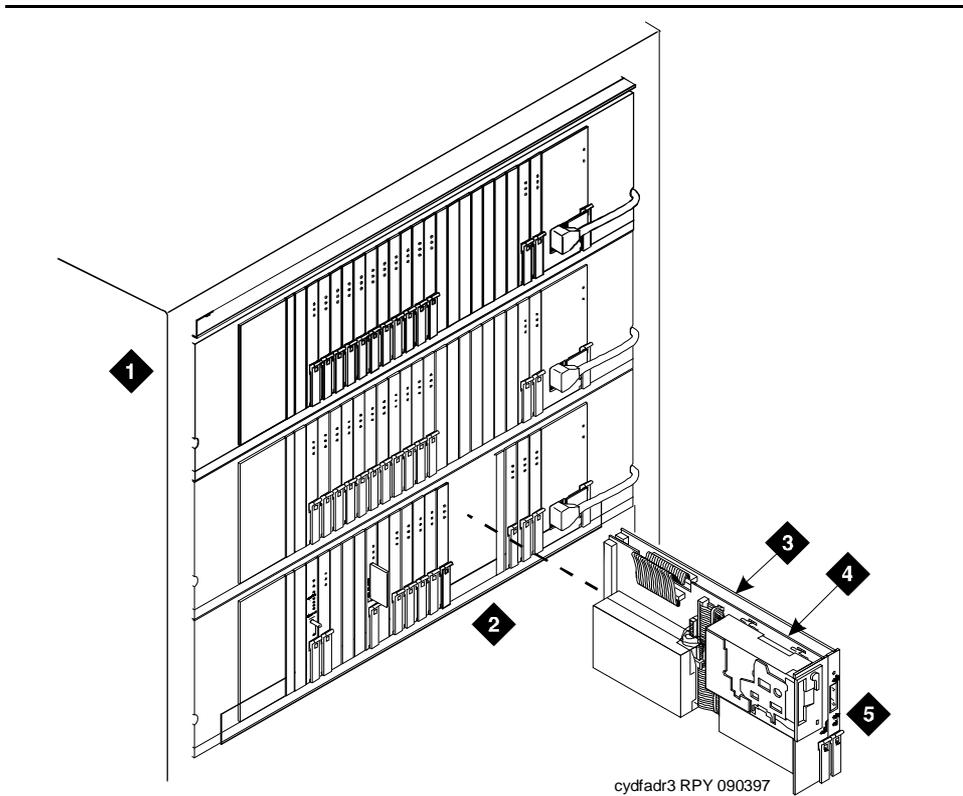
*When the assembly is inserted, it will automatically power up (including the disk), run diagnostics, and boot. Therefore, to avoid a disk crash, never remove the assembly and never power down the DEFINITY System without first shutting down the unit and allowing the disk to completely spin down.*

### NOTE:

The system treats a DEFINITY LAN Gateway like a TN754B Digital Line circuit pack connecting 8 or 16 ports. These emulated stations (serving as ports) are assigned as members of a hunt group that reside in a coverage path. This coverage path is used by every station that covers an LAN Gateway system.

### CAUTION:

*Do not power up the DEFINITY LAN Gateway System until the installation and cabling is completed.*



**Figure Notes**

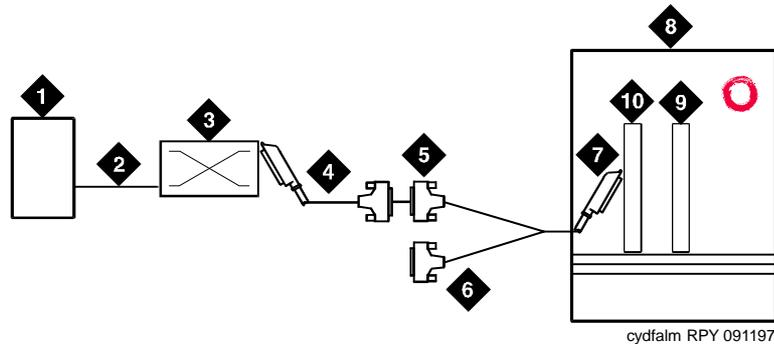
- |                                   |                         |
|-----------------------------------|-------------------------|
| 1. System cabinet                 | 4. Alarm circuit pack   |
| 2. Five adjacent slots in carrier | 5. DEFINITY LAN gateway |
| 3. Multi-function circuit pack    |                         |

**Figure 1-40. Typical DEFINITY LAN Gateway Installation**

## Single-Carrier and Multi-Carrier Installation

### Connect Alarm Origination Cable

The alarm cable connects to the MDF and cross-connects to the customer-supplied alarm equipment. See [Figure 1-41](#) and [Table 1-8](#).



#### Figure Notes

- |   |  |
|---|--|
| 1. Customer-supplied alarm equipment              | 6. Unused RS-232 connector on alarm Y cable          |
| 2. Cross-connections to alarm equipment           | 7. Alarm Y cable                                     |
| 3. Main distribution frame (MDF)                  | 8. System cabinet                                    |
| 4. B25A 25-pair cable                             | 9. Multi-function circuit pack (part of LAN gateway) |
| 5. Female <b>ALARM</b> Connector on alarm Y cable | 10. Alarm circuit pack (part of LAN gateway)         |

#### Figure 1-41. Connecting the Alarm Origination Cable

1. Connect the alarm Y cable to the first connector associated with the alarm circuit pack on the LAN gateway system on the rear of the system cabinet.
2. Attach the male Amphenol connector on a B25A cable to the female Amphenol connector labeled **ALARM** on the alarm Y-cable.
3. Connect the opposite end of the B25A cable to the MDF.

#### NOTE:

Do not connect the RS-232 connector on the alarm Y cable. The standard alarm origination circuit uses an on-board modem that is internally wired to the connector on the alarm Y cable.

4. Perform the cross-connects for the alarm origination connection as described on the service order. Also see [Table 1-8](#).

**Table 1-8. Alarm Origination Pinouts (ALB Y Cable)**

Pin Number	Definition
26	Tip (white/blue)
1	Ring (blue/white)
44	Minor RTN (return) (yellow/brown)
19	Minor (brown/yellow)
47	Major RTN (return) (violet/orange)
22	Major (orange/violet)

## Install the Terminal(s)

Two terminals may be installed, a local maintenance terminal and an administration terminal. The local maintenance terminal is optional but the administration terminal is required. The local maintenance terminal can only be connected via a direct cable connection. A 715BC5-2 terminal can be used to administer the DEFINITY System and the DEFINITY LAN Gateway system. Use the short cable that is shipped with the terminal. There are four ways to connect an administration terminal.

1. Via a direct connection
2. Via modems
3. Via Asynchronous Data Units (ADU)
4. Via data modules

Refer to the *DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, 555-230-223 for a list of the supported terminals and modems. The connectivity for all supported terminals is similar.

If connecting a G3-MA as the administration terminal, see *DEFINITY Communications System Generic 3 Management Applications Station Provisioning*, 555-229-201, for installation instructions.

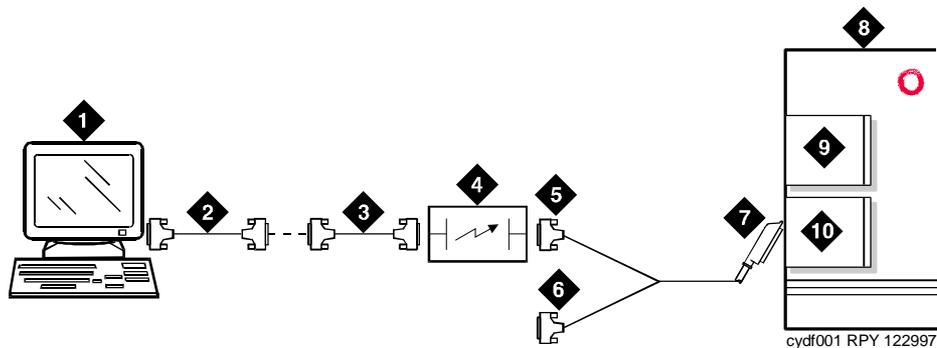
### **NOTE:**

The DEFINITY LAN gateway is DTE, the DEFINITY System is DCE. A null modem cable may be required to complete the DTE/DCE pair when connecting the G3-MA.

## Install a Directly-Connected Terminal

[Figure 1-42](#) shows typical connections for a local maintenance terminal. [Figure 1-43](#) shows typical connections for a local administration terminal. Refer to the documentation shipped with the terminal to connect the keyboard, terminal power, and to set up the terminal after installation.

Connect as shown in figure [Figure 1-42](#).

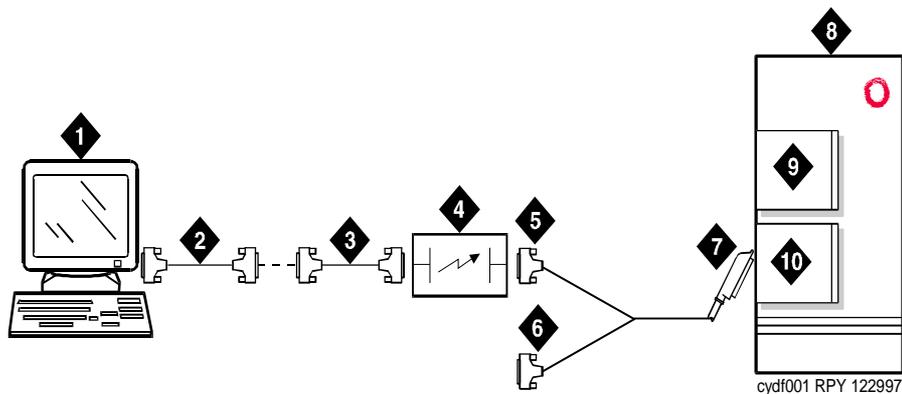


### Figure Notes

1. Administration terminal
2. Short cable supplied with 715 terminals
3. RS-232 cable
4. 116A isolator (DC powered systems only)
5. Port A connector on MFB Y cable
6. Port B connector on MFB Y cable
7. Multi-function Y cable (MFB)
8. System cabinet
9. Alarm circuit pack (part of LAN gateway)
10. Multi-function circuit pack (part of LAN gateway)

**Figure 1-42. Typical Local Maintenance Terminal Connections**

Connect as shown in figure [Figure 1-43](#)



### Figure Notes

1. Administration terminal
2. Short cable shipped with 715 terminals)
3. RS-232 cable
4. 116A Isolator (DC powered systems Only)
5. Port B connector on MFB Y cable
6. Unused RS-232 connector on MFB Y cable
7. 25 pair connector on multi-function Y cable (MFB)
8. System cabinet
9. Alarm circuit pack (part of LAN gateway)
10. Multi-function circuit pack (part of LAN gateway)

**Figure 1-43. Typical Local Administration Terminal Connections**

### Testing the Connection

1. Plug the power cord on the terminal into a wall outlet.
2. Power on the terminal.
3. Set the terminal options. See *715BCS-2 Terminal User's Guide and Service Manual, 555-230-876* for a complete list of option settings.



#### NOTE:

When installing a serial printer, set the options on the printer as described in the manual supplied with the printer then set the corresponding options on the terminal to match.

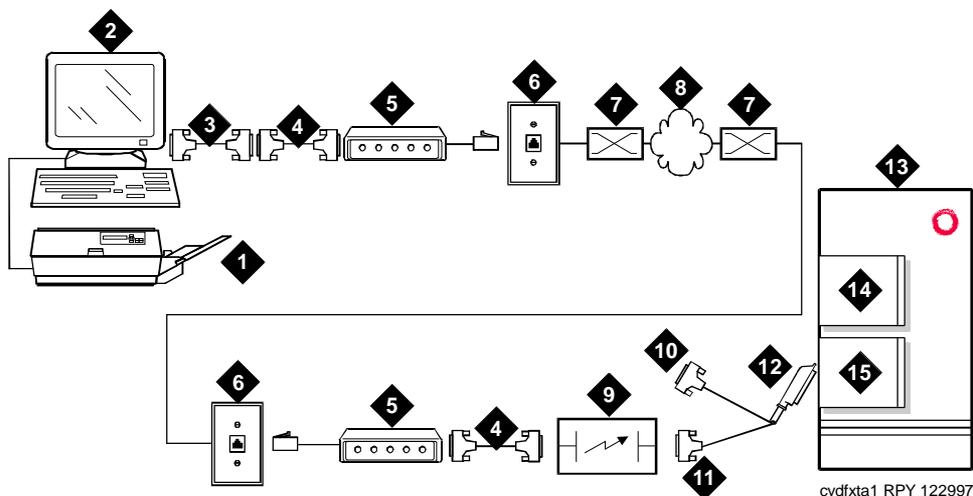
If the terminal is installed correctly (and the DEFINITY LAN Gateway is in either *ADX*, *OAM*, *OS* or *AINIT* state), the screen displays the *login* prompt.

If the terminal does not display the `login` prompt, write down the state displayed, then see the troubleshooting procedures for terminal connections in *DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, 555-230-223.

### Connect the Administration Terminal via Modems

Be sure the modems are on the list of supported peripherals. Refer to the *DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, 555-230-223

Connect as shown in figure [Figure 1-44](#).



#### Figure Notes:

1. Terminal printer (optional)
2. System administration terminal
3. RS-232 cable
4. Short cable supplied with 715 terminal (Comcode 7536531)
5. Modem
6. 103A or modular wall jack
7. Main distribution frame (MDF)
8. Public switched telephone network
9. 116A Isolator (DC powered Port A connector on MFB Y cable systems only)
10. Port B connector on MFB Y cable
11. Port A connector on MFB Y cable
12. Multi-function Y cable (MFB)
13. System cabinet
14. Alarm circuit pack (part of LAN gateway)
15. Multi-function circuit pack (part of LAN gateway)

Figure 1-44. Typical Administration Terminal Connections via Modems

1 Install Adjunct and Peripheral Equipment  
*DEFINITY LAN Gateway System*

Page 1-84

1. Attach the connector on one end of a modular cord to the modem. Attach the other connector to the modular wall jack (information outlet).
2. Connect the second modem to the wall jack at the remote terminal site.
3. Connect the printer to the terminal (if required). See "Printers and Terminals."

 **NOTE:**

When installing a serial printer, set the options on the printer as described in the manual supplied with the printer then set the corresponding options on the terminal to match.

4. Set the terminal options. See *715BCS-2 Terminal User's Guide and Service Manual, 555-230-876* for a complete list of option settings.
5. At the terminal, enter **AT**.
6. If the modem is installed correctly, it responds with **OK** (on the terminal screen).
7. Enter **ATDT** and the telephone number of the modem connected to Port B (listed on the Installing the Terminals worksheet).

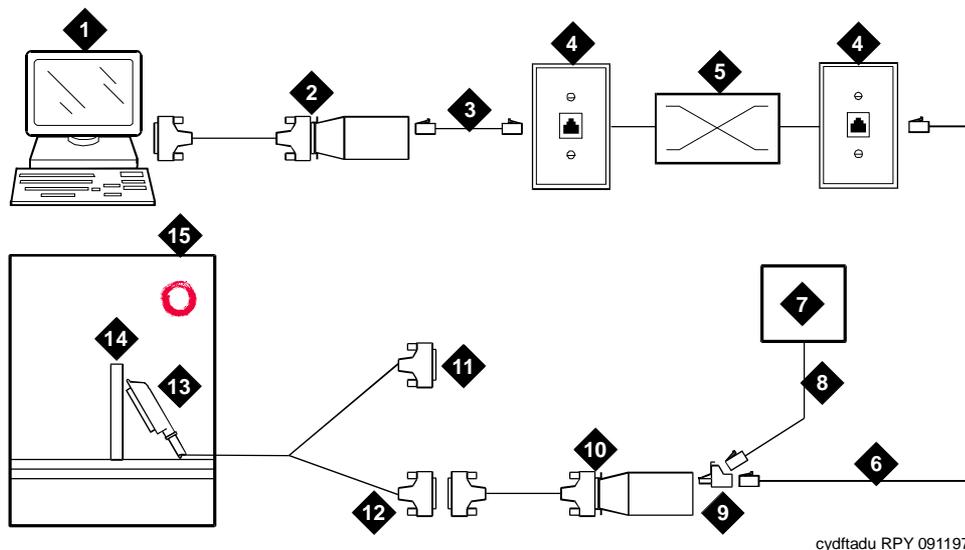
If the terminal is installed correctly (and the DEFINITY LAN Gateway is in either *ADX*, *OAM*, *OS* or *AINIT* state), the screen displays the `login` prompt.

If the terminal does not display the `login` prompt, write down the state displayed, then see the troubleshooting procedures for terminal connections in *DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway, 555-230-223*.

## Connect the Administration Terminal via Asynchronous Data Units

Connect as shown in [Figure 1-45](#).

1. Set the terminal options. See *DEFINITY AUDIX Installation*, 585-300-111, for a complete list of option settings for all supported terminals.



### Figure Notes

- |   |   |
|---|---|
| 1. Administration terminal                | 9. 400B2 adapter                                      |
| 2. 25-Pin EIA-232-D connector on Z3A1 ADU | 10. Z3A2 ADU  |
| 3. D8AM crossover cord                    | 11. Port A connector on MFB Y cable                   |
| 4. 103A or modular wall jack              | 12. Port B connector on MFB Y cable                   |
| 5. Main distribution frame (MDF)          | 13. Multi-function Y cable (MFB)                      |
| 6. D8W cord                               | 14. System cabinet                                    |
| 7. 1151A Power supply                     | 15. Multi-function circuit pack (Part of LAN gateway) |
| 8. D6AP cord                              |   |

Figure 1-45. Typical Administration Terminal Connections through ADUs

1 Install Adjunct and Peripheral Equipment  
*DEFINITY LAN Gateway System*

Page 1-86

2. If the terminal is installed correctly (and the DEFINITY LAN Gateway is in one of the *ADX*, *OAM*, *OS* or *AINIT* state), the screen displays the `login` prompt.

If the terminal does not display the `login` prompt, write down the state displayed, then see the troubleshooting procedures for terminal connections in *DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, 555-230-223.

**⇒ NOTE:**

When terminal installation is complete, refer to *DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, 555-230-223 for further information.

### Connect the Administration Terminal via Data Modules

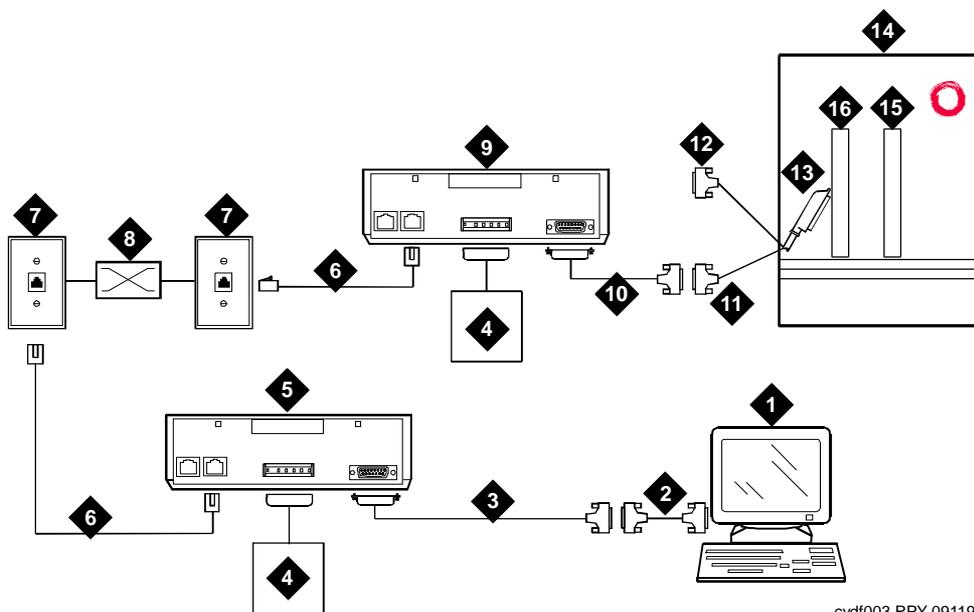
**⇒ NOTE:**

Two data modules can be used in this configuration. The DEFINITY LAN gateway side of the configuration requires the 7400A. A second 7400A can be used and is connected the same as a 7400B. Set the options as described in *7400A Data Module User's Manual*, 555-020-706.

1. Make sure the EIA connector board (located inside the data module) is set to DCE (factory default). If not, unplug the card and turn it around to the DCE setting (see "Mode Selection" on page 5-84 for details).
2. Connect as shown in [Figure 1-46](#).
3. Set the terminal options. refer to the *DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, 555-230-223, for a complete list of option settings for all supported terminals.

When installing a serial printer, set the options on the printer as described in the manual supplied with the printer then set the corresponding options on the terminal to match.

4. At the terminal, enter **AT**. If the 7400B data module is connected correctly, it responds with `OK` (written on the terminal screen).
5. Enter **ATDT** and the telephone number of the 7400A data module connected to the DEFINITY LAN gateway (refer to the "Installing the Terminals" worksheet for this number).
6. Check the dip switches inside the front panel. If a telephone is not connected with the data module, set the first dip switch (1) to the ON position. If a telephone is connected, set all dip switches OFF.



cydf003 RPY 091197

### Figure Notes

1. Administration terminal
2. Short cable supplied with 715 terminal (Comcode 7536531)
3. RS-232 cable
4. Data module power supply
5. 7400B data module
6. D8W cord
7. 103A or modular wall jack
8. Main distribution frame (MDF)
9. 7400A data module
10. Null modem cable
11. Port B connector on MFB Y cable
12. Port A connector on MFB Y cable
13. Multi-function Y cable (MFB)
14. System cabinet
15. Alarm circuit pack (Part of LAN gateway)
16. Multi-function circuit pack (part of LAN gateway)

**Figure 1-46. Typical Administration Terminal Connections Using Data Modules**

7. After a connect interval, if the terminal and 7400 data modules are installed correctly (and the DEFINITY LAN Gateway is in either *ADX*, *OAM*, *OS* or *AINIT* state), the screen displays the `login` prompt.

8. If the terminal does not display the `login` prompt, write down the state displayed, then see the troubleshooting procedures for terminal connections in *DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, 555-230-223.

## Install the Printer (Optional)

See [Figure 1-32](#). The following instructions are typical for most installations. The instructions supplied with the printer should be followed.

1. Unpack and set up the printer according to the instructions supplied with the printer.
2. Be sure the printer has paper, the ribbon is properly installed, and the cover is closed.
3. Connect the printer to the administration terminal.
4. Connect one end of the printer cable to either the serial or parallel port on the terminal (depending on the type of terminal and printer). Secure the connector with the captive screws.



### NOTE:

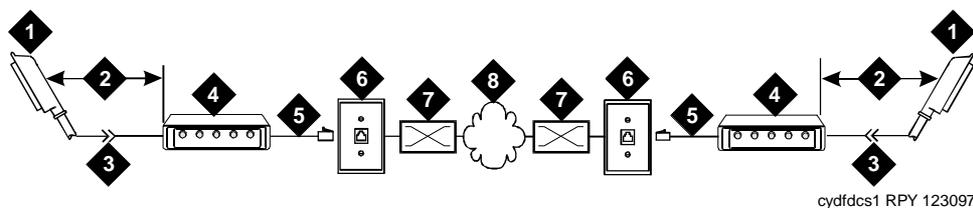
If a serial printer is connected to the DTE connector on the terminal, a null modem cable must be connected between the printer and the terminal.

5. Connect the opposite end of the printer cable to the matching port (serial or parallel) on the printer.
6. Set the options on the printer. Refer to the document that shipped with the printer.

## Distributed Communications System

A typical connection between two cabinets is through distributed communication system (DCS) links. The link to the system is direct connection or via modems. [Figure 1-47](#) shows modem connections.

The system uses the TN765 processor interface as the control circuit pack. The TN765 provides a single EIA port that allows access to one data link. Connections to the system vary depending on the distance between systems and the type of system being connected.



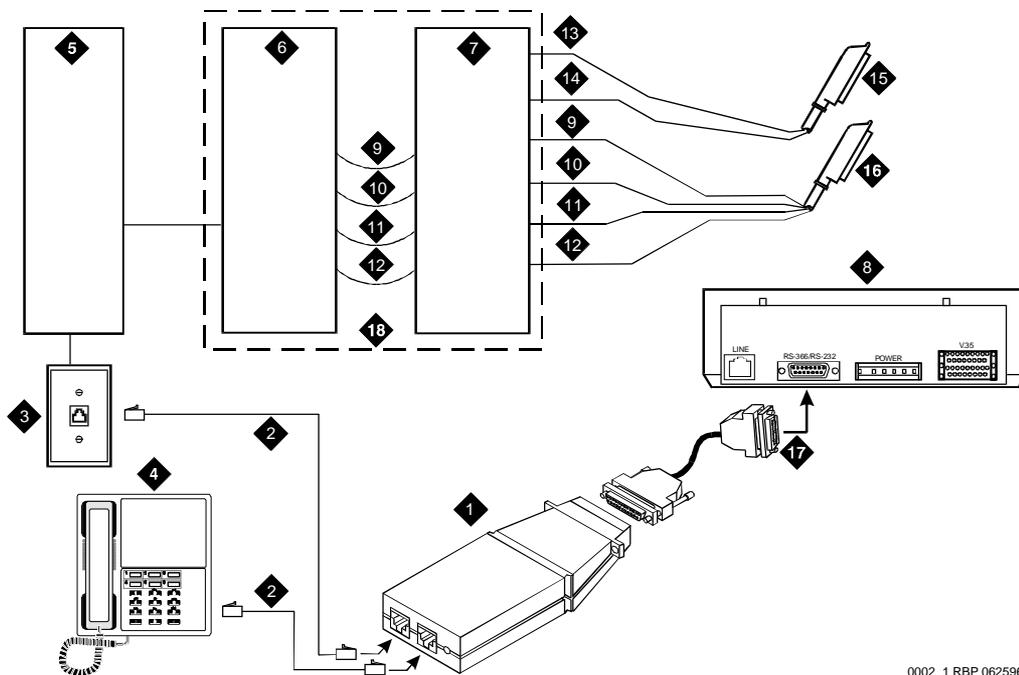
### Figure Notes

1. To TN765 processor interface circuit pack to PI connector on rear of control carrier
2. 25 Feet (7.62 m) maximum
3. M25B RS-232 cable
4. 8500B data module
5. Modular cord
6. 103A or modular wall Jack
7. Main distribution frame (MDF)
8. Public switched telephone network (PSTN)

Figure 1-47. Typical DCS Link — System to System

## Property Management System Interface

The interface between the system and the property management system (PMS) can be through data modules. Refer to [“Asynchronous Data Units” on page 1-35](#) for installing asynchronous data units. See [Figure 1-48](#).



0002\_1 RBP 062596

### Figure Notes

- |                                       |   |
|---------------------------------------|---|
| 1. Z3A1 or Z3A2 ADU                   | 10. TXR                                   |
| 2. 4-pair line cord                   | 11. PXT                                   |
| 3. 103A or modular wall jack          | 12. PXR                                   |
| 4. Analog telephone                   | 13. Tip                                   |
| 5. Satellite site or adapter location | 14. Ring                                  |
| 6. Station side blue or white field   | 15. To TN746 analog line circuit pack     |
| 7. System side                        | 16. To TN726B data line circuit pack      |
| 8. Data module (7400C shown)          | 17. 25-pin EIA-232-D connector (male)     |
| 9. TXT                                | 18. Part of main distribution frame (MDF) |

Figure 1-48. Connections to Asynchronous Data Unit

Refer to the vendor's documentation for connecting the data module to the PMS. The option switches on the data module should be set according to the requirements for the PMS.

The data unit can also be remotely or locally powered using a 2012D transformer equipped with a 248B adapter.

## **Printers and Terminals**

---

### **Printers**

A journal printer can be used with the PMS.

Refer to the vendor's documentation for connecting the data module to the printer. The option switches on the data module are to be set according to the requirements for the printer.

The PMS interface and the journal printers can also be installed using ADUs. The connections are the same as for a customer-provided data terminal. Equipment connections can be through a modem or through a data module.

### **Terminals**

The interface between the system and the customer's data terminals and host computer can be through data modules.

Asynchronous data terminals can also be connected through a Z3A ADU to a data line circuit pack. Normally, the data unit is powered from the connected data terminal. The data unit can also be remotely or locally powered using a 2012D transformer with a 248B adapter. Data units connected to receive-only printers require external power.

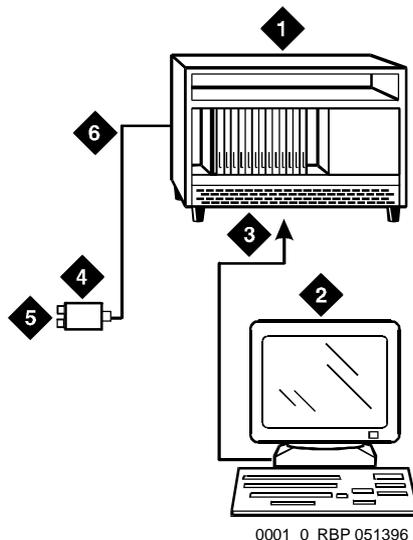
For more information, refer to the *Z3A Asynchronous Data Unit Product Manual*, 461-120-005. To install a terminal, perform the following:

1. Determine data unit or data module port assignment from Data Module Form.
2. Make the MDF and closet/satellite connections from the data unit port assignment to the information outlet.
3. Connect the information outlet to the ADU or data module.
4. Connect the RS-232 plug on the ADU or data module to the data terminal.

## PRI Converters (SCC)

### PRI to DASS and PRI to DPNSS Converters

[Figure 1-49](#) shows typical connections from the TNCCSC-1 PRI to DASS converter or the TNCCSC-2 PRI to DPNSS converters to the coaxial facility.



#### Figure Notes:

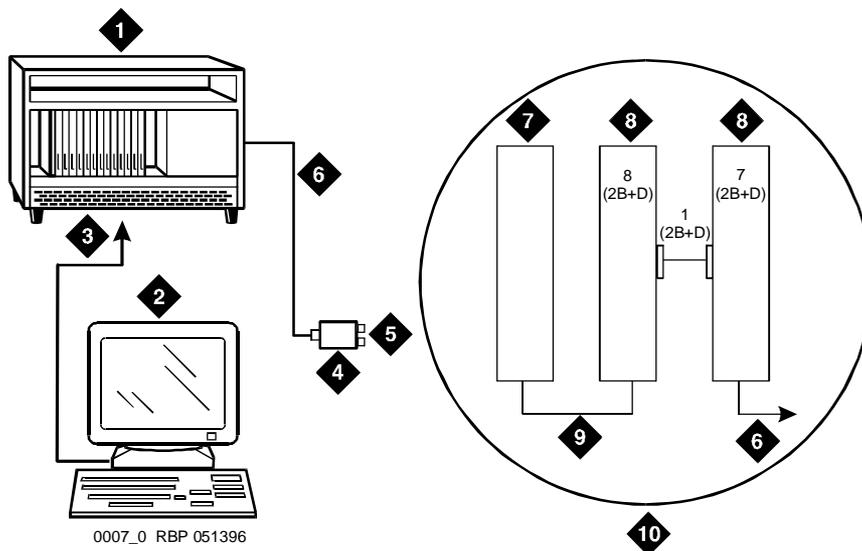
1. To TN464F DS1 circuit pack and either a TNCSCC-1 PRI to DASS converter or a TNCSCC-2 PRI to DPNSS converter circuit pack
2. DEFINITY administration terminal
3. RS-232 cable to Front of PRI converter circuit pack
4. 888B coaxial converter
5. Coaxial Connection to 2 MB per Second Facility
6. Coaxial cable from PRI converter circuit pack to coaxial converter

#### Figure 1-49. Typical DASS or DPNSS converter Cabling

1. Plug the DEFINITY administration terminal into the RS-232 connector on the front of the PRI converter circuit pack.
2. Connect the "Y" coaxial cable from the TN464F to the PRI converter circuit pack.
3. Connect the opposite end of the "Y" cable to the 888B coaxial converter.

## PRI to BRI Converter

Figure 1-50 shows typical connections from the TNPRI/BRI converter to the coaxial facility.



### Figure Notes:

1. To TN464F DS1 circuit pack and TNPRI/BRI converter circuit pack
2. DEFINITY administration terminal
3. RS-232 cable to front of converter circuit pack
4. 888B coaxial converter
5. Coaxial connection to 2 MB per second facility
6. Coaxial cable from PRI converter circuit pack to coaxial converter
7. TN464F circuit pack
8. TNPRI/BRI converter circuit pack
9. Jumper coaxial cable
10. Inset showing connections on rear of carrier

### Figure 1-50. Typical PRI to BRI Converter Cabling

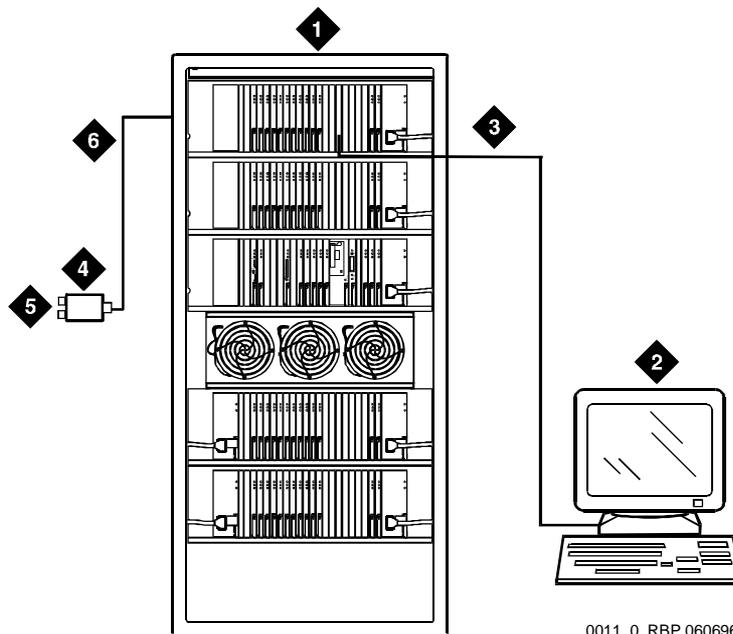
#### NOTE:

The inset shows details of the cable connections between the circuit packs. Connect the DEFINITY administration terminal to the RS-232 connector on the front of the PRI converter circuit pack.

## PRI Converters (MCC)

### PRI to DASS and PRI to DPNSS Converters

[Figure 1-51](#) shows typical connections from the TNCCSC-1 PRI to DASS converter or the TNCCSC-2 PRI to DPNSS converters to the coaxial facility.



0011\_0 RBP 060696

#### Figure Notes

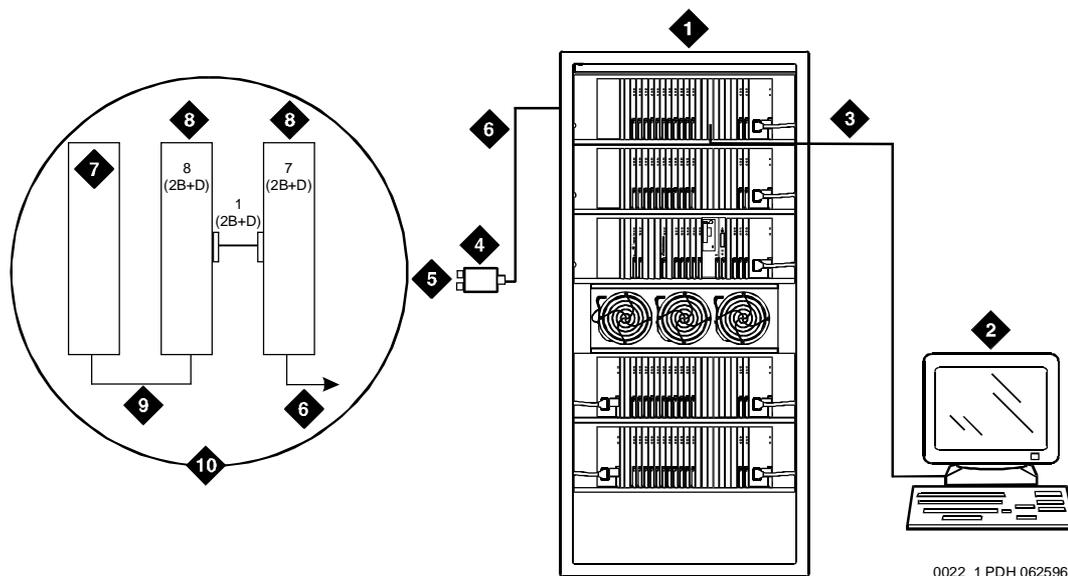
1. To TN464F DS1 circuit pack and either a TNCSCC-1 PRI to DASS converter or a TNCSCC-2 PRI to DPNSS converter circuit pack
2. DEFINITY administration terminal
3. RS-232 cable to Front of PRI converter circuit pack
4. 888B coaxial converter
5. Coaxial connection To 2 MB per Second Facility
6. Coaxial cable from PRI converter circuit pack to coaxial converter

#### Figure 1-51. Typical DASS or DPNSS Converter Cabling

Connect the DEFINITY administration terminal to the RS-232 connector on the front of the PRI converter circuit pack.

## PRI to BRI Converter

Figure 1-52 shows typical connections from the TNPRI/BRI converter to the coaxial facility. The DEFINITY administration terminal is connected to the RS-232 connector on the front of the PRI converter circuit pack.



0022\_1 PDH 062596

### Figure Notes

1. TN464F DS1 circuit pack and TNPRI/BRI converter circuit pack
2. DEFINITY administration terminal
3. RS-232 cable to front of converter circuit pack
4. 888B 75 Ohm coaxial converter
5. Coaxial connection to 2 Mbps facility
6. Coaxial cable from PRI converter circuit pack to coaxial converter
7. TN464F circuit pack
8. TNPRI/BRI converter circuit pack
9. Jumper coaxial cable
10. Inset showing connections on rear of carrier

Figure 1-52. Typical PRI to BRI Converter Cabling

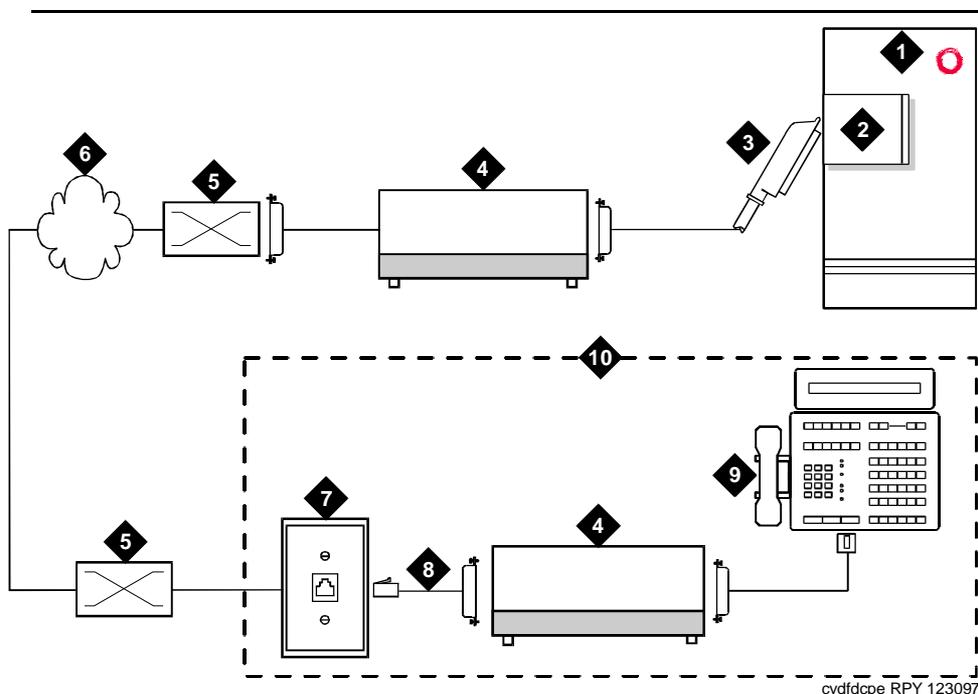
### NOTE:

The inset shows details of the cable connections between the circuit packs.



## DEFINITY DCP Extender (Stand Alone)

Figure 1-54 shows a typical connection from either a TN2181 digital line 16-port, 2-wire DCP or a TN2224 digital line 24-port 2-wire DCP circuit pack, through two DCP extender devices. The second extender installs at the work location. Refer to Table 1-9 for the pinout of the 25-pair cable. Refer to *DEFINITY Extender Switch Module System Administrator's Guide*, 555-230-532, for more information.



### Figure Notes

- |   |   |
|---|---|
| 1. System cabinet                           | 7. 103A or modular wall jack                    |
| 2. TN2181 or TN2224 circuit pack            | 8. Modular line cord                            |
| 3. 25 pair cable                            | 9. DCP telephone (Such as 8410D, 8405, or 8434) |
| 4. DEFINITY DCP extender                    | 10. Remote work location                        |
| 5. Main distribution frame (MDF)            |   |
| 6. Public switched telephone network (PSTN) |   |

Figure 1-54. Typical DEFINITY DCP Extender Connections

**Table 1-9. DCP Extender 25-Pair Cable Pinout**

<b>Cross-Connect Pin</b>	<b>Wire Color</b>	<b>Amphenol Pin</b>	<b>Backplane Pin</b>
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

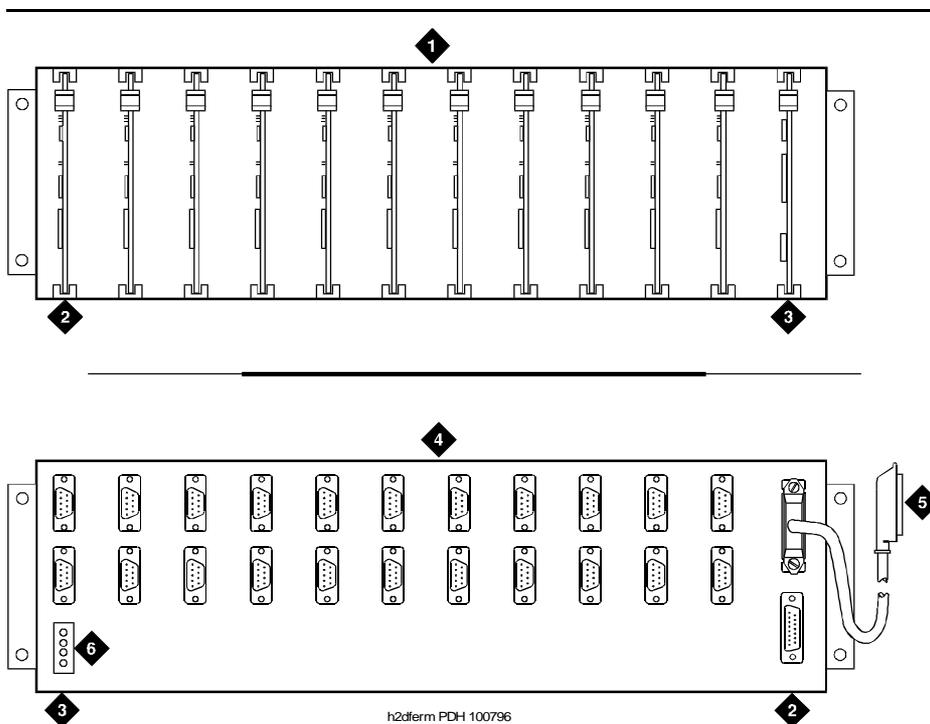
*Continued on next page*

**Table 1-9. DCP Extender 25-Pair Cable Pinout — *Continued***

<b>Cross-Connect Pin</b>	<b>Wire Color</b>	<b>Amphenol Pin</b>	<b>Backplane Pin</b>
29	BK-SL	40	304
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

## DEFINITY DCP Extender (Rack Mount)

Figure 1-55 shows a typical rack mount (multi-mount) DCP extender. Connections from either a digital line 16-port 2-wire DCP circuit pack or a digital line 24-port 2-wire DCP circuit pack, are made through two DCP extender devices. The stand alone extender installs at the work location. To install the stand-alone unit, refer to the installation instructions in “DEFINITY DCP Extender (Stand Alone)” earlier in this chapter. Refer to Table 1-9 for the pinout of the 25-pair cable on the rear of the rack mount. Refer to *DEFINITY Extender Switch Module System Administrator’s Guide*, 555-230-532, for more information.



### Figure Notes

1. Front of rack mount assembly
2. First circuit pack in slot 1 (“A”)
3. Slot 12 (“L”)
4. Rear of rack mount assembly
5. 25-pair connector to MDF and the digital line circuit packs
6. Power connector

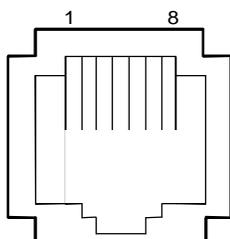
Figure 1-55. Typical DEFINITY DCP Extender Connections

## Multimedia Application Server Interface

The multimedia application server interface (MASI) enables the DEFINITY ECS to provide calling features to the multimedia communications exchange (MMCX). The MMCX server connects to the DEFINITY ECS through a D8W cable. See [Table 1-10](#) for pin assignments and [Figure 1-56](#) for pin locations.

**Table 1-10. D8W cable Modular Pin Assignments**

Pin	Signal	Pin	Signal
1	Receive ring	5	Transmit Tip
2	Receive tip	6	No connection
3	No connection	7	No connection
4	Transmit ring	8	No connection



plmxmod PDH 051397

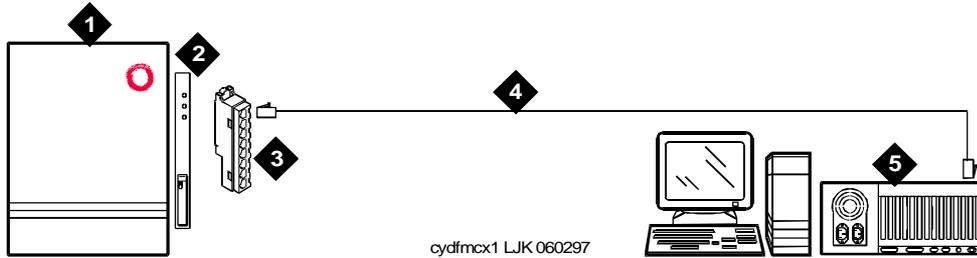
**Figure 1-56. Modular Jack Pin Assignment**

There are 2 methods to connect the MMCX server to the DEFINITY ECS, the direct method and the MDF method.

## Direction Connection

---

The direct method shown in [Figure 1-57](#), illustrates the connection from a DEFINITY ECS DS1 interface circuit pack through a D8W cable to a customer supplied digital line pc board in the MMCX.



### Figure Notes

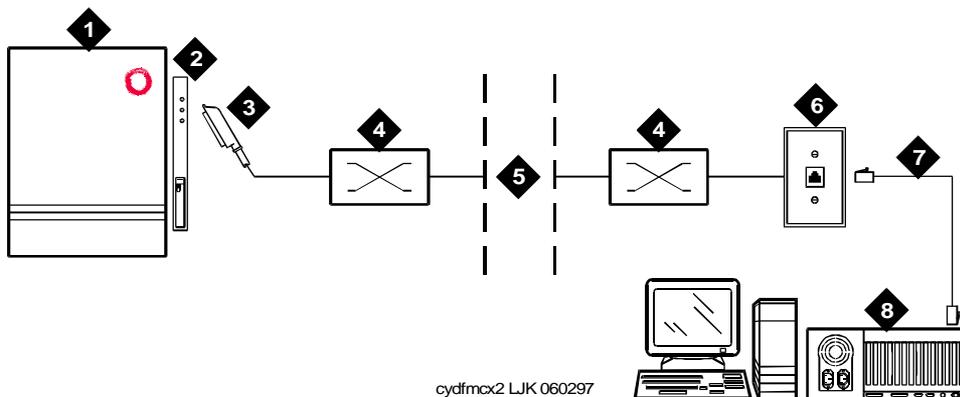
- |                                      |                            |
|--------------------------------------|----------------------------|
| 1. DEFINITY ECS                      | 4. D8W 4-pair modular cord |
| 2. TN464F DS1 interface circuit pack | 5. MMCX server             |
| 3. 356A adapter                      |                            |

---

**Figure 1-57. Direct DEFINITY to MASI Connection**

## MDF Connection

The MDF method shown in [Figure 1-58](#), illustrates the connection from a DEFINITY ECS DS1 interface circuit pack through a 25-pair cable to the MDF, through a D8W cable to the customer supplied digital line PC board in the MMCX.



### Figure Notes

- |                                      |   |
|--------------------------------------|---|
| 1. DEFINITY ECS                      | 5. Public switched telephone network (PSTN) |
| 2. TN464F DS1 interface circuit pack | 6. 103A or modular wall jack                |
| 3. 25-pair cable                     | 7. D8W 4-pair modular cord                  |
| 4. Main distribution frame (MDF)     | 8. MMCX server                              |

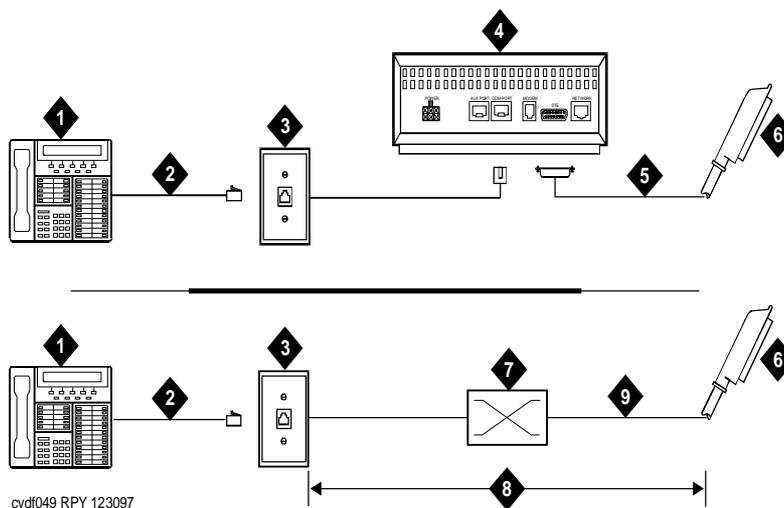
Figure 1-58. DEFINITY to MDF to MASI Connection

## Wideband Endpoints

Wideband endpoints include video equipment or bridge/routers for LANs. Use the running list that accompanies the system to make cable connections.

### Non-Signaling Configuration

A non-signaling connection to a wideband endpoint may connect to a channel service unit (CSU). If *not* using a CSU, the distance between the system and the endpoint is limited to a few hundred feet. See [Figure 1-59](#). The maximum distance depends on the type of cable and type of endpoint.



**Figure Notes:**

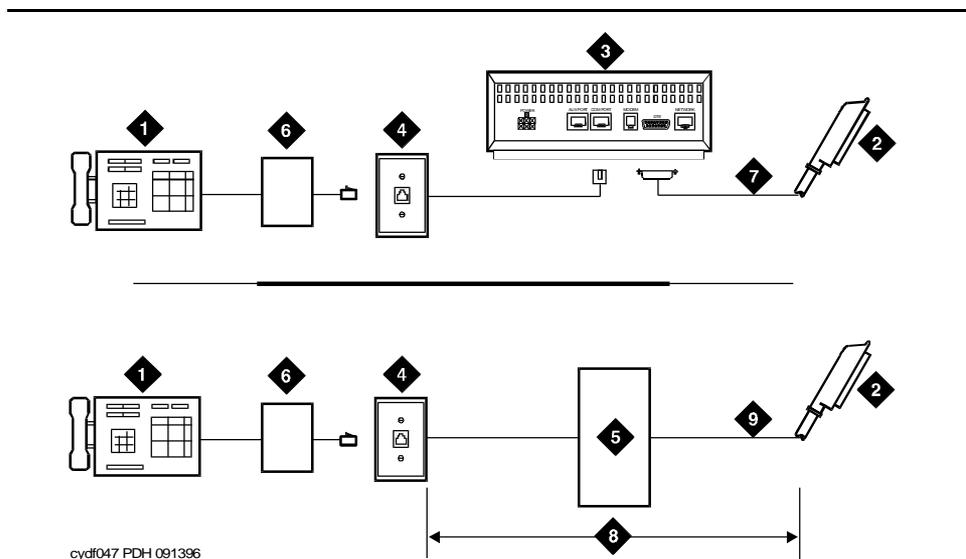
- |  |  |
|--|--|
| 1. Wideband endpoint (wire per manufacturer)                 | 6. To TN464F DS1/E1 circuit pack (TN464C or later can be used)       |
| 2. Modular cord  | 7. Main distribution frame (MDF)                                     |
| 3. 103A or modular wall jack                                 | 8. Distance limit depends on cable type and endpoint type. See text. |
| 4. Channel service unit (CSU) (3150 shown)                   | 9. A25D 25-pair cable (male-to-male)                                 |
| 5. H600-307 cable (To DTE connector on channel service unit) |  |

**Figure 1-59. Typical Non-Signaling Wideband Configuration**

If using a CSU, the distance between connections may be up to 1300 feet (396.2 m). The maximum distance to the endpoint depends on the type of cable and the specifications of the endpoint.

## Signaling Configuration

A signaling connection from the system to a wideband endpoint passes through a bandwidth controller. The distance between the system and the bandwidth controller depends on the type of cable and controller. [Figure 1-60](#) shows connections with and without a CSU.



### Figure Notes

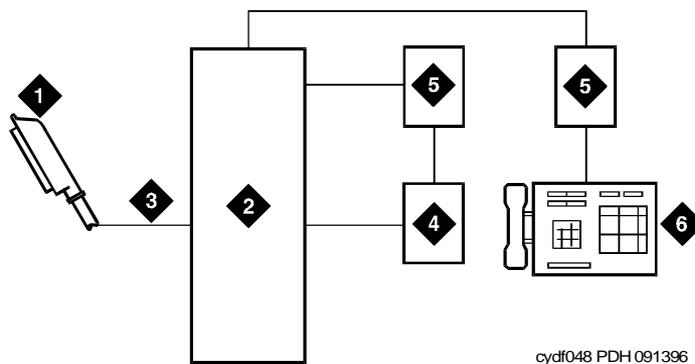
- |   |   |
|---|---|
| 1. Wideband endpoint (wire per manufacturer)        | 6. Bandwidth controller   |
| 2. To TN464F DS1/E1 circuit pack                    | 7. H600-307 cable (To DTE connector on channel service unit)          |
| 3. Optional channel service unit (CSU) (3150 Shown) | 8. Distance limit depends on cable type and bandwidth controller type |
| 4. 103A or modular wall jack                        | 9. A25D 25-pair cable (male-to-male)                                  |
| 5. Part of MDF                                      |   |

**Figure 1-60. Typical Signaling Wideband Configuration**

The bandwidth controller connects directly to the wideband endpoint. The controller typically installs near the endpoint where they directly connect (usually within a few feet of each other).

1. For non-CSU installations, cross the transmit and receive lines so a transmit signal from the TN464F connects to the receive connection on the bandwidth controller and a transmit signal from the bandwidth controller connects to the receive connection on the TN464F.
2. For CSU installations, cross the transmit and receive lines between the CSU and the bandwidth controller.

[Figure 1-61](#) shows a remote port module. In this configuration, there can be considerable distance between the bandwidth controller and the wideband endpoint. The maximum distance between elements depends on the quality of the cables and on the specifications of the wideband equipment.



### Figure Notes

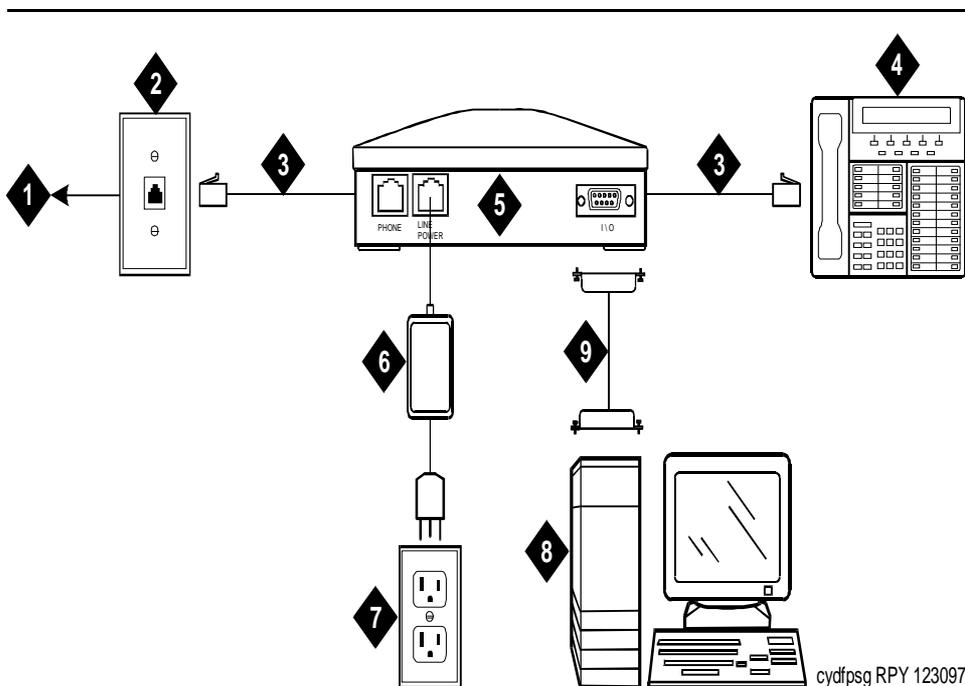
- |                                  |  |
|----------------------------------|--|
| 1. To TN464F DS1/E1 circuit pack | 4. Bandwidth controller                      |
| 2. Part of MDF                   | 5. Remote Port module                        |
| 3. H600-307 cable                | 6. Wideband Endpoint (wire per manufacturer) |

### Figure 1-61. Typical Signaling Wideband Configuration with Remote Port Module

1. For non-CSU installations, cross the transmit and receive lines so a transmit signal from the TN464F connects to the receive connection on the bandwidth controller and a transmit signal from the bandwidth controller connects to the receive connection on the TN464F.
2. For CSU installations, cross the transmit and receive lines between the CSU and the bandwidth controller.

## PassageWay Adapter (2- or 4-Wire)

The passageWay adapter makes it possible to connect a mu-Law digital telephone and a PC through a single 2- or 4-wire DCP digital port to the system. See [Figure 1-62](#). The adapter requires one Watt at about -48 VDC, from a bulk or individual power supply.



cydfpsg RPY 123097

### Figure Notes

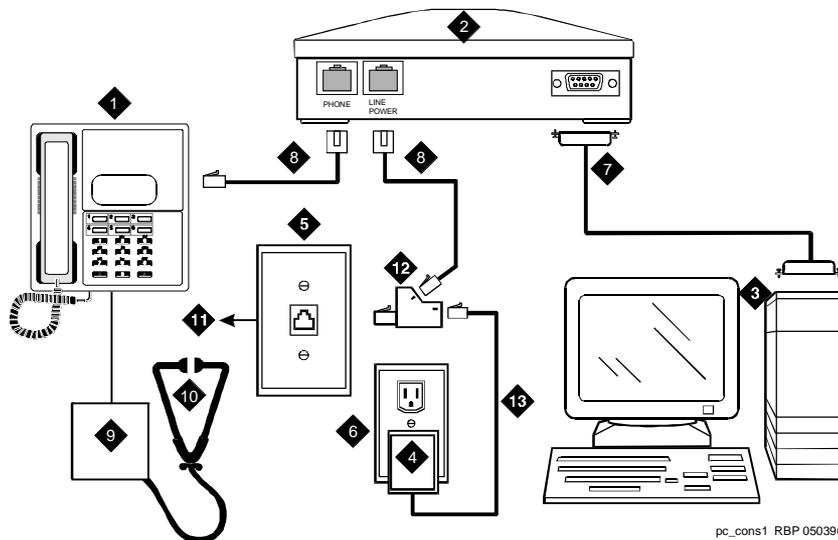
1. To digital line circuit pack
2. 103A or modular wall jack
3. 4-pair modular cord
4. Digital telephone (such as a Callmaster)
5. 2- or 4-wire PassageWay adapter
6. Individual power supply for PassageWay adapter
7. Electrical outlet for power supply
8. Host computer (serial I/O connection)
9. 25-pair cable from PC to serial I/O jack

Figure 1-62. Typical Connections Through PassageWay

## PC Console

### PC Console (United States)

Figure 1-63 shows a PassageWay adapter providing an interface between a Personal Computer (PC) and a DCP voice terminal (8403 or 8411).



pc\_cons1 RBP 050396

#### Figure Notes

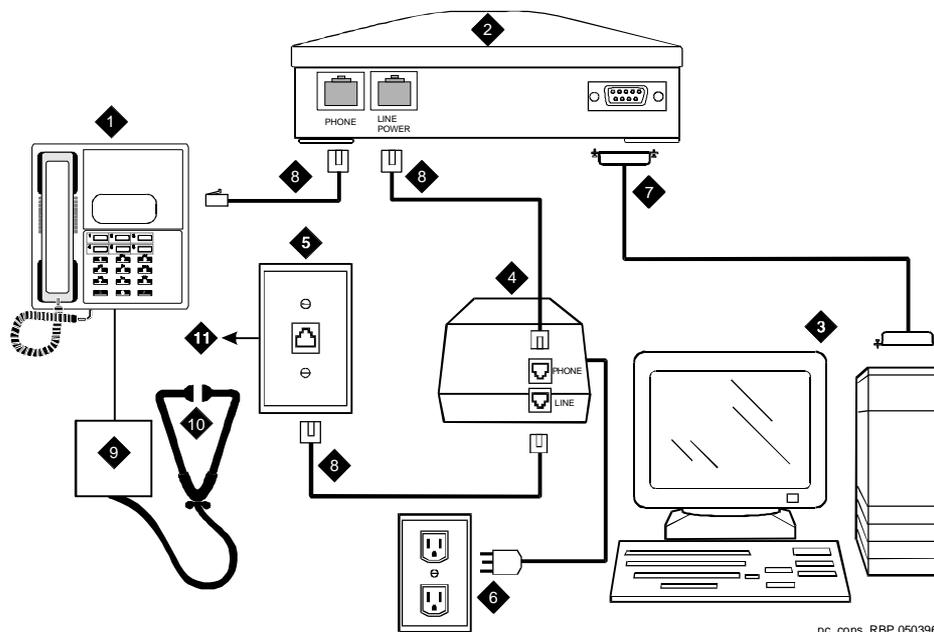
1. DCP telephone (Such as 8403 or 8411)
2. PassageWay adapter
3. Host computer (Serial I/O connection)
4. KS-22911 power supply for PassageWay adapter
5. 103A or modular wall jack
6. Electrical outlet for power supply
7. 25-pair cable
8. D8W 4-pair modular cord
9. Optional 500A adapter
10. Optional headset
11. To digital line circuit pack
12. 400B2 adapter
13. D6AP cable

#### Figure 1-63. Typical PC Console Connections (United States)

The analog jack on the rear of the DCP voice terminal is inoperable when PC console is used.

## PC Console (Non-United States)

Figure 1-64 shows a PassageWay adapter providing an interface between a PC and a DCP voice terminal (8403 or 8411).



pc\_cons RBP 050396

### Figure Notes

1. DCP telephone (Such as 6400, 8403 or 8411)
2. PassageWay adapter
3. Host computer (serial I/O connection)
4. 1151A or 1151A2 power supply for PassageWay adapter
5. 103A or modular wall jack
6. Electrical outlet for power supply
7. 25-pair cable
8. D8W 4-pair modular cord
9. Optional 500A adapter
10. Optional headset
11. To digital line circuit pack

### Figure 1-64. Typical PC Console Connections (Non-United States)

The analog jack on the rear of the DCP voice terminal is inoperable when PC console is used.

## Integrated Channel Service Unit Module

---

The integrated channel service unit (ICSU) is a combination of a 120A CSU module integrated with either a TN464F or TN767E (or later suffixes) DS1 circuit pack. This device is used with the 700A DS1 loopback jack when testing the DS1 span.

 **NOTE:**

Throughout this document, the designation TN464F means any TN464F or later suffix. Similarly, TN767E means any TN767E or later suffix.

### 120A CSU Module Installation

---

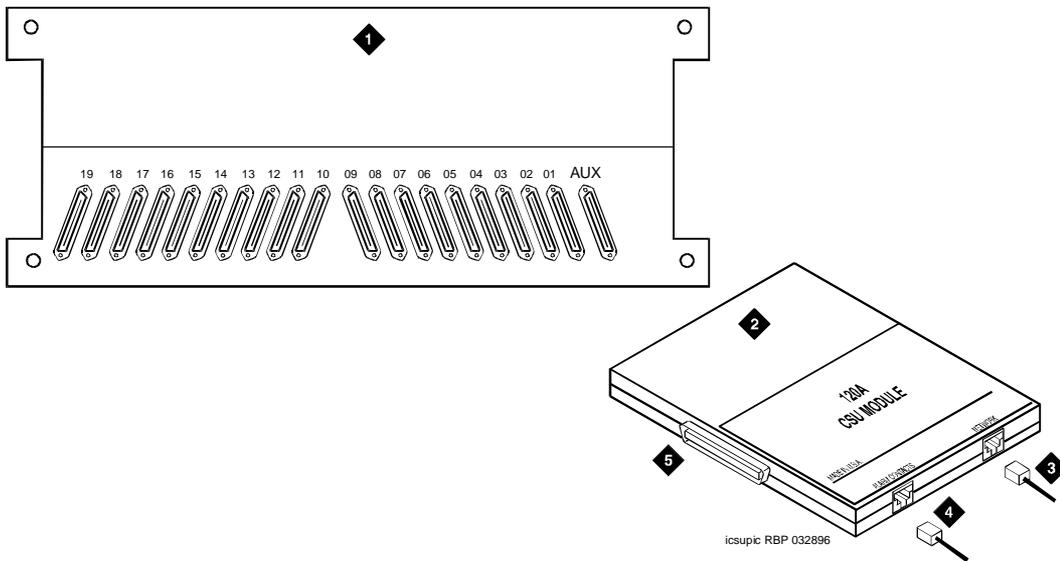
Refer to [Figure 1-65](#) when installing the 120A module. Installation instructions follow the figure and table. [Table 1-11](#) describes the components shipped with the 120A module.

**Table 1-11. 120A Module Parts List**

Part	Notes
120A CSU module	
Cable H600-383	4-pair modular cord Group 2, 50-Foot (15.2 m) cable (standard)
Cord DW8A-DE	4-pair modular cord to alarm contacts

 **NOTE:**

The basic ICSU requires a TN464E or TN767D or later suffix. The enhanced integrated channel service unit requires a TN464F or TN767E or later suffix.



### Figure Notes

1. Rear of carrier containing DS1 circuit pack
2. 120A CSU
3. 4-pair cord to network interface (H600-383)
4. DW8A-DE 4-pair cord to alarm contacts (optional)
5. To 25-pair connector on rear of carrier containing DS1 circuit pack

Figure 1-65. 120A Channel Service Unit Module

[Table 1-12](#) provides the H600-383 cable pinouts. [Table 1-13](#) provides the cable lengths for each cable group number.

**Table 1-12. H600-383 cable Pin Assignments**

<b>Pin</b>	<b>Color</b>	<b>Channel Service Unit Designation</b>	<b>Network Designation</b>	<b>Function</b>
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	
6	Shield			
7				Not assigned
8				Not assigned

**Table 1-13. H600-383 cable Lengths by Group Number**

<b>Group</b>	<b>Length</b>	<b>Group</b>	<b>Length</b>
1	25 feet (7.6 m)	5	125 feet (38.1 m)
2	50 feet (15.2 m)	6	200 feet (61 m)
3	75 feet (22.9 m)	7	400 feet (122 m)
4	100 feet (30.5 m)	8	650 feet (198.1 m)

## Install the 120A Module

---

### CAUTION:

*Before installing the 120A, observe the following cautions:*

- *Do not plug the 120A into any circuit pack other than a TN464F or TN767E or later release/vintage. 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. This option is set both in administration and by a switch on the circuit pack.*
- *The connector terminals on the 120A can be damaged by static discharge. Wear an anti-static wrist strap.*
- *Do not touch the external alarm cable when it is connected to the 120A. A solid state relay in the 120A might be damaged by static discharge. Wear an anti-static wrist strap.*
- *Do not connect the 120A to any interface other than a network smart jack.*

### NOTE:

If installing more than one 120A in a Release 6vs system, all the DS1 circuit packs should be located either in slots 1 through 4 or in slots 5 through 10 but not in both. This reduces cable congestion on the rear of the system. Placing DS1 circuit packs in both slot ranges causes 120A modules to be in close proximity on the backplane and requires the 120A module-to-network interface cable to be bent at a sharp angle. This configuration will work but should be avoided.

### CAUTION:

*Always wear an anti-static wrist strap when installing a 120A module.*

1. Make sure the DS1 circuit pack is unplugged from the 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. Secure the 4C retainer around the 120A.
4. Attach the supplied H600-383 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 6. 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 providing individually shielded, twisted pairs for transmit and receive signals. The cable is used between the network interface and the 120A. The shields of this cable should be grounded 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, a 100-pair separation should be maintained between the receive and transmit twisted pairs.
  - If using standard house riser cable for connections between the network interface and the 120A, cross connects to 110-type cross connect blocks must be limited to a maximum of 2.
  - Never use quad cable (untwisted two pair telephone cable) in a DS1 line.
  - Avoid mixing wires of different gauges in a DS1 line.
5. 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 specifications of the alarm equipment.
  6. If a TN464F 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.
  7. Set the line compensation value for 0-133 feet. This is the distance between the DS1 circuit pack and the 120A module. This is set from the system administration terminal, in the DS1 circuit pack form in the field "line compensation."
  8. Insert the DS1 circuit pack into the slot.

 **NOTE:**

Removing and reinserting the DS1 circuit pack automatically resets the 120A. To completely test the 120A, the DS1 circuit pack must be inserted *after* the 120A is installed. Always reinsert the DS1 circuit pack to completely test the 120A.

9. Independent of the host system, the DS1 circuit pack initializes and tests the 120A. Initialization and testing is complete when the green LED goes off. The DS1 circuit pack indicates the status of the circuit pack and 120A.
10. The red LED must be off after the test. This indicates a working DS1 circuit pack and 120A combination.

If the circuits do not pass the above test, troubleshoot the 120A as instructed in *Integrated CSU Module Installation and Operation*, 555-230-193.

## DS1 CPE Loopback Jack (T1 Only)

---

### ⇒ NOTE:

Do not remove the loopback jack after installation. This is not a test tool and should always be available to remotely test a DS1 span.

Using the DS1 CPE loopback jack (apparatus code 700A, Comcode 107988867), a technician can test the DS1 span between the system and the network interface point. *The loopback jack is required when DC power appears at the interface to the ICSU.* The loopback jack isolates the ICSU from the DC power and properly loops the DC span power.

### ⇒ NOTE:

The loopback jack operates with any vintage of TN767E (or later) or TN464F (or later) DS1 circuit packs and with G3V3 EDI release 3 (or later) software. The loopback jack operates with the 120A2 (or later) integrated channel service unit (ICSU) only; *not* the 31xx series of channel service units or other external CSUs or earlier ICSUs.

## loopback jack Installation

---

### Configurations Using a Smart Jack

The recommended location of the loopback jack is at the interface to the smart jack. This provides maximum coverage of CPE wiring when remote tests are run using the loopback jack. If the smart jack is not accessible, install the loopback jack at the extended demarcation point.

1. If there is no extended demarcation point, install the loopback jack directly at the network interface point as shown in [Figure 1-66](#).
2. If there is an extended demarcation point and the smart jack is not accessible, install the loopback jack as shown in [Figure 1-67](#).
3. If there is an extended demarcation point, but the smart jack is accessible, install the loopback jack as shown in [Figure 1-68](#).

### Configurations Without a Smart Jack

1. Install the loopback jack at the point where the cabling from the ICSU plugs into the *dumb* block. If there is more than one *dumb* block, choose the one that is closest to the Interface Termination feed or the fiber MUX. This provides maximum coverage for loopback jack tests. Refer to [Figure 1-69](#) and [Figure 1-70](#).

- 1 Install Adjunct and Peripheral Equipment  
DS1 CPE Loopback Jack (T1 Only)

Page 1-116

## Installation

1. To install the loopback jack, simply disconnect the RJ-48 (8-wide) connector (typically an H600-383 cable) at the appropriate interface point and connect the loopback jack in series with the DS1 span. See [Figure 1-66](#) through [Figure 1-70](#).
2. Plug the H600-383 cable from the ICSU into the female connector on the loopback jack.
3. Plug the male connector on the loopback jack cable into the network interface point.



### NOTE:

Do not remove the loopback jack after installation. This is not a test tool and should always be available to remotely test a DS1 span.

## Administration

---

1. At the management terminal, enter **change ds1 <location>**. The *location* is the DS1 interface circuit pack for which the loopback jack was installed.
2. Be sure the *near-end CSU* type is set to `integrated`.
3. On page 2 of the form, change the `supply CPE loopback jack power` field to `y`.



### NOTE:

Setting this field to `y` informs the technician that a loopback jack is present on the facility. This allows a technician to determine that the facility is available for remote testing.

4. Enter **save translation** to save the new information.

## DS1 Span Test

---

This test should only be performed after the DS1 circuit pack and the 120A2 (or later) ICSU have been successfully tested using appropriate maintenance procedures. The DS1 span test consists of 2 sequential parts. Each part provides a result indicating if there is a problem in the CPE wiring. CPE wiring may be considered problem-free only if the results of both parts are successful.

The first part of the span test powers-up the loopback jack and attempts to send a simple code from the DS1 board, through the wiring and loopback jack, and back to the DS1 board. Maintenance software waits about 10 seconds for the loopback jack to loop, sends the indication of the test results to the management terminal, and proceeds to the second part of the test.

The second part of the test sends the standard DS1 3-in-24 stress testing pattern from the DS1 board, through the loopback jack, and back to a bit error detector and counter on the DS1 board. The bit error rate counter may be examined at will via the management terminal, and provides the results of the second part of the test. The test remains in this state until it is terminated so that the CPE wiring may be bit error rate tested for as long as desired.

1. Busy out the DS1 circuit pack by entering **busyout board UCCSS** (where UCCSS is the cabinet, carrier, and slot number of the DS1 board).
2. At the management terminal, enter **change ds1 <location>** and verify the near-end `csu type` is set to `integrated`.
3. Change to page 2 of the DS1 administration form and confirm that the TX LBO field is 0dB. If not, record the current value and change it to 0dB for testing. Press Enter to implement the changes or press Cancel to change nothing.
4. Enter **test ds1-loop <location> cpe-loopback-jack**. This turns on simplex power to the loopback jack and waits about 20 seconds for any active DS1 facility alarms to clear. A *PASS* or *FAIL* displays on the terminal. This is the first of the 2 results. A *FAIL* indicates a fault is present in the wiring between the ICSU and the loopback jack. The loopback jack may also be faulty. A *PASS* only indicates that the loopback jack looped successfully, not that the test data contains no errors. If a *PASS* is obtained, continue with the following steps.

 **NOTE:**

The loss of signal (LOS) alarm (demand test #138) is not processed during this test while the 3-in-24 pattern is active.

5. Enter **clear meas ds1 loop <location>** to clear the bit error count.
6. Enter **clear meas ds1 log <location>** to clear the performance measurement counts.
7. Enter **clear meas ds1 esf <location>** to clear the ESF error count.
8. Enter **list meas ds1 sum <location>** to display the bit error count. Refer to [Table 1-14](#) for troubleshooting information.

**Table 1-14. DS1 Span Troubleshooting**

Displayed Field	Function	Indication
Test: cpe-loopback-jack	Pattern 3-in-24	The loopback jack test is active.
Synchronized	Y or N	If <b>y</b> displays, the DS1 circuit pack has synchronized to the looped 3-in-24 pattern and is accumulating a count of the bit errors detected in the pattern until the test has ended. If <b>n</b> displays, retry the test 5 times by ending the test per Step 11 and re-starting the test per Step 4. If the circuit pack never synchronizes, substantial bit errors in the 3-in-24 pattern are likely. This could be intermittent connections or a broken wire in a receive or transmit pair in the CPE wiring.
Bit error count	Cumulative count of detected errors	If there are no wiring problems, the counter remains at 0. A count that pegs at 65535 or continues to increment by several hundred to several thousand on each <b>list meas</b> command execution indicates intermittent or corroded connections, severe crosstalk, or impedance imbalances between the two conductors of the receive pair or the transmit pair. Wiring may need replacement. Note that <i>ESF error events</i> counter and the ESF performance counter summaries ( <i>errored seconds</i> , <i>bursty errored seconds</i> , and so forth) will also increment. These counters are not used with the loopback jack tests. However, they will increment if errors are occurring. Counters should be cleared following the test.

9. Repeat steps 5 through 8 as desired to observe bit error rate characteristics. Also, wait 1 to 10 minutes between Steps 5 through 7. One minute without errors translates to better than a 1 in 10 to the eighth error rate. Ten minutes without errors translates to better than a 1 in 10 to the ninth error rate.
10. If the test runs for 1 minute with an error count of 0, confirm that the 3-in-24 pattern error detector is operating properly by entering **test ds1-loop <location> inject-single-bit-error**. This causes the 3-in-24 pattern generator on the DS1 circuit pack to inject a single-bit error into the transmit pattern. A subsequent **list meas ds1 summary <location>** command displays the bit error count. If a count greater than 1 is displayed, replace the ICSU and retest. If the problem continues, replace the DS1 circuit pack.

11. Terminate the test by entering **test ds1-loop <location> end cpe-loopback-jack-test**. Wait about 30 seconds for the DS1 to re-frame on the incoming signal and clear DS1 facility alarms.

Loopback termination fails under the following conditions:

- a. The span is still looped somewhere. This could be at the loopback jack, at the ICSU, or somewhere in the network. This state is indicated by a fail code of 1313. If the red LED on the loopback jack is on, replace the ICSU. Re-run the test and verify that the loopback test terminates properly. If not, replace the DS1 circuit pack and repeat the test.
  - b. The DS1 cannot frame on the incoming span's signal after the loopback jack is powered down. This means that there is something wrong with the receive signal into the loopback jack from the "dumb" block or the smart jack. If the service provider successfully looped and tested the span, up to the smart jack, this condition isolates the problem to the wiring between the loopback jack and the smart jack. Refer to "Loopback Jack Fault Isolation Procedures" for information on how to proceed in this case. The test cannot be successfully terminated until a good signal is received. To properly terminate the test before a good receive signal is available, enter **reset board <location>**.
12. Restore the "TX LBO" field to the original value recorded in Step 2.
  13. Release the DS1 circuit pack using the **release board UCCSSpp** command.
  14. Leave the loopback jack connected to the DS1 span.

## Loopback Jack Fault Isolation Procedures

This section describes the possible DS1 configurations in which the loopback jack may be used. These configurations are: when the DS1 provider includes a smart jack, when no smart jack is provided at all, and when sites use fiber multiplexers. These configurations are separated into "Configurations Using a Smart Jack" and "Configurations Without a Smart Jack."

### Configurations Using a Smart Jack

The addition of the loopback jack and the presence of a smart jack divides the DS1 span into 3 separate sections for fault isolation. These sections are shown in [Figure 1-66](#) through [Figure 1-68](#) for the different span configurations. They are:

- Section 1: Between the 120A2 (or later) ICSU and the loopback jack.
- Section 2: Between the loopback jack and the smart jack (network interface point).
- Section 3: From the smart jack to the CO. It is necessary to contact the DS1 provider to run this test.

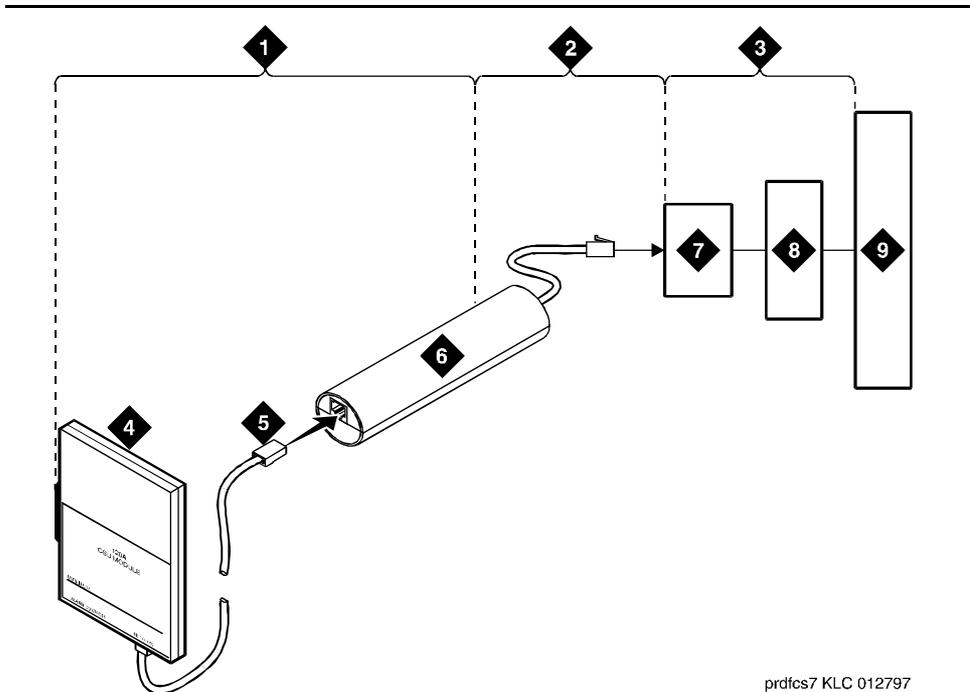
1 Install Adjunct and Peripheral Equipment  
DS1 CPE Loopback Jack (T1 Only)

Page 1-120

A problem can exist in 1 or more of the 3 sections. The field technician is responsible for finding and correcting problems in the first 2 sections. The DS1 service provider is responsible for finding and correcting problems in the third section. Testing is divided into 3 steps.

- Test customer premises wiring (section 1 in the following 3 figures) from the ICSU to the loopback jack as described in “DS1 Span Test.”
- Test the CO-to-network interface wiring (section 3 in [Figure 1-66](#)) using the smart jack loopback (CO responsibility). Coordinate this test with the DS1 provider.
- Test the short length of customer premises wiring (section 2 in the following 3 figures) between the loopback jack and the smart jack. This can be done using a loopback that “overlaps” section 2 of the cable. Any of the following loopbacks can do this:
  - The local ICSUs line loopback, which is typically activated, tested, and then deactivated by the DS1 service provider at the CO end.
  - The local DS1 interface’s payload loopback, activated and tested by the DS1 service provider at the CO end.
  - The far-end ICSU’s line loopback. This test is activated at the management terminal by entering **test ds1-loop <location> far-csu-loopback-test-begin**. The test is terminated by entering **test ds1-loop <location> end-loopback/span-test**. Bit error counts are examined as described in “DS1 Span Test.” This test method is the least preferable because it covers wiring that is not in the local portion of the span. This test only isolates problems to section 2 wiring if there are no problems in the wiring between the far-end CO and the far-end ICSU. Coordinate this test with the DS1 service provider.

If any of the above tests (a, b, or c) fail, a problem is indicated in section 2 as long as the tests for section 1 and section 3 pass. Since section 2 includes the network interface point, it is necessary to work with the service provider to isolate the fault to the loopback jack cable, the “dumb” block, or the smart jack.

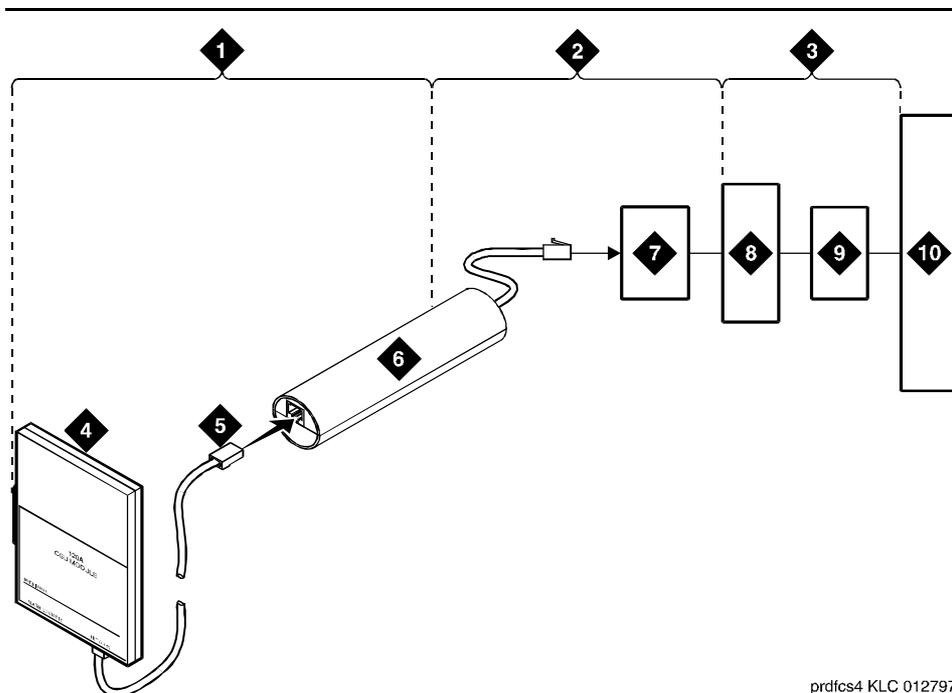


pdfcs7 KLC 012797

### Figure Notes

- |   |  |
|---|--|
| 1. Span section 1   | 5. RJ-48 to network interface<br>(Up to 1000 feet) (305 m) |
| 2. Span section 2   | 6. Loopback jack   |
| 3. Span section 3   | 7. Network interface smart jack                            |
| 4. 120A2 (or later) integrated channel<br>service unit (ICSU) | 8. Interface termination or fiber MUX                      |
|   | 9. Central office  |

Figure 1-66. Network Interface at Smart Jack

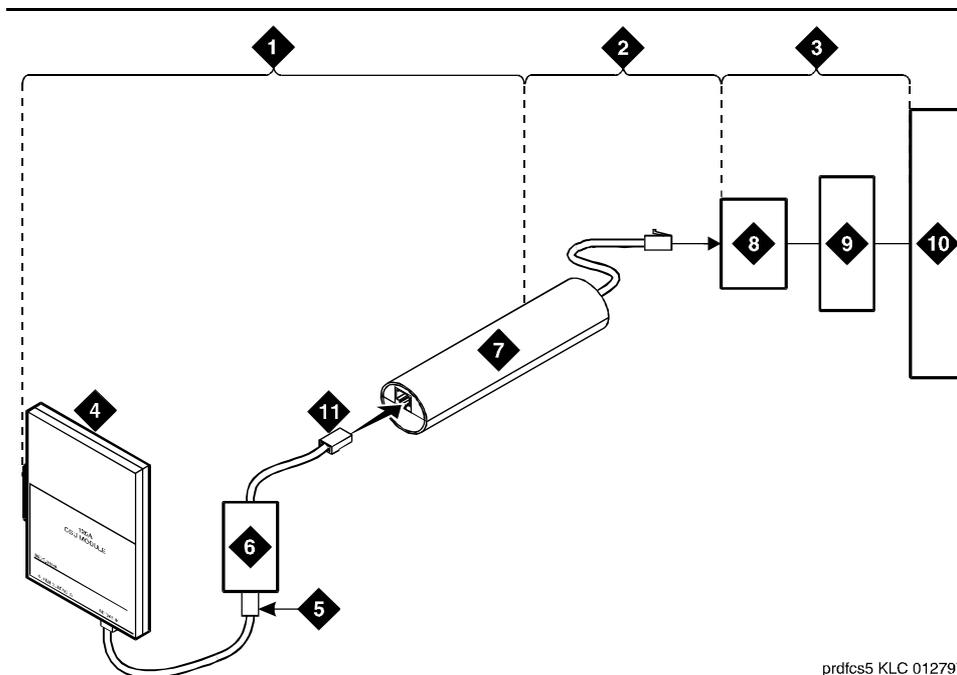


prdfcs4 KLC 012797

### Figure Notes

- |  |  |
|--|--|
| 1. Span section 1  | 6. Loopback jack                       |
| 2. Span section 2  | 7. "Dumb" block (extended demarcation) |
| 3. Span section 3  | 8. Network interface smart jack        |
| 4. 120A2 (or later) integrated channel service unit (ICSU) | 9. Interface termination or fiber MUX  |
| 5. RJ-48 to network interface (Up to 1000 feet) (305 m)    | 10. Central office                     |

**Figure 1-67. Network Interface at Extended Demarcation Point (Smart Jack Inaccessible)**



pdfcs5 KLC 012797

### Figure Notes

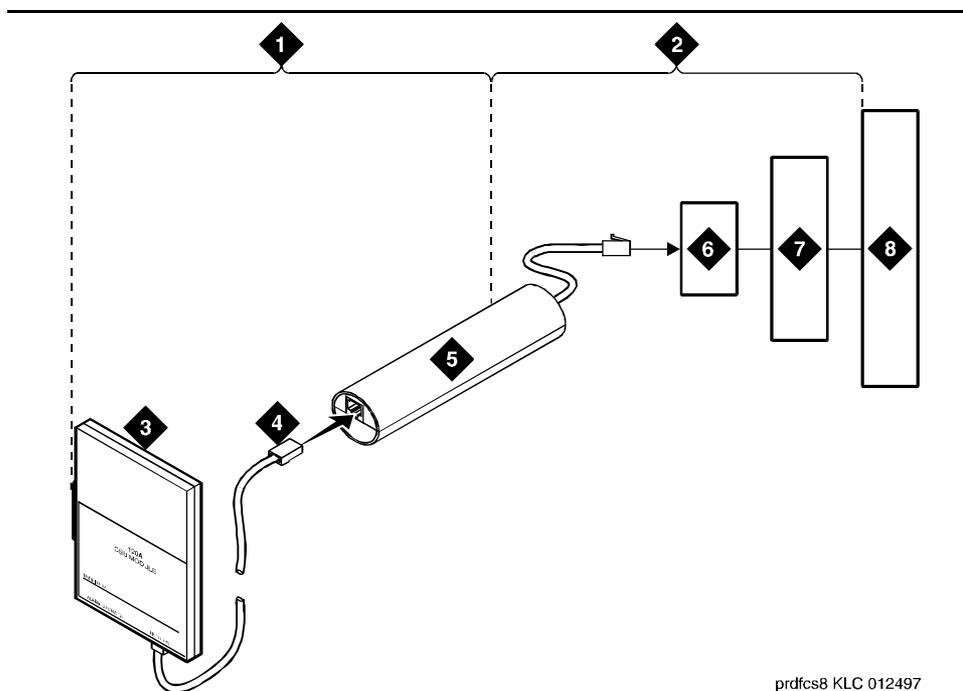
- |  |  |
|--|--|
| 1. Span section 1  | 6. "Dumb" block (extended demarcation) |
| 2. Span section 2  | 7. Loopback jack                       |
| 3. Span section 3  | 8. Network interface smart jack        |
| 4. 120A2 (or later) integrated channel service unit (ICSU) | 9. Interface termination or fiber MUX  |
| 5. RJ-48 to network interface (Up to 1000 feet) (305 m)    | 10. Central office                     |
| 11. "Dumb" block to smart jack RJ-48                       |  |

**Figure 1-68. Network Interface at Extended Demarcation Point (Smart Jack Accessible)**

## Configurations Without a Smart Jack

When the loopback jack is added to a span that does not contain a smart jack, the span is divided into 2 sections. See [Figure 1-69](#) and [Figure 1-70](#).

1. ICSU to the loopback jack.
2. Loopback jack to the central office (CO).



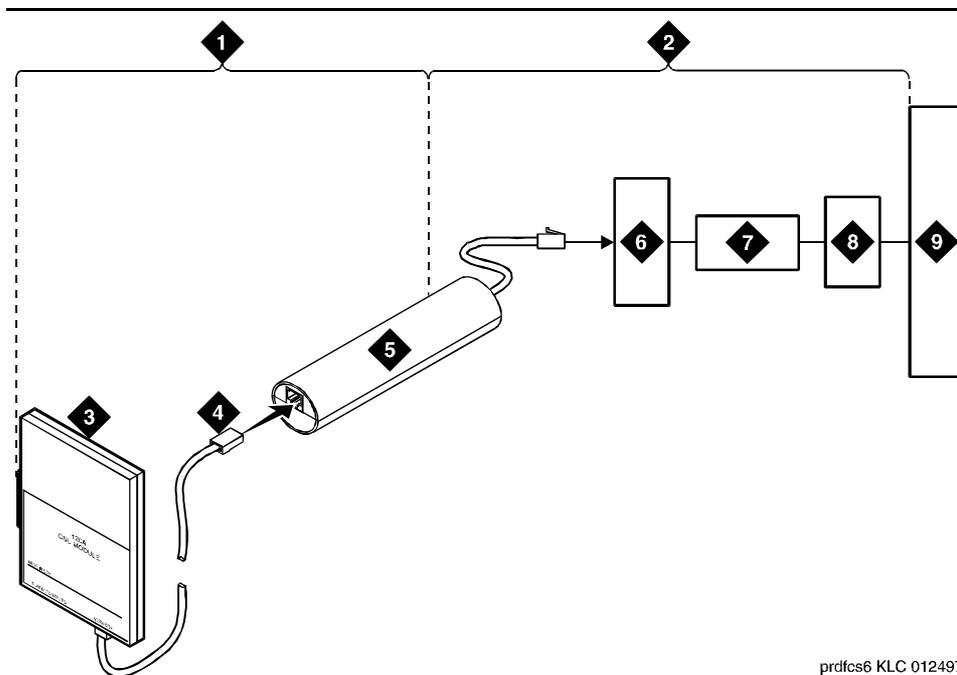
prdfcs8 KLC 012497

### Figure Notes

- |  |                                       |
|--|---------------------------------------|
| 1. Span section 1  | 5. Loopback jack                      |
| 2. Span section 2  | 6. "Dumb" block (demarcation point)   |
| 3. 120A2 (or later) Integrated channel service unit (ICSU) | 7. Interface termination or fiber MUX |
| 4. RJ-48 to network interface (Up to 1000 feet) (305 m)    | 8. Central office                     |

**Figure 1-69. Network Interface at "Dumb" Block**

1 Install Adjunct and Peripheral Equipment  
DS1 CPE Loopback Jack (T1 Only)



pdfcs6 KLC 012497

**Figure Notes**

- |  |                                     |
|--|-------------------------------------|
| 1. Span section 1  | 5. Loopback jack                    |
| 2. Span section 2  | 6. "Dumb" block (demarcation point) |
| 3. 120A2 (or later) integrated channel service unit (ICSU) | 7. Repeater                         |
| 4. RJ-48 to network interface (Up to 1000 feet) (305 m)    | 8. Fiber MUX                        |
|  | 9. Central office                   |

**Figure 1-70. Network Interface at "Dumb" Block with Repeater Line to Fiber MUX**

Section 2 includes the short cable from the loopback jack to the "dumb" block demarcation point (part of the loopback jack). This is the only portion of section 2 that is part of customer premises wiring but is not covered in the loopback jack's loopback path.

A problem can exist in 1 or both of the 2 sections. The field technician is responsible for finding and correcting problems in section 1 and the loopback cable portion of section 2. The DS1 service provider is responsible for finding and correcting problems in the majority of section 2. Testing is divided into 2 steps.

1. Test customer premises wiring (section 1 in [Figure 1-69](#)) from the ICSU to the loopback jack as described in the “DS1 Span Test” section.
2. Test the loopback jack-to-*dumb* block and *dumb* block-to-CO wiring (section 2 in [Figure 1-69](#)). This can be done using a loopback that “overlaps” the section of the span. Any of the following loopbacks can do this:
  - a. The local ICSUs line loopback, which is typically activated, tested, and then deactivated by the DS1 service provider at the CO end.
  - b. The local DS1 interface’s payload loopback, activated and tested by the DS1 service provider at the CO end.
  - c. The far-end ICSU’s line loopback. This test is activated at the management terminal by entering **test ds1-loop <location> far-csu-loopback-test-begin**. The test is terminated by entering **test ds1-loop <location> end-loopback/span-test**. Bit error counts are examined as described in the “DS1 Span Test” section. This test only isolates problems to section 2 wiring if there are no problems in the wiring between the far-end CO and the far-end ICSU. Coordinate this test with the DS1 service provider.

If any of the above tests (a, b, or c) fail, a problem is indicated in section 2. This could mean bad loopback jack -to-“dumb” block cabling, but is more likely to indicate a problem somewhere between the “dumb” block and the CO. This is the responsibility of the DS1 service provider. If the DS1 Span Test confirms that there are no problems in section 1, the technician should proceed as follows to avoid unnecessary dispatch.

1. Identify and contact the DS1 service provider.
2. Inform the DS1 provider that loopback tests of the CPE wiring to the “dumb” block (section 1) showed no problems.
3. If the far-end ICSU line loopback test failed, inform the DS1 provider.
4. Request that the DS1 provider perform a loopback test of their portion of the section 2 wiring by sending someone out to loop section 2 back to the CO at the “dumb” block.

If this test fails, the problem is in the service provider’s wiring.

If the test passes, the problem is in the cable between the loopback jack and the “dumb” block. Replace the loopback jack.

## Configurations Using Fiber Multiplexers

---

Use the loopback jack when customer premises DS1 wiring connects to an on-site fiber multiplexer (MUX) and allows wiring to the network interface point on the MUX to be remotely tested. This requires that ICSUs be used on DS1 wiring to the MUX.

Fiber MUXs can take the place of Interface termination feeds as shown in [Figure 1-66](#), [Figure 1-67](#), [Figure 1-68](#), and [Figure 1-69](#). Test these spans using the same procedures as metallic spans. Note the following points:

1. Fiber MUXes may have loopback capabilities that can be activated by the service provider from the CO end. These may loop the signal back to the CO or back to the DS1 board. If the MUX provides the equivalent of a line loopback on the "problem" DS1 facility, this may be activated following a successful loopback jack test and used to isolate problems to the wiring between the loopback jack and the MUX.
2. Be aware that there are installations that use repeatered metallic lines between the MUX and the "dumb" block. These lines require DC power for the repeaters and this DC power is present at the "dumb" block interface to the CPE equipment. *A loopback jack is required in this configuration to properly isolate and terminate the DC power.*

To check for the presence of DC, make the following 4 measurements at the network interface jack:

1. From transmit tip (T, Pin 5) to receive tip (T1, Pin 2)
2. From transmit ring (R, Pin 4) to receive ring (R1, Pin 4)
3. From transmit tip (T, Pin 5) to transmit ring (R, Pin 4)
4. From receive tip (T1, Pin 2) to receive ring (R1, Pin 4)

All measurements should read 0 (zero) volts DC. For pin numbers and pin designations, refer to *Integrated Channel Service Unit (ICSU) Installation and Operation*, 555-230-193.

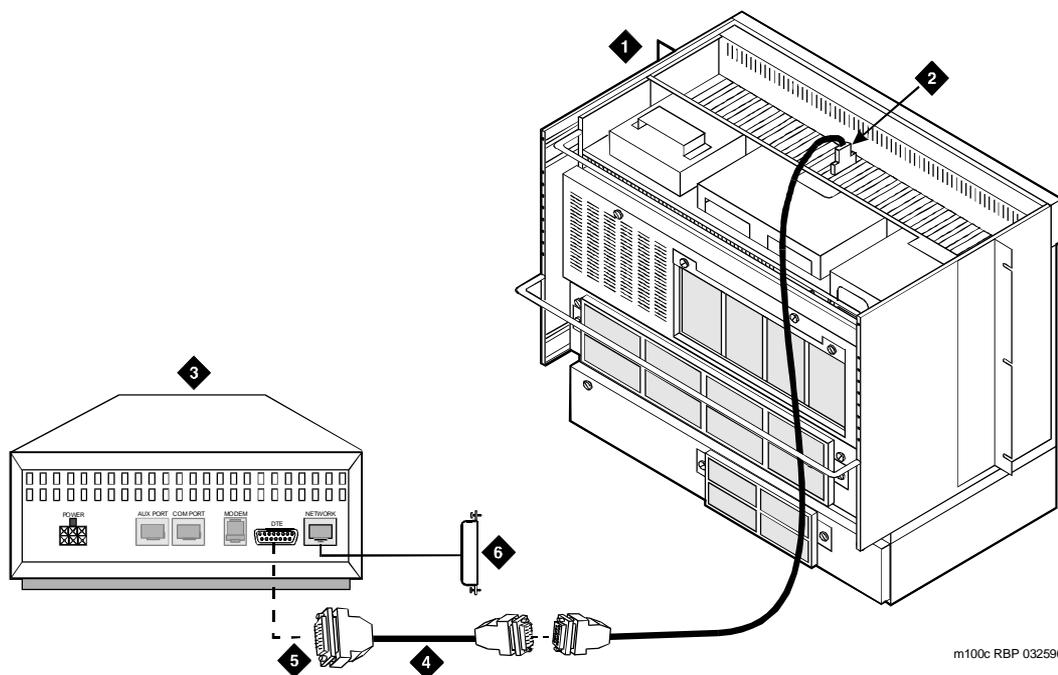
## Operating Characteristics

---

If a TN464F or TN767E and a 120A2 were installed in a system running pre-G3V3 software and the software is later upgraded to G3V3 Release 3 or later, the DS1 circuit pack must be removed and re-installed before the ICSU administration fields will appear on the DS1 administration screen.

## CONVERSANT System

Figure 1-71 shows a typical CONVERSANT® System connecting to a 3150 CSU. All CONVERSANT Systems connect similarly. The MAP/40 installs inside a PC. For installation information, refer to *MAP/40 Voice Processing Hardware Installation*, 585-310-150, or *MAP/100 Voice Processing Hardware Installation*, 585-310-148, or *MAP/100C Voice Processing Hardware Installation*, 585-350-108. Locate the CONVERSANT System within 75 feet (22.86 m) of the CSU.



m100c RBP 032596

### Figure Notes

1. MAP/100C cabinet
2. T1 extension cable (ED5P208-30, G1) from T1 interface board (Slot 12)
3. 3150 channel service unit (CSU)
4. Adapter cable (Comcode 107063711)
5. To 15-Pin DTE connector on CSU
6. To DS1 circuit pack in DEFINITY System (TN767E or later)

Figure 1-71. Typical Connections for CONVERSANT

## Two-Wire DCP Endpoint

Wire the tip and ring connections of two-wire DCP endpoints to a TN2224 digital line 2-wire circuit pack (or equivalent) similar to the two-wire analog endpoints for a TN746B analog line circuit pack.

 **NOTE:**

The TN2224 supports two-wire DCP sets only (not four-wire).

## Two-wire Voice Terminals

 **CAUTION:**

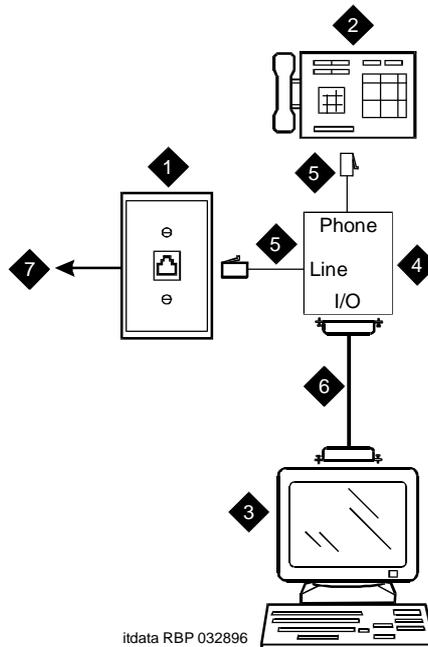
*Except for auxiliary power, if necessary (per [Table 1-15](#)), these should be the **only** connections to the modular wall jack. Do not bridge or parallel these telephones.*

**Table 1-15. DCP Information Outlet Pinout**

Pin Number	Function	Pin Number	Function
1	4-wire output from terminal	5	2-wire ring
2	4-wire output from terminal	6	4-wire input from system
3	4-wire input from system	7	Auxiliary power -48 VDC
4	2-wire tip	8	Auxiliary power GRD

## Two-Wire Voice and Data Terminals

Figure 1-72 shows a workstation connecting to a data adapter. The line side of the adapter connects to the TN2181 digital line 2-wire circuit pack via the MDF (to the system cabinet).



### Figure Notes

1. 103A or modular wall jack
2. 2-wire endpoint
3. Data terminal (serial data)
4. Data adapter (such as Italtel)
5. 4-wire modular cord
6. 25-pair cable
7. To TN2181 digital line circuit pack

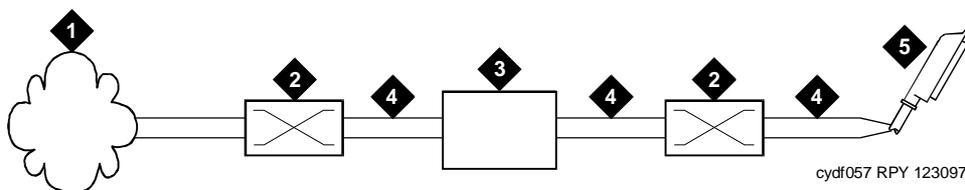
### Figure 1-72. Typical Connections to a Two-Wire DCP Workstation

Wire the circuit pack to the MDF with a 25-pair cable:

1. Wire to the data adapter per local standards.
2. Wire the data terminal and telephone as instructed in the document accompanying the data adapter.

## Busy Tone Disconnect

The customer-provided busy tone disconnect external adjunct provides a method to detect disconnect of incoming calls connected via loop start 2-wire analog trunks. These 2-wire trunks are used in some countries outside the United States where the PSTN sends tones in the voice band instead of line disconnect to indicate caller-disconnect. [Figure 1-73](#) shows typical connections.



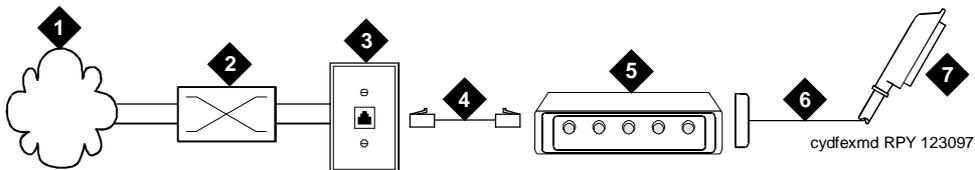
### Figure Notes

- |                                      |   |
|--------------------------------------|---|
| 1. Public switched telephone network | 4. Tip and ring wires   |
| 2. Main distribution frame           | 5. To loop start central office trunk circuit pack such as TN465B or TN747B |
| 3. Busy tone disconnect device       |   |

**Figure 1-73. Typical Cabling for Busy Tone Disconnect**

## External Modem

Figure 1-74 shows a typical connection from the TN790 or TN798 processor circuit pack to a recommended COMSPHERE external modem. A customer-supplied, type-approved modem may be used in place of the COMSPHERE modem. Contact your Lucent Technologies representative for specifications.



### Figure Notes

- |   |  |
|---|--|
| 1. Public switched telephone network              | 5. External modem  |
| 2. Main distribution frame (MDF)                  | 6. M25B cable (25-Pin RS-232)<br>(50 feet, 15.24 m maximum).<br>may require an adapter |
| 3. 103A or modular wall jack                      | 7. To DCE connector on cabinet   |
| 4. Modular line cord to DTE connector on<br>modem |  |

### Figure 1-74. Typical External Modem Connections

1. Connect the RS-232 (or EIA-232) cable to the DCE connector on the rear of the Control carrier.
2. Connect the opposite end of the cable to the modem. An adapter may be required.
3. Connect the modem to the network interface via the MDF.
4. Refer to [Chapter 2, "Setting Options"](#) to set the modem options.

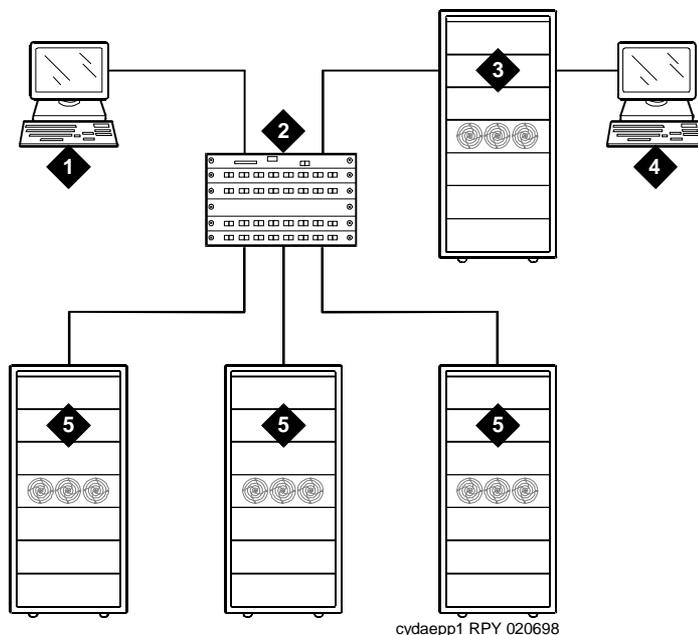
#### ⇒ NOTE:

The Release 5 and later systems are designed to operate with the COMSPHERE modems set to the factory default settings.

5. Set the `Modem Connection` field to **External**, on page 3 of the maintenance-related system parameters form.

## Asynchronous Transfer Mode

In Release 6r the AX500 asynchronous transfer mode (ATM) switch, is a replacement option for the center stage switch (CSS). It is the central interface between the processor port network (PPN) and the expansion port networks (EPNs). The ATM option consists of at least 1 AX500 ATM switch and at least 1 TN2238 PNC interface circuit pack per port network. See [Figure 1-75](#).



- |                              |  |
|------------------------------|--|
| 1. AX500 management terminal | 4. DEFINITY System administration terminal |
| 2. AX500 ATM switch          | 5. DEFINITY ECS EPN                        |
| 3. DEFINITY ECS PPN          |  |

**Figure 1-75. Typical ATM Installation**

There are 3 reliability installations for the ATM: standard, high, and critical. (See [Figure 1-76](#), [Figure 1-77](#), and [Figure 1-78](#)).

[Table 1-16](#) lists the required parts for standard, high, and critical reliability installations:

**Table 1-16. ATM Configurations**

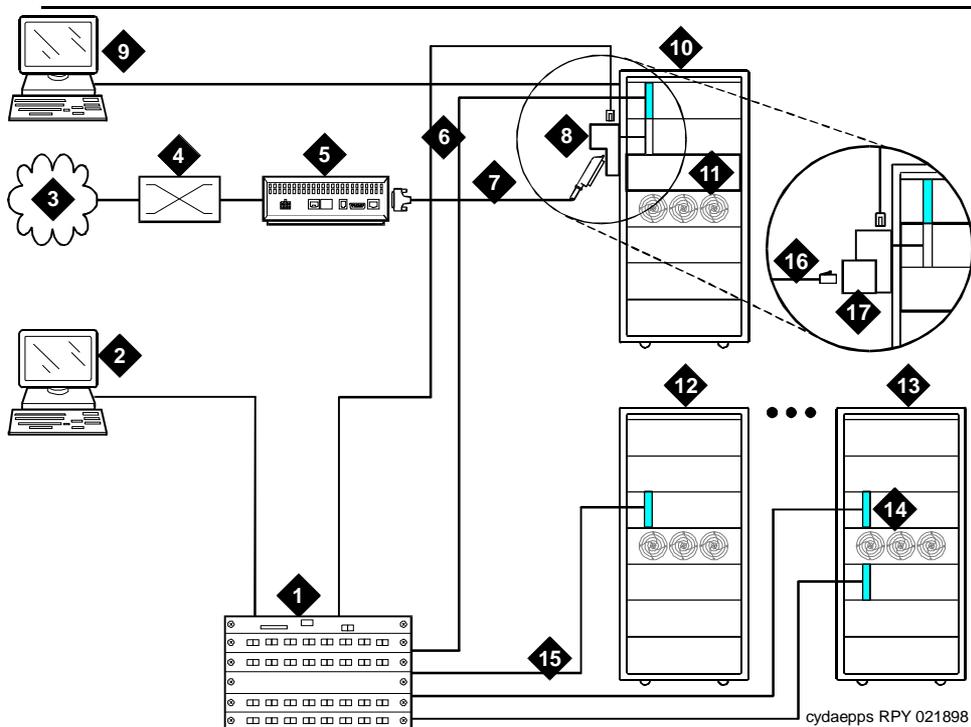
<b>Nomenclature</b>	<b>Standard Reliability</b>	<b>High Reliability</b>	<b>Critical Reliability</b>
AX500 ATM switch (other switches are available)	Y	Y	Y+1
Port carrier	N	Y	Y+1
Blank face plate	Y	Y	Y
TN2238 for each PN	Y	+1 for PPN	+1 per PN
Synchronization expander (3-way)	Y	Y	Y
SC-connected fiber (existing fiber may require an ST-to-SC adapter)	Y	Y	Y+1

Listed below are the two connection methods for the synchronization expander:

**⇒ NOTE:**

Connection method 2 is shown in the circle insert in [Figure 1-76](#), [Figure 1-77](#), and [Figure 1-78](#).

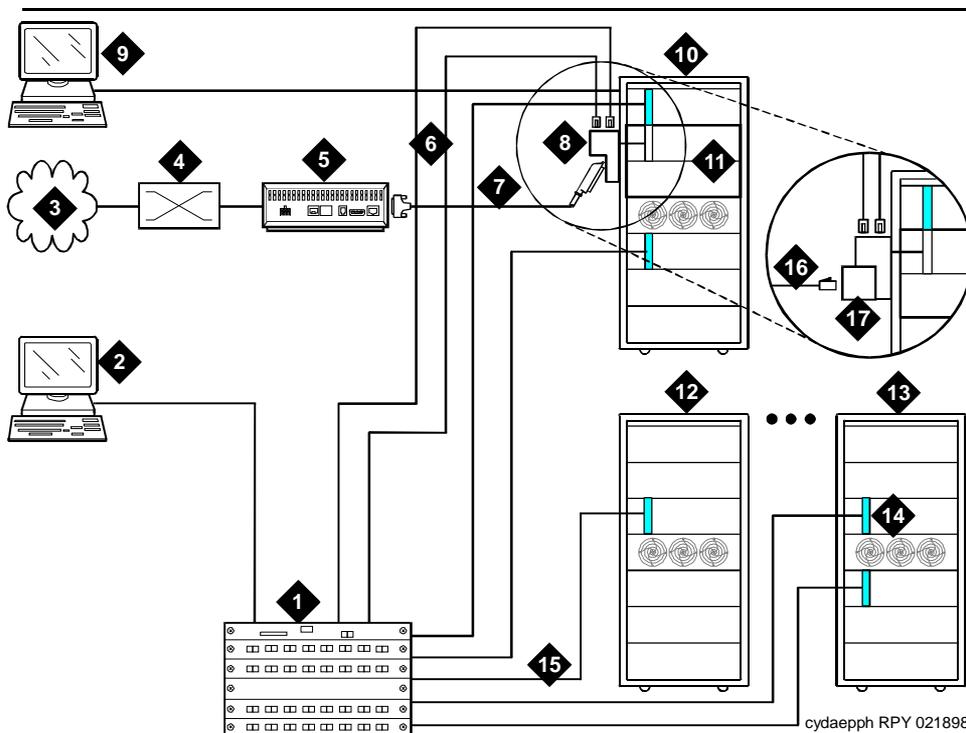
1. Connects from the MDF through a CSU and H600-383 cable to the synchronization expander.
2. Connects from the MDF through a H600-307 cable to the ICSU and the synchronization expander.



**Figure Notes**

- |  |   |
|--|---|
| 1. AX500 ATM switch  | 10. Processor port network                      |
| 2. ATM administration terminal                               | 11. Processor carrier                           |
| 3. Public switched telephone network                         | 12. Expansion port network                      |
| 4. MDF   | 13. Split cabinet expansion port network        |
| 5. Channel service unit (CSU)                                | 14. TN2238 ATM interface (shaded areas)         |
| 6. D8W cable to AX500 for DS1 synchronization                | 15. Fiber optic cables to TN2238 ATM interfaces |
| 7. H600-307 cable (To DTE connector on channel service unit) | 16. H600-383 cable to the MDF                   |
| 8. DS1 synchronization expander                              | 17. Integrated channel service unit (ICSU)      |
| 9. DEFINITY system administration terminal                   |   |

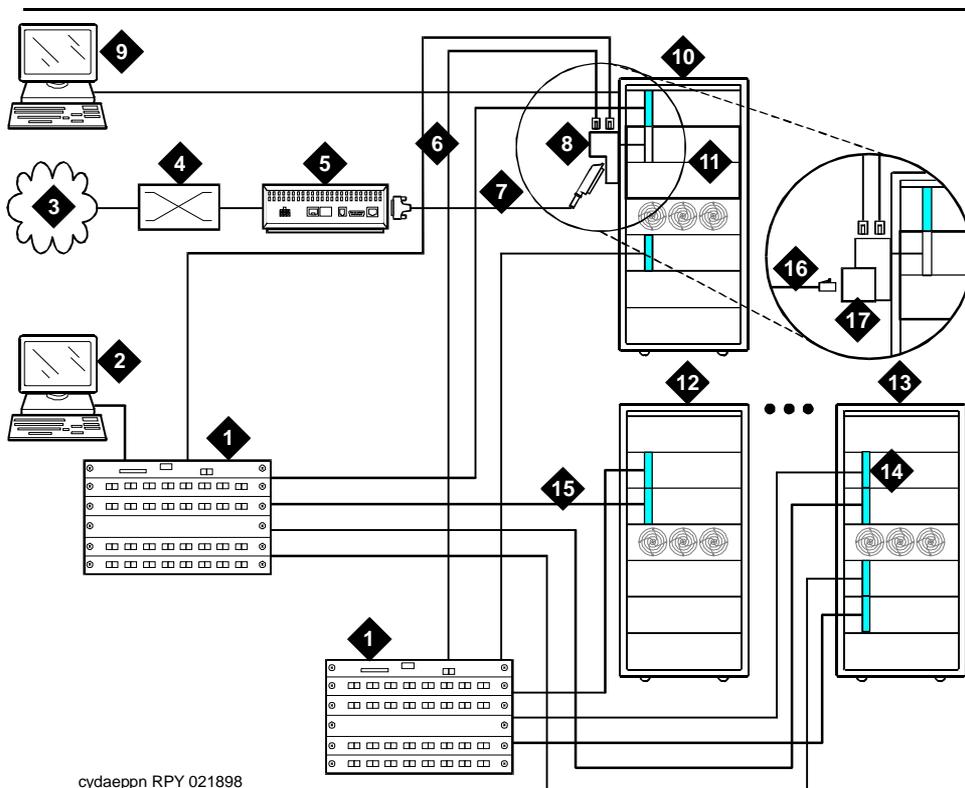
**Figure 1-76. Typical Standard ATM Interface Connections**



**Figure Notes**

- |  |   |
|--|---|
| 1. AX500 ATM switch  | 10. Processor port network                      |
| 2. ATM administration terminal                                       | 11. Two Processor carriers                      |
| 3. Public switched telephone network                                 | 12. Expansion port network                      |
| 4. MDF   | 13. Split cabinet expansion port network        |
| 5. Channel service unit (CSU)  | 14. TN2238 ATM interface (shaded areas)         |
| 6. D8W cables to AX500 for DS1 synchronization                       | 15. Fiber optic cables to TN2238 ATM interfaces |
| 7. H600-307 25-pair cable (To DTE connector on channel service unit) | 16. H600-383 cable to the MDF                   |
| 8. DS1 synchronization expander                                      | 17. Integrated channel service unit (ICSU)      |
| 9. DEFINITY system administration terminal                           |   |

**Figure 1-77. Typical High Reliability ATM Interface Connections**



**Figure Notes**

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. AX500 ATM switch (2 AX500 ATM switches required)</li> <li>2. ATM administration terminal (connected to each AX500 in turn)</li> <li>3. Public switched telephone network</li> <li>4. MDF</li> <li>5. Channel service unit (CSU) (a second CSU is optional)</li> <li>6. D8W cables to AX500 for DS1 synchronization</li> <li>7. H600-307 cable (To DTE connector on channel service unit)</li> <li>8. DS1 synchronization expander</li> <li>9. DEFINITY system administration terminal</li> </ol> | <ol style="list-style-type: none"> <li>10. Processor port network</li> <li>11. Processor carrier</li> <li>12. Expansion port network</li> <li>13. Split cabinet expansion port network</li> <li>14. TN2238 ATM interface (shaded areas)</li> <li>15. Fiber optic cables to TN2238 ATM interfaces</li> <li>16. H600-383 cable to the MDF</li> <li>17. Integrated channel service unit (ICSU)</li> </ol> |
|--|--|

**Figure 1-78. Typical Critical Reliability ATM Interface Connections**

The following procedures describe:

1. DEFINITY ATM new installation
2. Testing the installation
3. DEFINITY ATM upgrade installation
4. Testing the installation

## **DEFINITY ATM New Installation**

---

### **ATM Installation Preparation**

The following procedure describes how to prepare a site for installation of a new DEFINITY ECS System with the ATM switch.

1. Coordinate with the Largo data center, the Technical Service Center, and the customer.
2. Perform the pre-installation site survey.
3. Perform site and system analysis.
4. Order required equipment.

### **ATM Installation**

The following procedure installs a DEFINITY ATM system:

1. Make sure the DEFINITY ECS Switch is installed prior to ATM installation (See *DEFINITY ECS Installation and Test for Multi-Carrier Cabinets 555-230-112*).
2. Position the AX500 ATM switch as close as possible to the PPN.



**NOTE:**

The ATM switch should be within 39.4 meters (130 feet) of the DS1 synchronization expander and no more than 1000 meters (3280 feet) from any port network.

3. Route the fiber optic cables between the AX500 ATM switch and the DEFINITY PPN and EPNs. See [“ATM Fiber Cable Installation” on page 1-140](#).
4. Connect the fiber optic cables to the AX500 ATM switch ports. Record the port location in column 1 on the ATM worksheet. See [Table 1-18](#) when using one AX500 or add [Table 1-19](#) when using two AX500s.
5. Connect each DEFINITY System PPN or EPN ATM interface (TN2238). See [“DEFINITY ATM PNC Hardware and Software Translations” on page 1-155](#). Record the TN2238 MAC address in the ESI column on the ATM worksheet.
6. Power ON the AX500 ATM switch.

## AX500 Installation



### NOTE:

Refer to the AX500 ATM Switch Quick Reference (QR) for detailed information on the following procedure.

1. Login to the ATM administration terminal as root.
2. Set the IP address and mask.
  - a. Request IP address from system administrator.
  - b. Enter **admin address**, then enter the IP address.
3. Set the IP default router.
  - a. Request address from system administrator.
  - b. Enter **admin gateway**, then set the address.



### NOTE:

After the new addresses are entered, the AX500 **must** be reinitialized.

4. Set the DS1 clock synchronization.
  - a. Enter **sync enablesync**, to enable the sync card.
  - b. Enter **sync setsync**, to set the parameters.
  - c. Enter **sync commandsync**, to issue the command.
  - d. Enter **sync statussync**, to check the sync status.
5. Configure the AX500 port.
  - a. Enter **admin downInterface**, to set the port.
  - b. Enter **admin link\_type**, to configure the link.



### NOTE:

The port number and type of service **must** be entered.

- c. Enter **admin signaling esi add**, to add the ATM address from the ATM worksheet.
  - d. Enter **admin switch cdvt a1.4 12000**, to set the cdvt on each port (where a1.4 is the port address and 12000 is the cdvt for that port).
6. Logout the ATM switch administration terminal to set the new configuration.
7. Login the ATM switch administration terminal.

8. Verify port status.
  - a. Enter **show system interfaces**, to display individual port status.
  - b. Enter **show signaling ilmi**, to make sure the ATM addresses are correct.
  - c. Enter **show link\_type**, to view the port link type.
  - d. Enter **show signaling summary**, to view the status of each port.
  - e. Enter **show switch cdvt all**, to view all ports. (enter port address to view one port).

## ATM Fiber Cable Installation

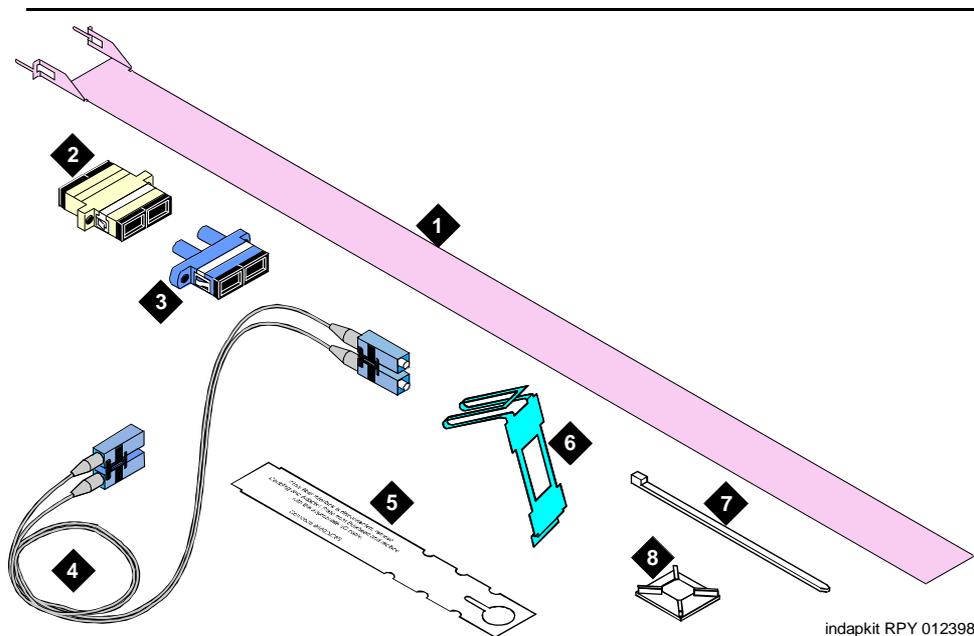
This section details the installation of the fiber optic cable using the DEFINITY fiber optic pass-thru kit for multicarrier cabinets (MCC). This kit (comcode 848029278) provides the equipment necessary to install the fiber optic connectors and associated cabling.

### Unpack and Inspect

1. Verify the equipment received. See [Figure 1-79](#). Actual equipment may vary in appearance and may ship in separate packages
2. See [Table 1-17](#) for a list of part comcodes.

**Table 1-17. Fiber Pass-Thru Kit Equipment**

Quantity	Description	Comcode
1	Pass-thru tool	847978715
1	Beige SC-SC fiber optic adapter (multimode)	107118903
1	Beige ST-SC fiber optic adapter (multimode)	107087967
1	Ten-foot (3 m) fiber optic cable (multimode)	107122640
1	I/O connector adapter bracket	847978673
1	Fiber optic cable disconnect label	848029286
10	Cable ties	407814672
6	Cable tie mounts	403053150



### Figure Notes

- |                              |                                       |
|------------------------------|---------------------------------------|
| 1. Pass-thru tool            | 5. Fiber optic cable disconnect label |
| 2. SC-SC fiber optic adapter | 6. I/O connector adapter bracket      |
| 3. SC-ST fiber optic adapter | 7. Cable tie                          |
| 4. Fiber optic cable         | 8. Cable tie mount                    |

Figure 1-79. Fiber Pass-Thru Kit Equipment

### LASER Product

The DEFINITY ECS may contain a Class 1 LASER device if multimode fiber optic cable is connected to a remote expansion 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.

## Cabinet Preparation

1. Open the front door.



**NOTE:**

Administration may be required before removing the circuit pack in the following step.

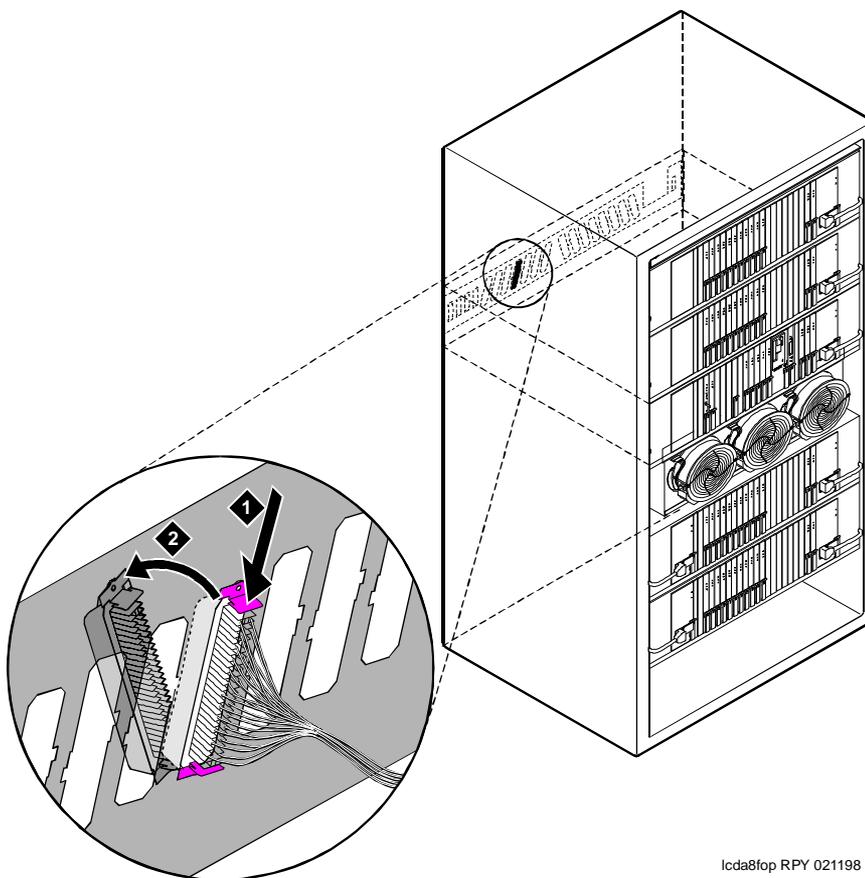
2. Determine which slot (1 or 2) will contain the new fiber optic circuit pack. Remove the circuit pack or the blanking plate from this slot.
3. Remove the circuit pack or the blanking plate from the slot next to the slot determined in step 2. Two consecutive open slots are required to install the fiber optic adapter.



**NOTE:**

If a circuit pack was removed in step 3, it will be replaced into the same slot, later in this section.

4. Install the new circuit pack.
5. Open the rear door.
6. From the rear, remove the I/O cable connector associated with the slot that will contain the new fiber optic circuit pack. See [Figure 1-80](#).



lcda8fop RPY 021198

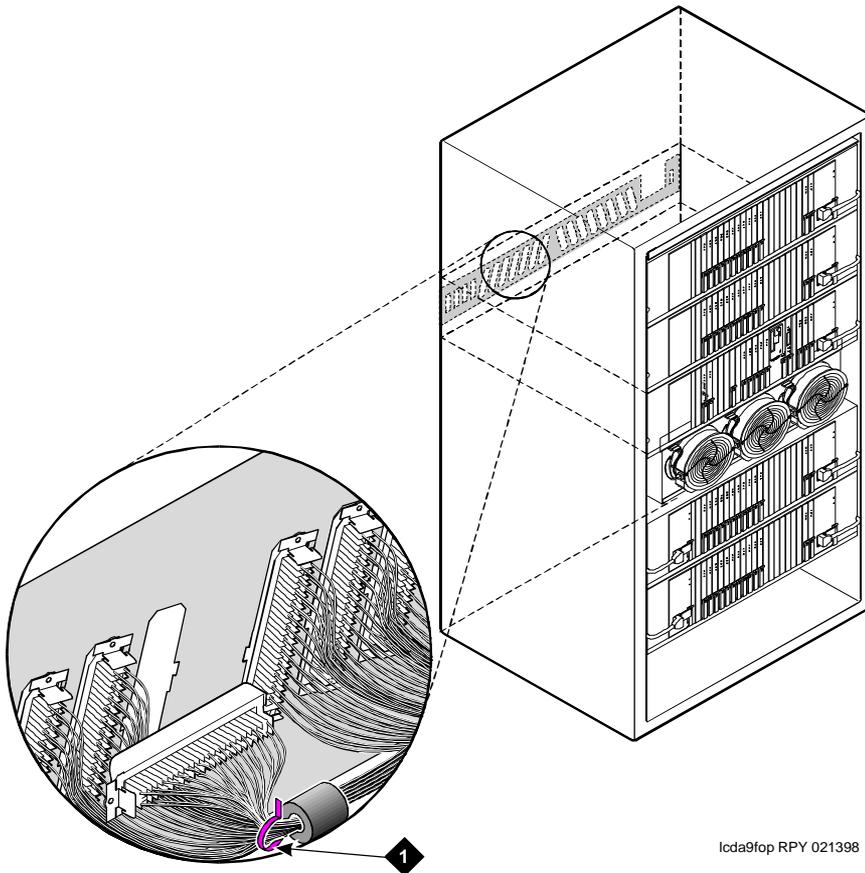
### Figure Notes

1. Press tab down

2. Pull connector forward

### Figure 1-80. Remove the I/O Cable Connector

7. Using a supplied cable tie, secure the removed I/O connector to nearby cabling. [Figure 1-81](#).



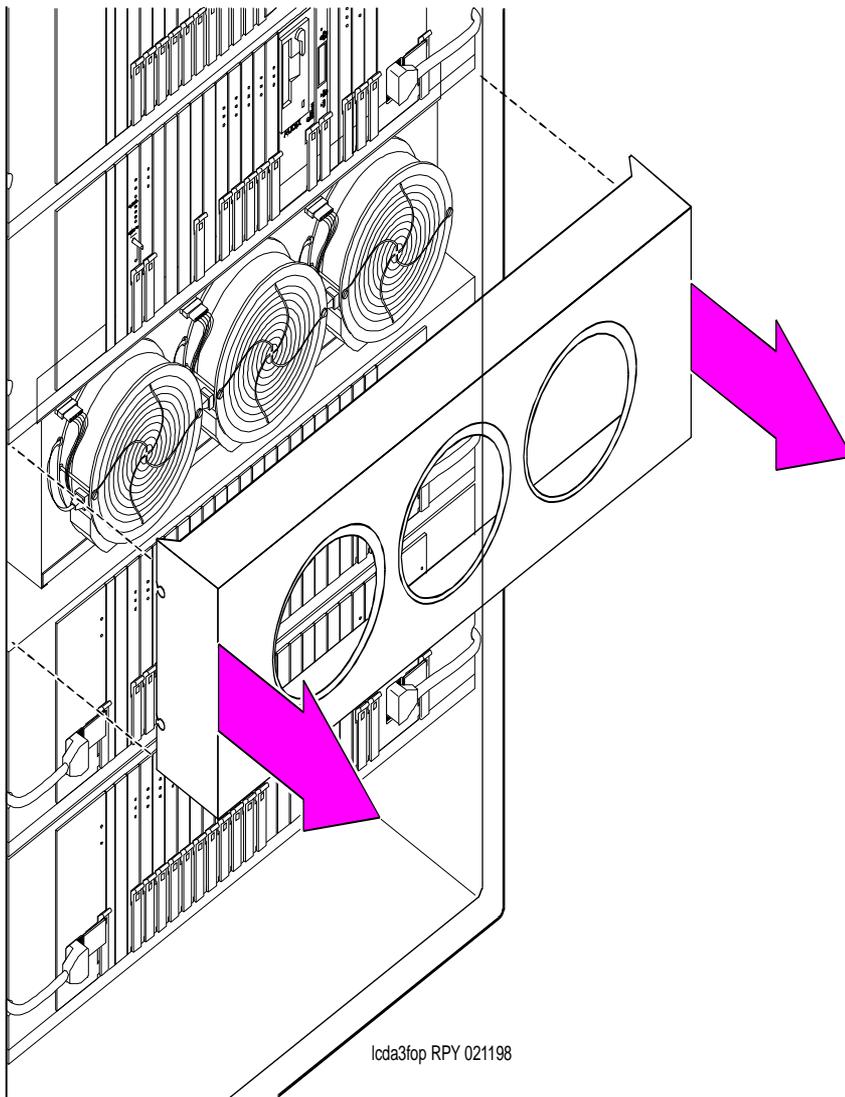
lcda9fop RPY 021398

### Figure Notes

1. Tie wrap

### Figure 1-81. Secure the I/O Cable Connector

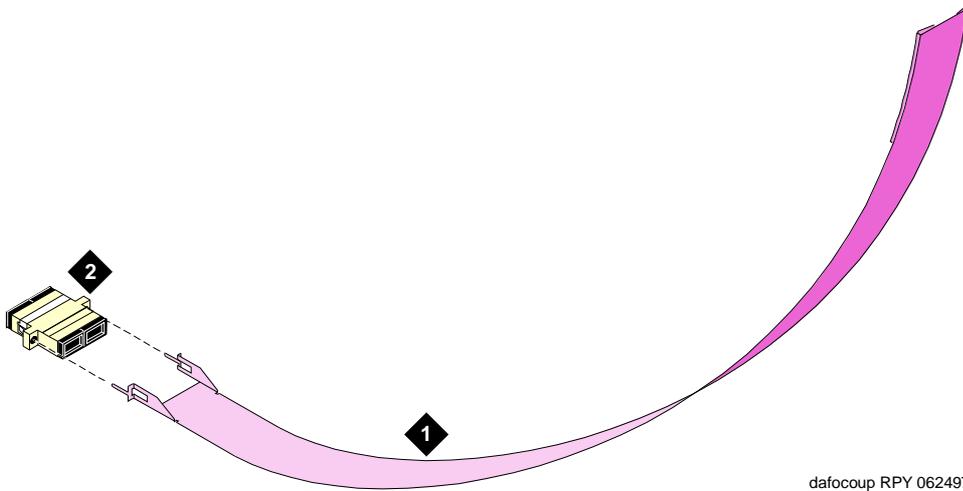
8. From the front, remove the fan cover. See [Figure 1-82](#).



**Figure 1-82. Remove the Fan Cover**

### Install the Pass-thru Kit

1. Snap the SC-SC beige fiber optic adapter on the pass-thru tool.  
See [Figure 1-83](#).



dafocoup RPY 062497

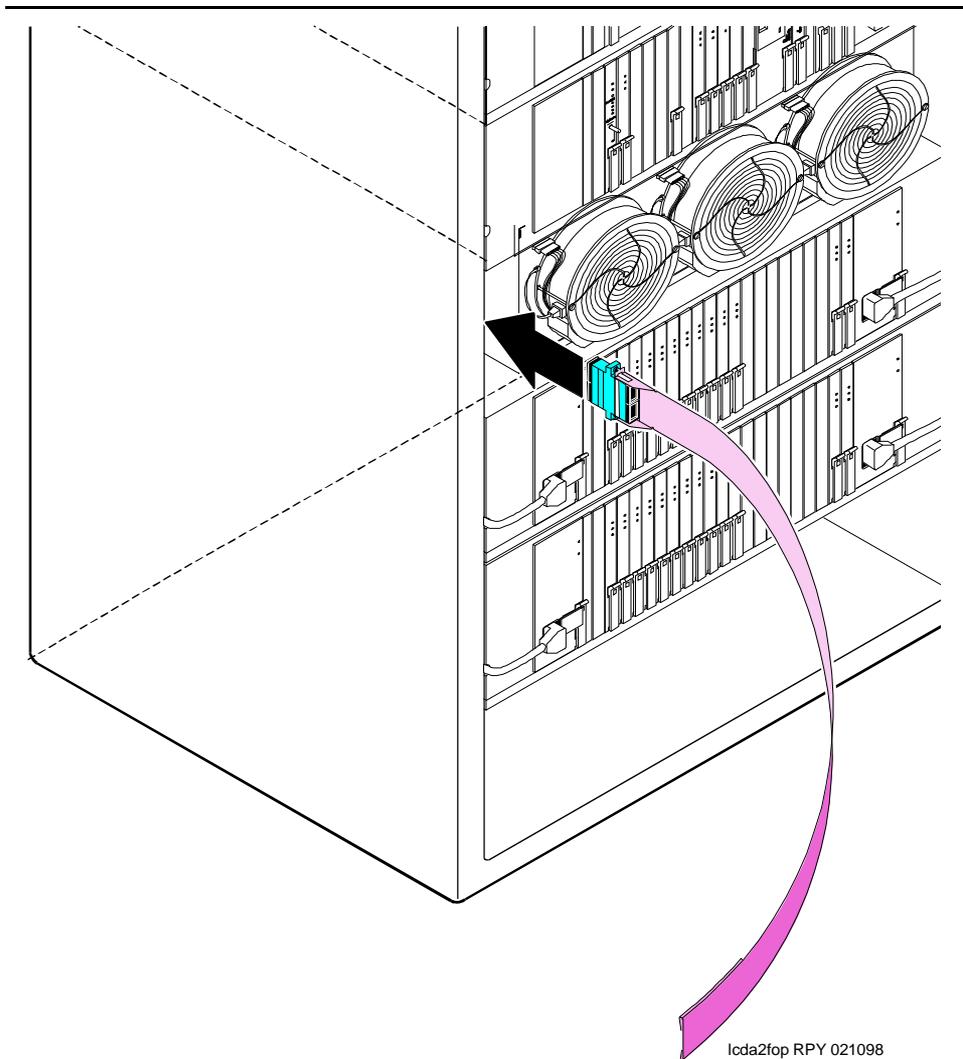
**Figure Notes**

1. Pass-thru tool

2. SC-SC fiber optic adapter

**Figure 1-83. Fiber Optic Adapter and Pass-Thru Tool**

2. Slide the tool to the rear of the cabinet. See [Figure 1-84](#).



**Figure 1-84. Insert the Pass-thru Tool**



**CAUTION:**

*Avoid bending fiber optic cables to a radius smaller than 1.5 inches (3.8 cm), to prevent mechanical stress on the cables.*

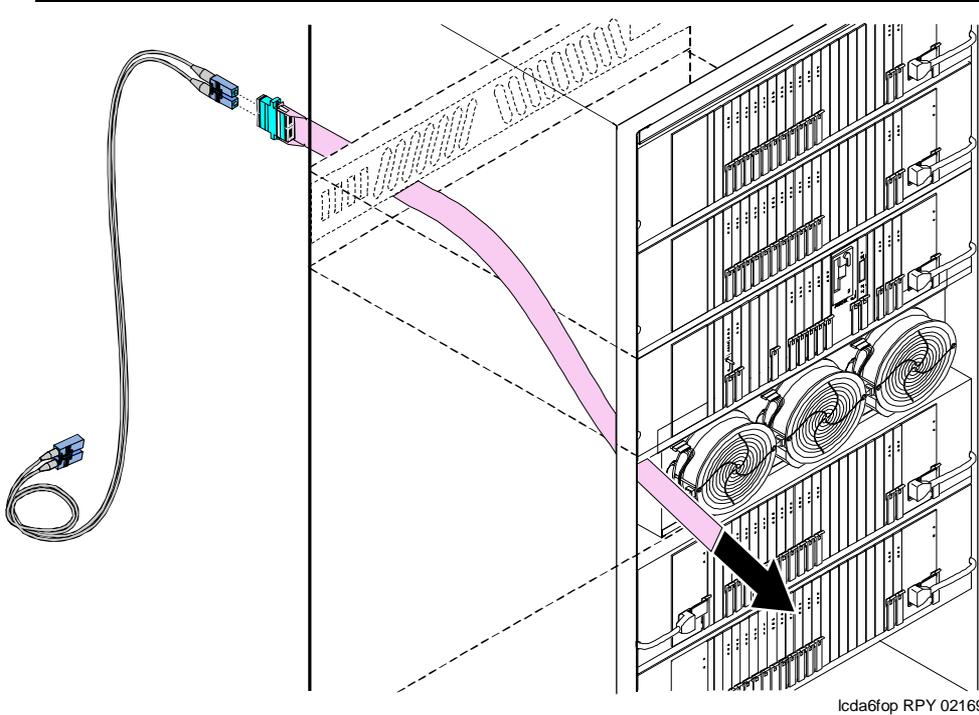


**CAUTION:**

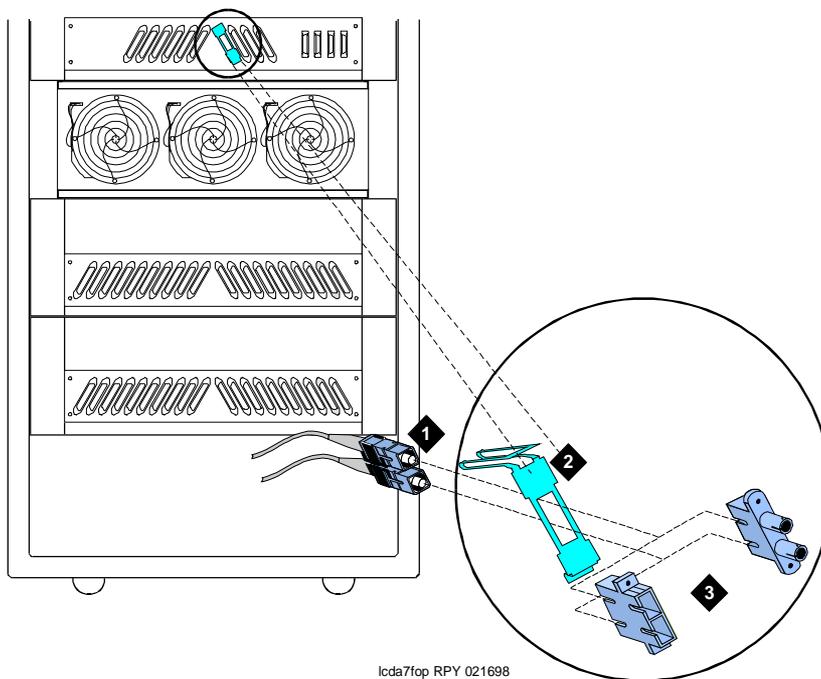
*During the actual installation of fiber optic components, use the beige adapters.*

3. Attach the supplied fiber optic cable to the adapter.
4. Pull the tool (with adapter and cable attached) out through the front of the cabinet. See [Figure 1-85](#).
5. From the rear, route the fiber optic cable through the opening vacated by the I/O cable connector.
6. If necessary, remove the fiber adapter from the tool and plug the fiber optic cable into the SC-SC or ST-SC adapter. See [Figure 1-86](#). Check the house cabling before selecting a coupling to use.
7. From the front of the I/O connector adapter bracket (with fiber cable), snap the coupling into the supplied I/O connector adapter bracket.
8. Snap the I/O connector adapter bracket into the I/O connector opening.
9. Attach the outside fiber cable to the I/O connector on the rear of the cabinet.

1 Install Adjunct and Peripheral Equipment  
*Asynchronous Transfer Mode*



**Figure 1-85. Fiber Optic Cable and Adapter**

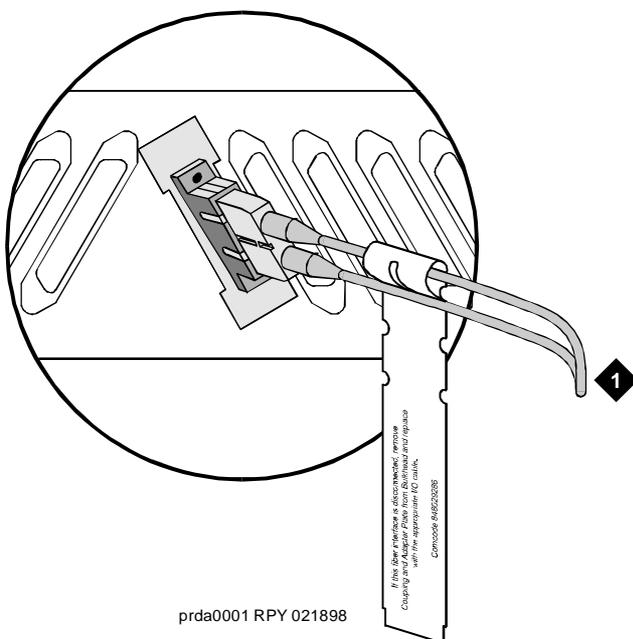


**Figure Notes:**

- 1. Fiber cable
- 2. I/O connector adapter bracket
- 3. SC-SC adapter or SC-ST adapter

**Figure 1-86. Bracket Attachments**

- 10. Wrap the cable disconnect label around the fiber optic cable.  
See [Figure 1-87](#).



**Figure Notes:**

1. To outside plant fiber

**Figure 1-87. Cable Disconnect Label**

11. Close the rear door.

**CAUTION:**

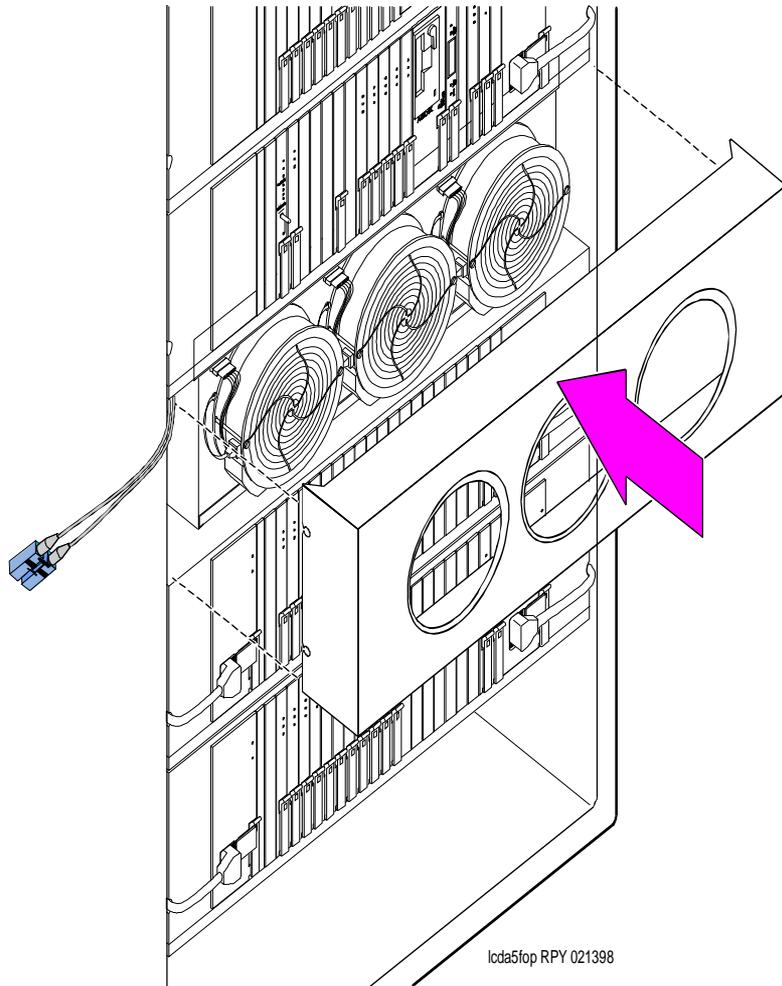
*Avoid bending fiber optic cables to a radius smaller than 1.5 inches (3.8 cm), to prevent mechanical stress on the cables. Plan the use of cable ties to avoid crimping the cable or creating a fixed stress point where, at a later time, movement of the cable causes it to exceed the minimum bend radius.*

**CAUTION:**

*Be careful not to crimp the fiber cable when you are performing the following step.*

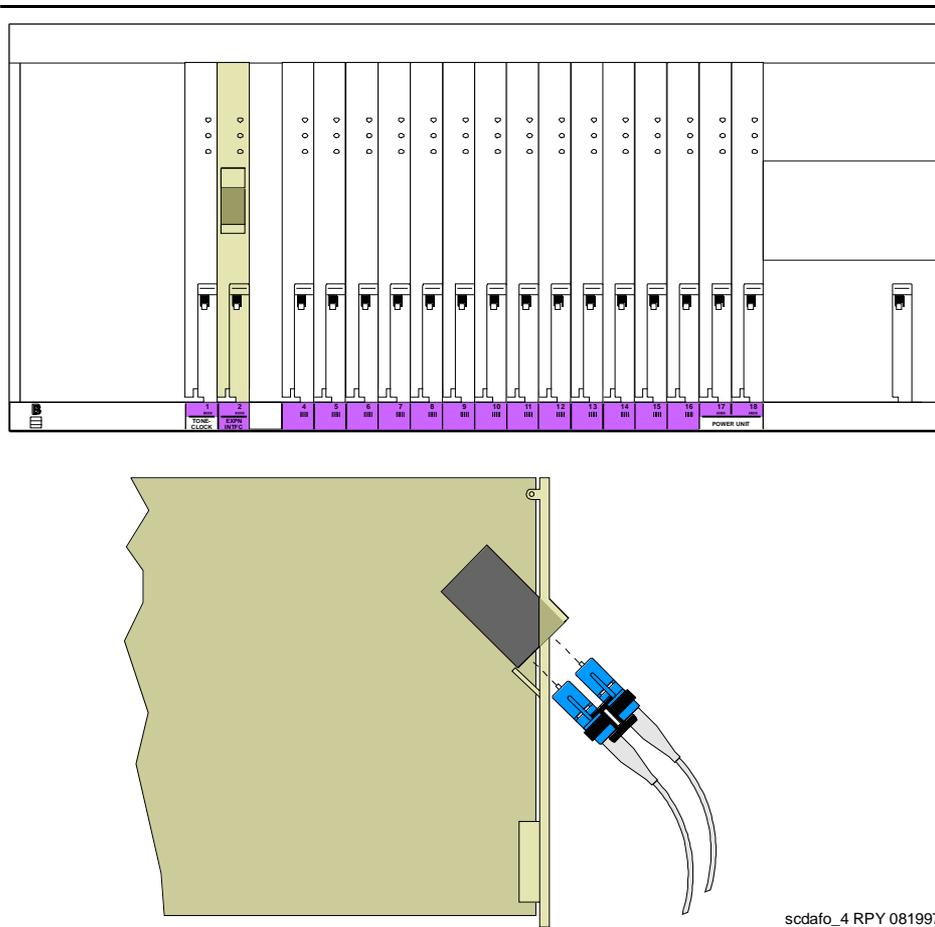
12. Replace the fan cover. See [Figure 1-88](#).

**1** Install Adjunct and Peripheral Equipment  
*Asynchronous Transfer Mode*



**Figure 1-88. Replace the Fan Cover**

13. Connect the fiber cable to the angled connector on the front of the circuit pack. See [Figure 1-89](#).



scdafo\_4 RPY 081997

**Figure 1-89. Connect Fiber Cable to Circuit Pack**

14. Dress the cable using the supplied cable ties and cable tie mounts. See [Figure 1-90](#).

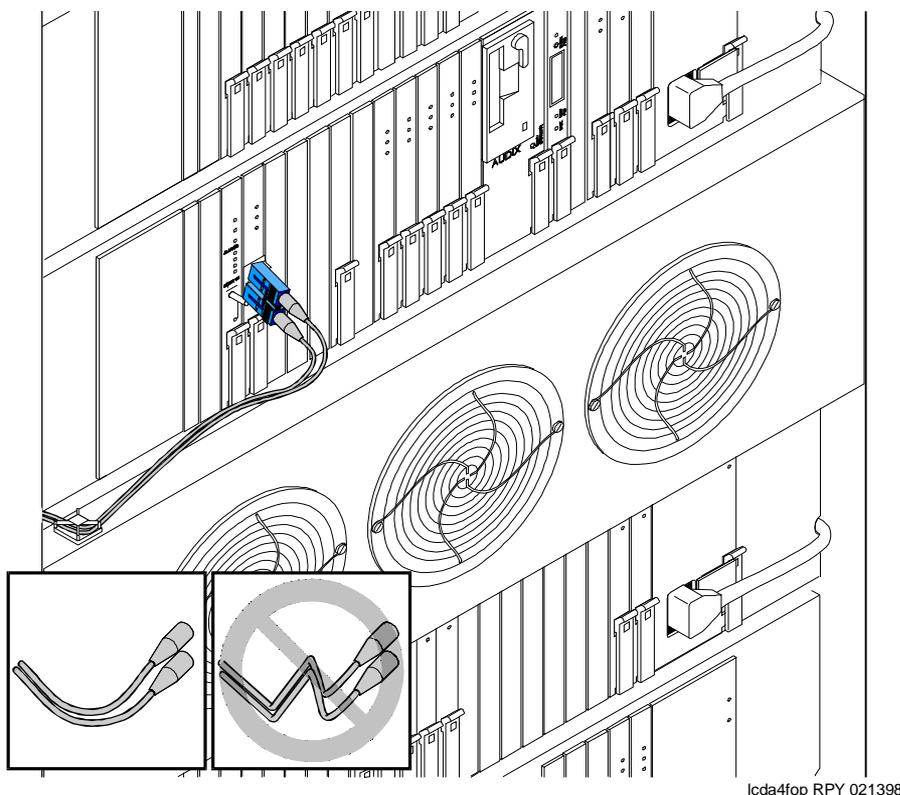


**NOTE:**

Dress the fiber optic cable straight down the front of the circuit pack. Do not allow the cable cross in front of another circuit pack.

1 Install Adjunct and Peripheral Equipment  
*Asynchronous Transfer Mode*

Page 1-154



lca4fop RPY 02139E

**Figure 1-90. Dress the Cable**

15. If a circuit pack was removed to access 2 open slots, replace the circuit pack into its original slot.
16. Close the front door.
17. Discard the pass-thru tool.

### Test the Installation

1. Log into the management terminal.
2. Enter **list configuration all** to determine if the new circuit pack appears in the correct slot and that there are no circuit pack conflicts.
3. Enter **change system parameters maintenance**. *y* and press Enter.

## DEFINITY ATM PNC Hardware and Software Translations

The following procedure administers the ATM PNC hardware and software translations:

1. Login to the DEFINITY system administration terminal with `init`.

 **NOTE:**

An `init` login is required to change customer options. Contact your regional CSA (customer software administrator) to perform this function.

2. Enter **customer options** to change the system parameters.
  - a. Set `Asynchronization Transfer Mode (ATM) PNC?` **Y**
  - b. Logoff the DEFINITY system administration terminal.
  - c. Login to the DEFINITY system administration terminal as `craft` (ignore any alarms at this time).

 **NOTE:**

The `init` login is no longer required.

3. Install the TN2238 circuit packs in the carrier slots marked EXPN INTFC and connect the fiber cable. See [“ATM Fiber Cable Installation” on page 1-140](#).
  - f. You must wait for up to 4 minutes for the TN2238 circuit pack to become active.
4. Administer the ATM PNC.

 **NOTE:**

Use the ATM worksheet you filled out in [“ATM Installation”](#).

- a. Enter **add atm pnc next** then fill in the following fields:

 **NOTE:**

You must enter the following information for each ATM pnc.

- b. Set `Location:` **01C01** (cabinet, carrier, slot).
- c. Set `Name:` **XXXXX** (assign a unique port name).
- d. Set `Address format` (as supplied from the system administrator) from one of the following:

E.164 ATM private, DCC, or ICD

1 Install Adjunct and Peripheral Equipment  
*Asynchronous Transfer Mode*

Page 1-156

⇒ **NOTE:**

If other ATM applications are installed ask the ATM system administrator to determine which address format to use. The system default is ICD.

- e. ICD, DCC or E.164 appears.
- f. Set HO DSP: **80ef1000000**, fill in information from the ATM worksheet.
- g. Enter ESI from the worksheet (MAC address) of the TN2238 in the EPN).
- h. Sel: **00**

⇒ **NOTE:**

Steps d through g comprise the 20 byte ATM address.

- i. Repeat steps a through h until all port networks are administered.
  - j. Enter **List ATM PNC** to verify all ATM connections are administered.
  - k. Enter **list sys-link**, link types EAL (EPN) and PACL (PPN) should be displayed.
5. Administer the ATM switch synchronization as follows:
- a. Set change synchronization: **ATM switch**.
  - b. Set primary: **ATM switch**.
  - c. Set secondary: **ATM switch**.
  - d. Set save translations: **Y**

## Testing the Installation

Specify a test board location in the PPN then proceed as follows:

- 1. Check standard LED information on the circuit pack for proper operation.
- 2. Place test call between PNs.
- 3. If test call fails, check the ATM address for that TN2238.

## DEFINITY ATM Upgrade Installation

### Upgrade ATM Installation Preparation

The following procedure describes how to prepare a site for DEFINITY ECS System upgrade to an ATM switch.

1. Coordinate with the Largo data center, the Technical Service Center, and the customer.
2. Perform the pre-installation site survey.
3. Perform site and system analysis.
4. Order required equipment.

Perform the following one week prior to the ATM upgrade cutover:

1. Inventory all received equipment and fiber.
2. Upgrade the DEFINITY ECS to release 6.3.



**NOTE:**

Make sure the synchronous expander is installed at this time.

3. Save translations and backup to tape.
4. Locate the AX500 ATM switch as close as possible to the PPN.



**NOTE:**

Should be within 130 feet of the DS1 synchronization tap and no more than 1000 meters from any port network.

5. Connect the expander switch to the AX500.
6. If installing new fiber optic cables, route the cables from the AX500 ATM switch to the approximate location of each DEFINITY System EPN ATM interface circuit pack. See [“ATM Fiber Cable Installation” on page 1-140](#).
7. Record each TN2238 MAC address in the ESI column on the ATM worksheet. See [Table 1-18](#) when using one AX500 or add [Table 1-19](#) when using two AX500s.
8. Install the AX500.

## AX500 Installation

1. Power ON the AX 500 ATM switch.



**NOTE:**

Refer to the AX500 ATM Switch Quick Reference (QR) for detailed information on the following procedure.

1. Login to the ATM administration terminal as root.
2. Set the IP address and mask.
  - a. Request the IP address from the system administrator.
  - b. Enter **admin address**, then enter the IP address.
3. Set the IP default router.
  - a. Request address from system administrator.
  - b. Enter **admin gateway**, then set the address.



**NOTE:**

After the new addresses are entered, the AX500 *must* be reinitialized.

4. Set the DS1 clock synchronization.
  - a. Enter **sync enablesync**, to enable the sync card.
  - b. Enter **sync setsync**, to set the parameters.
  - c. Enter **sync commandsync**, to issue the command.
  - d. Enter **sync statussync**, to check the sync status.
5. Configure the AX500 ports.



**NOTE:**

As you configure each port, enter the port address, location, name and address format, opposite the MAC address on the ATM worksheet.

- a. Enter **admin downinterface**, to set the port.
- b. Enter **admin link\_type**, to configure the link.



**NOTE:**

The port number and type of service *must* be entered.

- c. Enter **admin signaling esi add**, to add the ATM address from the ATM worksheet.
- d. Enter **admin switch cdvt a1.4 12000**, to set the cdvt on each port (where a1.4 is the port address and 12000 is the cdvt for that port).

**1** Install Adjunct and Peripheral Equipment  
*Asynchronous Transfer Mode*

*Page 1-159*

6. Logout the ATM switch administration terminal to set the new configuration.
7. Login the ATM switch administration terminal.
8. Verify the ports status.
  - a. Enter **showsystem interfaces**, to display individual port status.
  - b. Enter **signaling ilmi**, to make sure the ATM addresses are correct.
  - c. Enter **show link\_type**, to view the port link type.
  - d. Enter **show signaling summary**, to view the status of each port.
9. Logout the ATM switch administration terminal.
10. Send the backup tape and the ATM worksheets to STS to prepare for ATM translation.

## Remove the Center Stage Switch

The following steps remove and unadminister the center stage switch and save required translations:

1. Login to the DEFINITY system administration terminal using the **init** login.



**NOTE:**

An **init** login is required to change customer options. Contact your regional CSA (customer software administrator) to perform this function.

2. If the center stage switch is critical reliability, unadminister the critical reliability equipment:
  - a. Enter **change system-parameters-options**, the optional features screen appears.
  - b. Go to page 2, set PNC Duplication?: **N**.
  - c. Enter **change system-parameters duplication**, the duplication related system parameters screen appears.
  - d. Set Enable Operation of PNC Duplication?: **N**
  - e. Logoff and login as `craft`.
3. Enter **save current translations**.
4. Enter **backup translations to tape**.
5. Remove tapes and store.



**NOTE:**

These are your backup tapes.

6. Install new tapes.
7. Unadminister the sync.
  - a. Enter **change synchronization**, the synchronization plan screen appears.
  - b. Use the space bar to clear `Primary` and/or `Secondary` fields.

## Unadminister Fiber links

The fiber links routings to and from the EPN cabinet being removed must be unadministered before removing any hardware from the cabinet.



### CAUTION:

*Failure to unadminister fiber links before removing hardware causes unnecessary alarm reports to INADS and causes errors that may be difficult to clear.*

The fiber links are administered to match hardware and the fiber optic cable running list. Fiber link administration creates translation data by identifying the endpoint pairs for each link. To properly unadminister the fiber links, this translation data must be removed.

1. Enter **list fiber**, a list of administered fiber connections appears.
2. Busy out and remove the fiber.
  - a. Enter **busyout fiber-link n**
  - b. Enter **remove fiber n**



### NOTE:

Repeat steps a and b until all fiber has been busied out and removed.

- c. Enter **List fiber** to make sure all fiber has been removed.
3. Unadminister any installed DS1 converter circuit packs (TN574 or TN1654).
4. Remove the switch node interface (SNI) (TN573) and all expansion interface (EI) (TN570) and DS1 converter circuit packs.
5. Unadminister the SNI and EI circuit packs
  - a. **Change circuit pack n**.
  - b. Remove all TN573 and DS1 converter circuit packs.
  - c. Replace all TN570 circuit packs with TN2238 circuit packs.
  - d. Repeat until all translations have been removed.
6. Enter **change cabinet 1** to change carrier D and/or E to not used.



### NOTE:

Change these carriers only if they had previously been assigned as switch nodes.

7. Enter **save translations**.
8. If this is a standard reliability configuration go to ["DEFINITY ATM PNC Hardware and Software Translations"](#).

9. If you are installing a high or critical reliability ATM PNC, and you do not have a port carrier, you must install a port carrier in the PPN D or E position.
  - a. If 2 SN carriers are present, remove the D carrier and replace with a port carrier.
  - b. If one SN carrier is present install a port carrier.



**NOTE:**

Do *Not* uninstall the high reliability SN carrier.



**CAUTION:**

*If new carriers or blank face plates are not installed, the J58890SA switch node carriers must remain or air flow problems and overheating can occur.*

- c. Change cabinet 1 to administer the newly installed carrier.

## DEFINITY ATM PNC Hardware and Software Translations

The following procedure administers the ATM PNC hardware and software translations:

1. Login to the DEFINITY system administration terminal with `init`.

**⇒ NOTE:**

An `init` login is required to change customer options. Contact your regional CSA (customer software administrator) to perform this function.

2. Enter **customer options** to change the system parameters.
  - a. Set `Asynchronization Transfer Mode (ATM) PNC?` **Y**
  - b. Logoff the DEFINITY system administration terminal.
  - c. Login to the DEFINITY system administration terminal as `craft` (ignore any alarms at this time).

**⇒ NOTE:**

The `init` login is no longer required.

3. Install the TN2238 circuit packs in the carrier slots marked EXPN INTFC (previous location of TN 570 circuit packs) and connect the fiber cable. See [“ATM Fiber Cable Installation” on page 1-140](#).

**⇒ NOTE:**

You must wait for up to 4 minutes for the TN2238 circuit pack to become active.

4. Administer the ATM PNC.

**⇒ NOTE:**

Use the ATM worksheet you filled out in [“ATM Installation”](#).

- a. Enter **add atm pnc next** then fill in the following fields:

**⇒ NOTE:**

You must enter the following information for each ATM pnc.

- b. Set `Location:` **01C01** (cabinet, carrier, slot).
- c. Set `Name:` **XXXXX** (assign a unique port name).
- d. Set `Address format` (as supplied from the system administrator) from one of the following:  
E.164 ATM private, DCC, or ICD

1 Install Adjunct and Peripheral Equipment  
*Asynchronous Transfer Mode*

Page 1-164

⇒ **NOTE:**

If other ATM applications are installed ask the ATM system administrator to determine which address format to use. The system default is ICD.

- e. ICD, DCC or E.164 appears.
- f. Set HO DSP: **80ef1000000**, fill in information from the ATM worksheet.
- g. Enter ESI from the worksheet (MAC address) of the TN2238 in the EPN).
- h. Sel: **00**

⇒ **NOTE:**

Steps d through g comprise the 20 byte ATM address.

- i. Repeat steps a through h until all port networks are administered.
  - j. List ATM PNC to verify all ATM connections are administered.
  - k. Enter **list sys-link**, link types EAL (EPN) and PACL (PPN) are displayed.
5. Administer the ATM switch synchronization:
- a. Change synchronization ATM switch.
  - b. Set primary to ATM switch.
  - c. Set secondary to ATM switch.
  - d. Save translations.

## Testing the Installation

Specify a test board location in the PPN then proceed as follows:

- 1. Check standard LED information on the circuit pack for proper operation.
- 2. Place test call between PNs and the TN2238s.
- 3. If test call fails, check the ATM address for that TN2238, if incorrect, enter the correct ATM address and retest.

**1** Install Adjunct and Peripheral Equipment  
*Asynchronous Transfer Mode*

**Table 1-18. A1.ATM Worksheet — AX500 #1**

AX500 Port #	A-PNC Location	ATM Address				
		AFI:	DCC, ICD, or E.164:	HO--DSP:	ESI: (MAC Address)	SEL:
A1.1						00
A1.2						00
A1.3						00
A1.4						00
A1.5						00
A1.6						00
A1.7						00
A1.8.						00
A2.1						00
A2.2						00
A2.3						00
A2.4						00
A2.5						00
A2.6						00
A2.7						00
A2.8						00
A3.1						00
A3.2						00
A3.3						00
A3.4						00
A3.5						00
A3.6						00
A3.7						00
A3.8						00
A4.1						00
A4.2						00
A4.3						00
A4.4						00
A4.5						00
A4.6						00
A4.7						00
A4.8						00

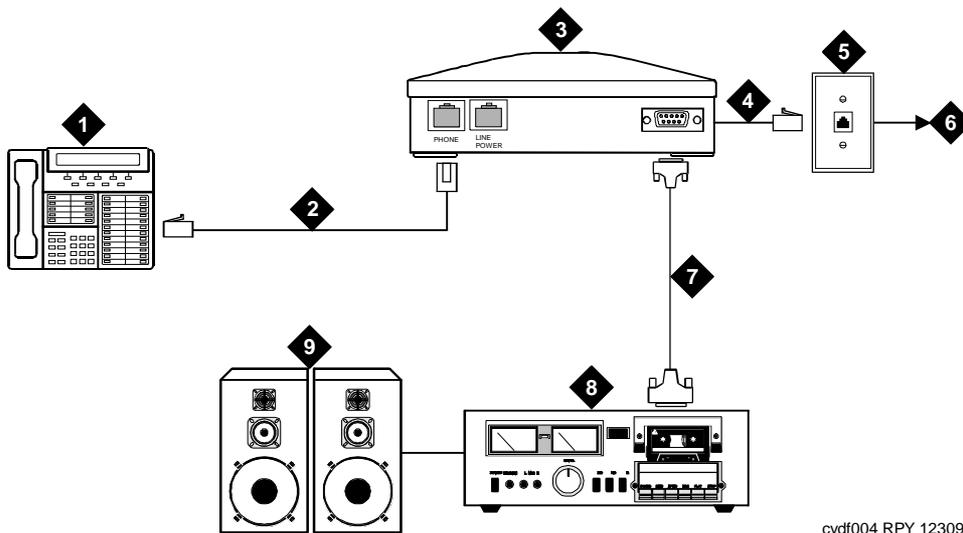
**1** Install Adjunct and Peripheral Equipment  
*Asynchronous Transfer Mode*

**Table 1-19. ATM Worksheet — AX500 #2**

AX500 Port #	B-PNC Location	ATM Address				
		AFI:	DCC, ICD, or E.164:	HO--DSP:	ESI: (MAC Address)	SEL:
A1.1						00
A1.2						00
A1.3						00
A1.4						00
A1.5						00
A1.6						00
A1.7						00
A1.8						00
A2.1						00
A2.2						00
A2.3						00
A2.4						00
A2.5						00
A2.6						00
A2.7						00
A2.8						00
A3.1						00
A3.2						00
A3.3						00
A3.4						00
A3.5						00
A3.6						00
A3.7						00
A3.8						00
A4.1						00
A4.2						00
A4.3						00
A4.4						00
A4.5						00
A4.6						00
A4.7						00
A4.8						00

## ESPA Radio Paging

Figure 1-91 shows typical connections to European Standard Paging Access (ESPA) equipment.



cydf004 RPY 123097

### Figure Notes

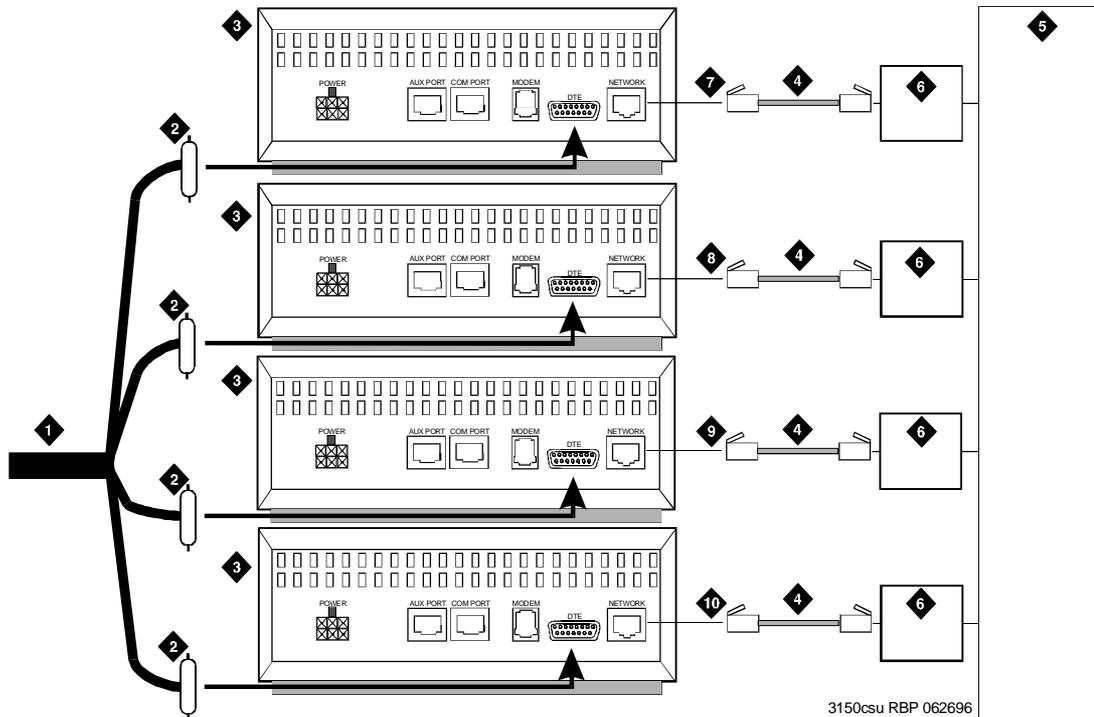
1. DCP telephone (such as 8410 or 8434)
2. 4-pair modular cord
3. PassageWay interface
4. 4-pair modular cord
5. 103A or modular wall jack
6. To digital line circuit pack
7. RS-232 connector
8. ESPA radio paging equipment
9. Paging loudspeakers

### Figure 1-91. Typical ESPA Radio Paging Connections

Connect the LINE jack on the PassageWay interface to a digital line 4-wire DCP circuit pack via the MDF.

## 3150/3160 Channel Service Unit

During the following installation, be sure to label all cables. [Figure 1-92](#) shows a typical connection from the H600-348 Quad cable to the CSU, through the H600-307 network cable, and to the network interface through the smart jacks.

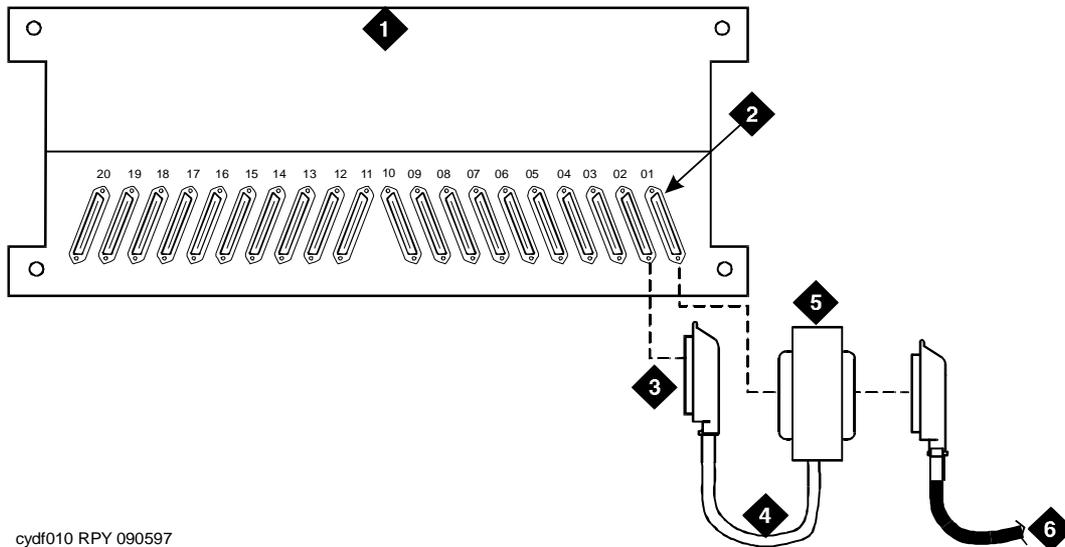


### Figure Notes

1. H600-348 quad cable
2. 15-pin male "D" connectors (to DTE jacks on CSU)
3. Channel service unit (CSU)
4. H600-307 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 1-92. Channel Service Unit Connections

The quad cable provides up to four connections using a 15-pin connector that plugs into the DTE jack on each CSU. An adapter cable (Comcode 107063711) may be required to connect the H600-348 quad cable to the CSU.



cydf010 RPY 090597

### Figure Notes

1. Port carrier
2. DS1 converter connector
3. 50-pair female connector to DEFINITY System
4. 14-Inch (35.56 cm) "Y" cable
5. 50-Pin Male/50-pin female double-headed connector cable
6. Quad cable (with 50-pin male connector) connects to channel service unit

### Figure 1-93. DS1 Converter Connections Using Double-Headed cable

For some installations, such as a DS1 converter (T1), use a "Y" cable to connect between the DEFINITY System and the quad cable. See [Figure 1-93](#).

[Table 1-20](#) shows the "Y" cable lengths and associated Comcode numbers.

Refer to *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multicarrier Cabinets* for T1 and E1 DS1 converter installation (TN1654).

**Table 1-20. "Y" cable Lengths (DS1 converter Only)**

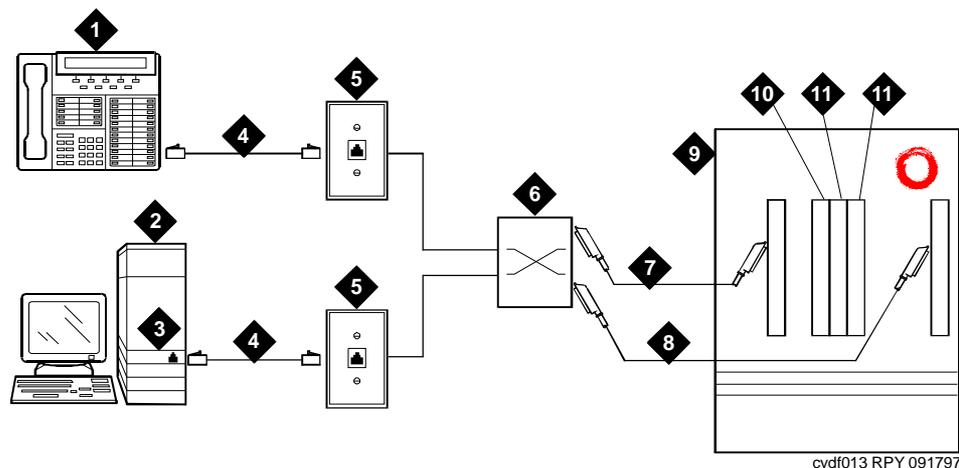
<b>Length</b>	<b>Description</b>	<b>Comcode</b>
14 Inches (35.5 cm)	TN1654 to adjacent expansion interface circuit pack or TN573B switch node interface circuit pack in same carrier	847245750
70 Inches (177.8 cm)	TN1654 to expansion interface circuit pack or switch node interface in another carrier	847245768
14 Inches (35.5 cm)	TN1654 to fiber optic transceiver (DC-powered cabinets only). This cable is for intercabinet cabling only.	847245776
14 Inches (35.5 cm)	TN1654 to adjacent TN570/B/C expansion interface circuit pack	847746641

## Multimedia Call Handling (MMCH)

MMCH provides a single point to point conference call using voice, video, and data from one endpoint to another. The customer must have endpoints and a personal computer with H.320 desktop video installed.

### Connect the Endpoints

Use the following procedure and [Figure 1-94](#) to connect the endpoints:



#### Figure Notes

1. DCP telephone (2 or 4 wire must match circuit pack type)
2. Personal computer (PC)
3. Basic rate interface (BRI) adapter
4. D8W cord
5. 103A or modular wall jack
6. Main distribution frame (MDF)
7. 25-pair cable to digital line circuit pack
8. 25-pair cable to TN556 BRI circuit pack or through a NT1, 4 to 2 wire adapter, then to a TN2198.
9. DEFINITY ECS
10. TN787 multimedia interface (MMI) circuit pack
11. TN788 voice conditioner (VC) circuit pack

#### Figure 1-94. Typical Multimedia Call Handling Connections

1. Each PC MMCH endpoint must contain a BRI adapter.
2. Connect a DCP telephone to a digital line circuit pack. The DCP telephone must be used in conjunction with the PC. Refer to the tables at the end of this chapter for the pinout of the digital line circuit pack.

3. Connect the PC BRI adapter to any BRI port on the DEFINITY System. Refer to the tables at the end of this chapter for the pinout of an ISDN BRI circuit pack.

## Administer the System

1. For R6vs and R6si, enter **change system-parameters maintenance**. Change the `Packet Bus Activated?` field to **y** and press Enter. Not required for R6r.
2. Call INADS and notify the representative that the `Multimedia Call Handling (MMCH)?` field on page 2 of the customer-options form must be changed to **y**.
3. Logoff the terminal and then log back on the terminal to see your changes

## Administer the Endpoints

1. Log in and enter **add data-next** <or a valid extension number>.
2. The data module form appears. On page 1 of the form, enter the `Data Extension: xxxx`, `Type: 7500`, the `Name: user's name (such as ProShare)`, and enter **y** in `Multimedia?` field.
3. On page 2 of the form, enter **n** in the `XID?` field, and enter **n** in the `MIM Support?` field and press Enter.

## Administer "One Number Complex"

1. Identify the voice telephone (DCP set) to associate with the data endpoint. The station record for this voice station must be changed.
2. Enter **change station** <**station number**>. The Station form appears.
3. On page 1 of the form, enter the data extension number in the `MM Complex Data Ext:` field.
4. On page 2 of the form, enter **y** in the `H.320 Conversion?` field and press Enter.
5. Enter **y** in the `Multimedia Early Answer` field.

## Setup and Test the MMCH Installation

---

This section provides general setup and testing procedures for the PictureTel, ProShare, Vistium, and Zydacron multimedia endpoints. Use the documentation that accompanies the endpoint equipment for more details.

## PictureTel PCS50 (Live 50) and PCS100 Configuration

### Minimum Requirements

**Version:** Live 50 version 1.6 or higher

**Minimum Processor Speed:** 486/33 MHz, DX2/66

**Disk Space:** 20 MB

**Memory:** 8 MB RAM, 16 MB recommended

**ISA Expansion Slots (16 bits):** 2 slots

**Monitor:** VGA, SVGA

**Operating System:** Windows™ 3.1x or Windows™ 95

These endpoints do not need any special configuration settings. The standard PictureTel configuration for a DEFINITY ECS is as follows.

1. Load the LiveShare Plus software first.
2. Enter the user name and company name. Use default values for subsequent prompts.
3. Enter a site name.
4. Select Restart Windows and FINISH.
5. Load the Live 50 VAFC drivers.
6. Load the Picture Tel Live 50 software.
7. Open the *PictureTel Live* program group from the Windows™ Program Manager screen.
8. Double click on the **PictureTel Live Configure** icon.
9. At the **Welcome** screen, click on **continue**.
10. Go to the **registration confirmation** screen and click on **continue**.
11. Enter the **Network Interface Settings**. Be sure that "ISDN" has an "x" in the box. Click on **continue**.
12. At the **ISDN Parameters** screen, set the signaling protocol to **USA Canada: 5ESS Custom Point-to-Point**. Click on **continue**.
13. At the **Hardware Settings** screen, set the following: Interrupt (IRQ) to 11, Base I/O Port=280, and Base Memory=D000. Under the Video Input section, select the NTSC circle. Click on **continue**.
14. At the Audio Device screen, enter the necessary information.
15. At the **Node Name** screen, enter a name for the PC using the application software package.
16. At the **Modify config.sys** screen, click the **SAVE** button.
17. The remainder of the software loads automatically.
18. When the load is finished, reboot the PC.

19. Open the *PictureTel Live* program group from the Windows™ Program Manager screen.
20. Double click on the **PictureTel Live** icon. The program takes about 1 minute to open.

## How to Place a PictureTel Video Call

1. Turn on the video camera. Be sure the green LED is on.



### NOTE:

A problem may be encountered when trying to open the PictureTel application software. If the application seems to freeze during initialization (no response for several minutes) then there may be a conflict with the interrupt (IRQ) port setting. Check the PictureTel configuration to make sure that the IRQ port is set to 11. If initialization is still a problem, contact a PictureTel representative.

2. Open the PictureTel application program.
3. Two windows should appear: one local video and one remote video.
4. Go to the remote video window (the one without the local video image inside it).
5. Click on the **blue phone** icon at the top left of the window.
6. A **DIAL PAD** window opens. Use the keyboard, or mouse and dial pad, to enter the *DATA* extension of another multimedia endpoint. If you are dialing another PictureTel, you can place a 1B (one 64 Kb channel) call by only filling in the first telephone extension box on the **DIAL PAD** window. To make a 2B (two 64 Kb channels) call, you must put the same called party extension in the second telephone extension box on the **DIAL PAD** window.
7. To initiate a call, click on the **VIDEO CALL** button on the top right of the **DIAL PAD** window.
8. The dial pad disappears and you see a status window that shows "ringing."
9. When the connection is made, the status window disappears and you can see the connection status on the bottom bar of the remote video window.

## Troubleshooting the PictureTel

**Symptom:** A conference call between a PictureTel and a ProShare has problems with the video connection or with video switching.

**Solution:** Be sure the PictureTel is version 1.6 or higher and the ProShare is version 2.0 or higher.

## ProShare Configuration

### Minimum Requirements

**Version:** Version 2.0 or higher

**Minimum Processor Speed:** 486/33 MHz, DX2/66

**Disk Space:** 6 MB

**Memory:** 12 MB RAM, 16 MB recommended

**ISA Expansion Slots (16 bits):** 2 slots

**Monitor:** 640x480x256 colors, VGA, SVGA

**Operating System:** Windows™ 3.1x or Windows™ 95

The ProShare system must be set up so that it does not look for a Service Profile Identifier (SPID) when connecting to the DEFINITY ECS. This is important because you administer the ProShare as a single 7500 data set and the telephone extension associated with that data set applies to both BRI channels.

1. Load the ProShare software onto the PC using the default values.
2. Enter the company name and serial number of the software.
3. Select the default directory location and install all files.
4. Answer NO to modem Setup.
5. Scroll through the list of countries and select the country in which the PC is installed.
6. At the **Protocol and Switch Mfg** window, click on **Custom**. Click on **AT&T** and click on **Accept**.
7. At the next window, choose **PBX** for Exchange Switch, and choose **G3r** (for Release 6r) or **G3i** (for Release 6si) (as appropriate) as the PBX type. Click on **Accept**.
8. Select yes or no for Phone Call Support.
9. A window with **#Phone Numbers** and **#SPIDS** appears. Set **#Phone Numbers** to **1** and set **#SPIDS** to **0**.
10. Click on the **Aliases** button and enter the last 5 digits of the data extension number and an external alias.
11. Leave the telephone number at default and click on **Accept**.
12. Select **restart windows**.

## How to Place a ProShare Video Call

1. Boot the ProShare computer.
2. Open the camera lens. Be sure the green LED is on.
3. Open **ProShare Personal Conferencing** program group from the Windows™ Program Manager screen.
4. Double click on the **ProShare Conferencing** icon.
5. If this is a first time install, click on OK for the camera test. This test can take several minutes to complete.
6. After the tutorial runs (if desired) and the product is registered, the ProShare application opens with 2 video windows.
7. Click on the Call button. A telephone dial pad appears. Use the dial pad to enter the telephone number of the desired extension to place a test call to. The ProShare only makes 2B calls. The telephone number entered is used to place both calls. To place a 2B (two 64 Kb channels) call to 2 different telephone extensions, separate them with a colon ":". To place a 56 Kb call instead of a 64 Kb call, enter a pound "#" sign to the end of the called party extension.
8. To initiate the call, click on the **DIAL** button on the handset window. The dialing status displays where the extension was entered. When the connection is made, remote video appears.

## Troubleshooting the ProShare

**Symptom:** Any attempt to place a data call to the complex's voice station is denied by the ProShare.

**Solution:** When configuring the ProShare, you entered the voice extension of the complex. You need to enter the data extension (Step G, below). To do this:

- a. Go to the ProShare directory and run the Diagnostics and Utilities program.
- b. Double click on the **Hardware and ISDN Configuration** utility.
- c. Choose **ISDN Line Configuration**.
- d. Set **Protocol = custom** and **Manufacturer = AT&T (5ESS)**. Click on the **Accept** button.
- e. Set **Switch = PBX**, **PBX Type = G3r** (or Release 6r) or **G3i** (or Release 6si). Click on the **Accept** button.
- f. Set **Phone Call Support = No** and click on the **Accept** button.
- g. Set **#Phone Numbers = 1**, **#SPIDs = 0**, and **Phone Number** to the data endpoint extension. Click on the **Accept** button.

**Symptom:** Cannot accept a multimedia telephone call from off-premises to the single number.

**Solution:** Under "Aliasing", enter the data extension number. To do this:

- a. Go to the ProShare directory and run the Diagnostics and Utilities program.
- b. Double click on the **Hardware and ISDN Configuration** utility.
- c. Choose **ISDN Line Configuration**.
- d. Set **Protocol = custom** and **Manufacturer = AT&T (5ESS)**. Click on the **Accept** button.
- e. Set **Switch = PBX**, **PBX Type = G3r** (for Release 6r) or **G3i** (for Release 6si). Click on the **Accept** button.
- f. Set **Phone Call Support = No** and click on the **Accept** button.
- g. Set **#Phone Numbers = 1**, **#SPIDs = 0**, and **Phone Number** to the data endpoint extension.
- h. Click on the **Aliasing** button.
  - i. In the **Alias** box, enter the data extension number, choose **External**, click the **Add** button, click the **OK** button, and click the **Accept** button.

**Symptom:** Get a short break in audio path during first few seconds of a call. This is most noticeable when covering to AUDIX/Voice mail.

**Solution:** ProShare mutes the audio path when it does a "capabilities exchange" in H.320. This problem is being addressed in later versions of the ProShare software. Contact your Lucent Technologies representative for more information.

## Vistium Configuration

### Minimum Requirements

**Version:** 1.03.10

**Minimum Processor Speed:** 486/33 MHz, DX2/66 or higher

**Disk Space:** 10 MB

**Memory:** 8 MB RAM, 16 MB recommended

**ISA Expansion Slots (16 bits):** 1 slot

**Monitor:** VGA, SVGA

**Operating System:** Windows™ 3.1x or Windows™ 95

## Zydacron Configuration

### Minimum Requirements

**Version:** Z250 version 1.0 or ZydApp2 version 1.3

**Minimum Processor Speed:** 486/33 MHz, DX2/66 or higher

**Disk Space:** 5 MB

**Memory:** 4 MB RAM, 8 MB recommended

**ISA Expansion Slots (16 bits):** 1 slot

**Monitor:** VGA, SVGA

**Operating System:** Windows™ 3.1x or Windows™ 95

These endpoints do not need any special configuration settings. The standard configuration for a DEFINITY ECS is as follows. Use the documentation that accompanies the Zydacron equipment for more details.

1. Open Windows and load the software application.
2. Select Full Installation.
3. Click on OK for the default location of the application directory (c:\ZYDAPP2).
4. Select Yes to reset the video drivers (if desired).
5. View or close the READZA2.txt file as desired.
6. When the Collaboration Software dialog box opens, select Yes if another vendor's video conferencing application is being loaded. Select No if only Zydacron software is being loaded.
7. The software continues to load automatically. When finished, the application icons appear in the program group.

## How to Place a Zydacron Video Call

1. Turn on the video camera. Be sure the green LED is on.
2. Double click on the **Zydacron** icon to start the program. The program may take about 30 seconds to open.
3. Two local video windows should appear.
4. Click the Dial icon from the Main toolbar.
5. Use the keypad or the computer keyboard to enter the telephone number of the test endpoint or telephone.
6. To initiate the call, click on the **CALL** button. The Incoming Call screen appears on the test endpoint (or the test telephone rings).
7. Select ANSWER on the test endpoint or pick up the test telephone handset.
8. Remote video appears on the local screen and a talk path is opened on the headset. For a test telephone, a talk path is opened.

## Troubleshooting the Zydacron

**Symptom:** After each PC reboot, the first time you bring up the Zydacron application and receive a telephone call, if you do not answer the data call, the answer screen stays frozen in the window.

**Solution:** Restart the Zydacron application. Press the Ctrl, Alt, and Del keys at the same time. This brings up a window that allows you to select a task. Select the **Zydacron** application and click on the **end task** button.

**Symptom:** Cannot make an outgoing call. Get a Message Interrupt.

**Solution:** The interrupt (IRQ) setting is incorrect. Contact your Zydacron representative for the recommended IRQ settings.

## Place Conversion Test Call

---

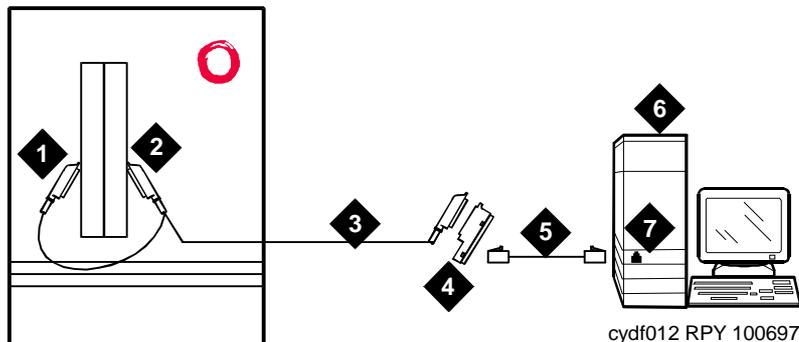
 **NOTE:**

The H.320 Conversion?: field must be set to **y** on page 2 of the Station Form.

Place a conversion test call to an endpoint with a known video capability (for example: call your voice station from your PC).

## Expansion Services Module

The Expansion Services Module (ESM) provides T.120 data sharing capability on a MMCH multipoint H.320 video conference. Each person in the conference must have endpoints and a personal computer with the H.320 video application installed. The DEFINITY ECS must have the expansion service module installed.



### Figure Notes

1. Port B Y-cable connector to a TN787 multimedia interface (MMI) circuit pack
2. Port A Y-cable connector to a TN2207 PRI circuit pack
3. 25-pair Y-cable
4. 356A adapter
5. D8W cord connected to 356A adapter S/B port 8
6. Expansion service module (ESM)
7. Port B on compatible primary rate interface (PRI) card

Figure 1-95. Typical Multimedia Call handling ESM Connections

## ESM Installation

Use the following procedure and [Figure 1-95](#) to connect to the ESM equipment:

1. Install the TN2207 primary rate interface (PRI) circuit pack and the TN787 multimedia interface (MMI) circuit pack in the DEFINITY System port carrier.
2. Record the circuit pack locations.
3. Connect the ESM Y-cable as shown.

## Administer the System

---

From the system administration terminal:

1. Enter **list configuration all**, and a list of the installed carriers, circuit packs, and ports appears.
2. Record the location (board number) of the new circuit packs and verify that all other required circuit packs (refer to [“ESM Installation”](#)) are present.
3. Enter **add DS1 xxxxx**, (where xxxxx is the location of the TN2207 PRI circuit pack recorded in step 2), and the DS1 circuit pack administration form appears.
4. Set the Name: field to **ESM DS1**
5. Set the Bit Rate: field to **2.048**
6. Set the Line Coding: field to **hdb3**
7. Set the Signaling Mode: field to **isdn-pri**
8. Set the Connect: field to **pbx**
9. Set the Interface: field to **network**
10. Set the Country Protocol: field to **1**
11. Set the Protocol Version: field to **a**
12. Set the CRC?: field to **y**
13. The Idle Code default is 11111111.
14. The DCP/Analog Bearer Capability default is 3.1 kHz.
15. Set the MMI Cabling Board: field to **xxxxx** (where xxxxx is the location of the TN787 MMI circuit pack recorded in step 2). This must be the slot for port B of the Y-cable.
16. The MMI Interface: field **ESM** appears.
17. Enter **add signaling-group next** and the signaling-group form appears.
18. Change Associated Signaling: field to **y**.
19. Change Primary D-Channel Port: field to **xxxx16** (where xxxx is the address of the TN2207 PRI circuit pack, for example: 1B0516).
20. The Max Number of NCA TSC: default is 0.
21. The Max Number of GA TSC: default is 0.
22. Trunk Group for NCA TSC: \_\_\_\_ (leave blank)
23. Trunk Group for Channel Selection: \_\_\_\_ (leave blank)
24. Logoff the terminal and then log back on the terminal to view your changes.

- 1 Install Adjunct and Peripheral Equipment  
*Multimedia Call Handling (MMCH)*

Page 1-182

## Place Test Call

---

Place multimedia data-conference call to an endpoint with known video capability to test the esm function.

## Troubleshooting

---

To determine ESM link status enter the following commands from the system administration terminal:

1. **Status esm**
2. **Status signaling-group**
3. **List MMI**

### NOTE:

When you move ESM circuit packs, you **MUST** remove the DS1 and signaling group translations. You cannot use the **change circuit pack** command.

Refer to [“Setup and Test the MMCH Installation” on page 1-172](#) for further information.

## **Connect Stratum 3 Clock**

---

### **Set Clock Options**

---

1. There are four sets of option switches on the clock. Set the options on the clock input board (CI) per [Table 1-21](#).

**Table 1-21. CI Option Switch Settings**

<b>Switch</b>	<b>Function</b>	<b>Position</b>
1	T1 select	OFF = enable (default) ON = disable
2	CC select	OFF = enable ON = disable (default)
3	Framing select	OFF = ESF ON = D4 (default)
4	BX.25	OFF = enable ON = disable (default)

2. Set the options on the Stratum 3 Clock board (ST3) per [Table 1-22](#).

**Table 1-22. ST3 Clock Board Option Switch Settings**

<b>Switch</b>	<b>Status/Results</b>
SW1 Minor alarm control	OFF = minor alarm never output ON = minor alarm is output if holdover occurs
SW2 Major Alarm Control	OFF = major alarm is output and fail lamp lights if 5 VDC power is lost and 4 kHz output is lost ON = major alarm is output and fail lamp lights if 5 VDC power is lost and 4 kHz output is lost and holdover occurs

**⇒ NOTE:**

Only SW 1 and SW2 are used. SW1 controls the output of alarm signals from the Stratum 3 Clock board.

---

1 Install Adjunct and Peripheral Equipment  
 Connect Stratum 3 Clock

3. Set the options on the Composite Clock Timing Output Board (TOCA) per [Table 1-23](#).
4. Set the Stratum 2/Stratum 3 switch to the STRATUM 3 position.

**Table 1-23. Composite Clock Timing Output Board (TOCA)**

Switch		Range							
500	1000	1 Foot (0.3 m)	500 Feet (152 m)	1000 Feet (305 m)	1500 Feet (457 m)	2000 Feet (610 m)	2500 Feet (762 m)	3000 Feet (914 m)	
OFF	OFF	<----->							
ON	OFF		<----->						
OFF	ON			<----->					
ON	ON				<----->				

**NOTE:**

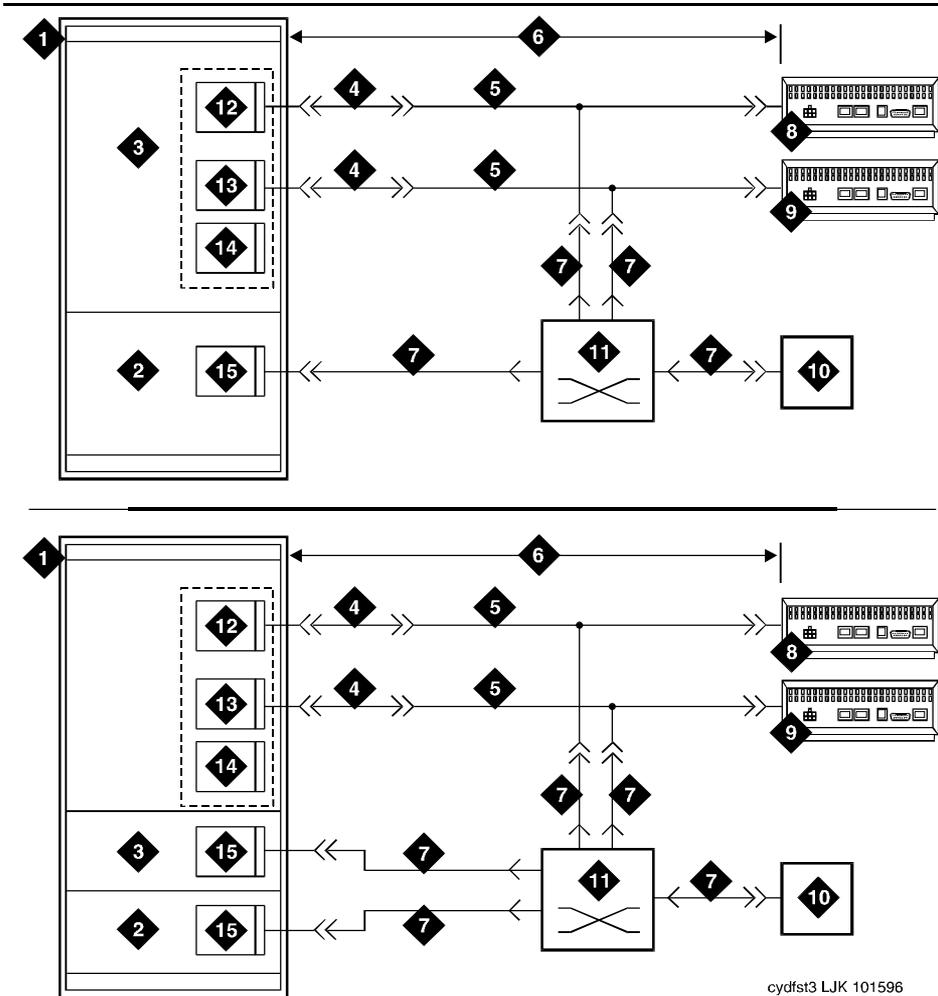
Set switches 1 and 2 according to the distance from the Stratum 3 clock to the DEFINITY System. Set switch 3 to ON. Set switch 4 to OFF.

**Cabling the Stratum 3 Clock**

[Figure 1-96](#) shows typical connections to a Stratum 3 Clock cabinet. Connections are made through the yellow field cross-connect. A custom "Y" cable (H600-274) connects the CSU to the DS1 circuit pack and taps off the input for the Stratum 3 Clock. A resistor built into the cable provides the necessary isolation between the system and the clock. The "Y" cable plugs directly into the CSU and connects to standard cables for interface to the system and the yellow field on the MDF.

The H600-307 cable connects the system end of the "Y" cable to a DS1 circuit pack (shown as TN464F, TN722B, or TN767E). The B25A cable connects the clock end of the "Y" cable to the yellow field on the MDF.

1 Install Adjunct and Peripheral Equipment  
 Connect Stratum 3 Clock



cydfst3 LJK 101596

**Figure Notes**

- |                               |  |
|-------------------------------|--|
| 1. PPN cabinet                | 9. Primary CSU                           |
| 2. "A" position               | 10. Stratum 3 Clock                      |
| 3. "B" position               | 11. MDC                                  |
| 4. H600-307 cable             | 12. TN464F DS1/E1 interface circuit pack |
| 5. H600-274, G2 cable         | 13. TN722B DS1 tie trunk circuit pack    |
| 6. 1300 feet (396 m)          | 14. TN767E DS1 interface circuit pack    |
| 7. B25A male to female cables | 15. TN780 tone-clock circuit pack        |
| 8. Secondary CSU              |  |

**Figure 1-96. Typical Connections to Stratum 3 Clock**

1 Install Adjunct and Peripheral Equipment  
Connect Stratum 3 Clock

The H600-307 cable connects the system end of the "Y" cable to a DS1 circuit pack (shown as TN464, TN722, or TN767). The B25A cable connects the clock end of the "Y" cable to the yellow field cross-connect.

### Stratum 3 Clock Wiring Installation Procedure

1. Connect the B25A cables from the TN780 connector panel slot on the system cabinet and the Stratum 3 Clock to the cross-connect module in the yellow field.
2. Connect the CSU plug end of the H-600-274 (Y) cable to the primary CSU. Route an H600-307 cable from the DS1 connector panel slot on the system cabinet to the connector on the "SYSTEM" end of the "Y" cable.
3. Route a B25A cable from the "CLOCK" end of the "Y" cable to the cross-connect module in the yellow field.
4. Repeat steps 2 and 3 for the secondary CSU. The maximum allowable cabling distance between the Stratum 3 clock and the CSU is shown in [Table 1-24](#).

**Table 1-24. Maximum Cabling Distance**

Channel Service Unit (CSU)	Maximum Cabling Distance
551A	85 feet (26 m)
551V	85 feet (26 m)
551V EFS/R	655 feet (199.6 m)
EFS T1	655 feet (199.6 m)

5. For standard reliability systems, refer to [Table 1-25](#) to cross-connect the TN780 and "CLOCK" end connections to the Stratum 3 clock connections on the cross-connect module.
6. For high or critical reliability systems, refer to [Table 1-26](#) to cross-connect the TN780 and "CLOCK" end connections to the Stratum 3 clock connections on the cross-connect module.

**1** Install Adjunct and Peripheral Equipment  
*Connect Stratum 3 Clock*

**Table 1-25. Cross-Connects for Standard Reliability**

From: Stratum 3 Clock			To: Y cable Clock End (Primary)		
Designation	Wire Color	Connecting Block Terminal	Lead Designation	Lead Color	Connecting Block Terminal
RREF1	W-BL	1		V-O	43
TREF1	BL-W	2		O-V	44
			To: Y cable Clock End (Secondary)		
RREF2	W-O	3		V-O	43
TREF2	O-W	4		O-V	44
			To: TN780 carrier A		
BCLKRTN	R-O	13	ALRM5B	V-G	45
BCLKLST	O-R	14	ALRM5A	G-V	46
BPWRRTN	R-BR	17	ALRM4B	BK-BL	21
BPWRLST	BR-R	18	ALRM4A	BL-BK	22
REF2RTN	W-BR	7	ALRM3B	R-BR	17
REF2LST	BR-W	8	ALRM3A	BR-R	18
SCLKRTN	R-BL	11	ALRM2B	R-BL	11
SCLKLST	BL-R	12	ALRM2A	BL-R	12
SPWRRTN	R-G	15	ALRM1B	Y-BL	31
SPWRLST	G-R	16	ALRM1A	BL-Y	32
REF1RTN	W-G	5	ALRM0B	W-BR	7
REF1LST	G-W	6	ALRM0A	BR-W	8
CCA01R	R-S	19	EXTSYN0T	V-BL	41
CCA01T	S-R	20	EXTSYN0R	BL-V	42
CCB01R	BK-BL	21	EXTSYN1T	Y-G	35
CCB01T	BL-BK	22	EXTSYN1R	G-Y	36

**Table 1-26. Cross-Connects for High or Critical Reliability**

From: Stratum 3 Clock			To: Y cable Clock End (Primary)					
Lead Designation	Lead Color	Connecting Block Terminal	Lead Designation	Lead Color	Connecting Block Terminal			
RREF1	W-BL	1		V-O	43			
TREF1	BL-W	2		O-V	44			
			To: Y cable Clock End (Secondary)					
RREF2	W-O	3		V-O	43	Lead Designation	Lead Color	Connecting Block Terminal
TREF2	O-W	4		O-V	44			

*Continued on next page*

**1** Install Adjunct and Peripheral Equipment  
*Connect Stratum 3 Clock*

**Table 1-26. Cross-Connects for High or Critical Reliability — Continued**

			To: TN780 carrier A			To: TN780 carrier B		
BCLKRTN	R-O	13	ALRM5B	V-G	45	ALRM5B	V-G	45
BCLKLST	O-R	14	ALRM5A	G-V	46	ALRM5A	G-V	46
BPWRRTN	R-BR	17	ALRM4B	BK-BL	21	ALRM4B	BK-BL	21
BPWRLST	BR-R	18	ALRM4A	BL-BK	22	ALRM4A	BL-BK	22
REF2RTN	W-BR	7	ALRM3B	R-BR	17	ALRM3B	R-BR	17
REF2LST	BR-W	8	ALRM3A	BR-R	18	ALRM3A	BR-R	18
SCLKRTN	R-BL	11	ALRM2B	R-BL	11	ALRM2B	R-BL	11
SCLKLST	BL-R	12	ALRM2A	BL-R	12	ALRM2A	BL-R	12
SPWRRTN	R-G	15	ALRM1B	Y-BL	31	ALRM1B	Y-BL	31
SPWRLST	G-R	16	ALRM1A	BL-Y	32	ALRM1A	BL-Y	32
REF1RTN	W-G	5	ALRM0B	W-BR	7	ALRM0B	W-BR	7
REF1LST	G-W	6	ALRM0A	BR-W	8	ALRM0A	BR-W	8
CCA01R	R-S	19	EXTSYN0T	V-BL	41			
CCA01T	S-R	20	EXTSYN0R	BL-V	42			
CCB01R	BK-B L	21	EXTSYN1T	Y-G	35			
CCB01T	BL-B K	22	EXTSYN1R	G-Y	36			
CCA02R	BK-O	23				EXTSYN0T	V-BL	41
CCA02T	O-BK	24				EXTSYN0R	BL-V	42
CCB02R	BK-G	25				EXTSYN1T	Y-G	35
CCB02T	G-BK	26				EXTSYN1R	G-Y	36

7. The common cross-connection from the TN780 in A and B carriers to the Stratum 3 Clock should be done by bridging the jumper wires.
8. Dress the cables down sides of the cabinet and run through the cable Slack Manager, if provided.
9. Administer per *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*.

## **DEFINITY Wireless Business System**

---

To install and test the hardware, refer to *DEFINITY Wireless Business System Installation and Tests Guide*, 555-232-102.

To interface the Wireless Business System to the system cabinet, refer to *DEFINITY Wireless Business System Interface*, 555-232-108.

To operate the wireless handsets, refer to *DEFINITY Wireless Business System User's Guide*, 555-232-105.

## **Forum PCM**

---

The Forum Personal Communications Manager uses a Forum switch, serving as an adjunct to DEFINITY ECS, to manage mobility. The system uses Cordless Telephone Generation 2 (CT2) technology, which is a global standard for wireless telephone service. This standard defines the radio interface between the Forum pocket telephones and the base stations in the system.

Refer to the installation and usage documentation that comes with the Forum Personal Communications Manager components.

## **Connector and cable Diagrams (Pinout Charts)**

See [Table 1-27](#) for lead designations. The circuit packs and auxiliary equipment are classified as shown in [Table 1-28](#).

**Table 1-27. Lead and Color Designations**

<b>Cross-Connect Pin</b>	<b>Color</b>	<b>Amphenol Pin</b>	<b>Backplane Pin</b>
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

*Continued on next page*

**Table 1-27. Lead and Color Designations — Continued**

<b>Cross-Connect Pin</b>	<b>Color</b>	<b>Amphenol Pin</b>	<b>Backplane Pin</b>
28	BR-BK	14	203
29	BK-SL	40	304
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

**1** Install Adjunct and Peripheral Equipment  
*Connector and cable Diagrams (Pinout Charts)*

**Table 1-28. Port Circuit Pack Lead Designations**

Cross-Connect Pin	TN742/B TN747B TN753 TN769 TN2147	TN754 TN726	TN760/B TN760C TN760D	TN762/B	TN763 TN763B TN763C	TN735	TN767B TN464E	TN746/B TN2183	TN2224
1	T.1		T.1	T.1	T.1	T.1	C_5V	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	TRSYNC*		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	PXR.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

*Continued on next page*

**Table 1-28. Port Circuit Pack Lead Designations — Continued**

<b>Cross-Connect Pin</b>	<b>TN742/B TN747B TN753 TN769 TN2147</b>	<b>TN754 TN726</b>	<b>TN760/B TN760C TN760D</b>	<b>TN762/B</b>	<b>TN763 TN763B TN763C</b>	<b>TN735</b>	<b>TN767B TN464E</b>	<b>TN746/B TN2183</b>	<b>TN2224</b>
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
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	GND	GRD	GRD

**Table 1-29. DS1 Interface cable H600-348**

50-Pin			15-Pin		
Pin	Color	Designation	Pin	Color	Designation
			<b>Plug 04</b>		
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)
			<b>Plug 03</b>		
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)
			<b>Plug 02</b>		
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)
			<b>Plug 01</b>		
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 1-30. DS1 Interface Cable H600-307**

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 1-31. TN2185 ISDNBRI — 4-Wire S Interface Pinout**

<b>Port</b>	<b>Signal</b>	<b>Cross-Connect Pin</b>	<b>Color</b>	<b>Amphenol Pin</b>	<b>Backplane Pin</b>
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

1 Install and Wire Telephones and Other Equipment

Table 1-32. 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	Digital Line 2-Wire 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	V1T1	T1	V1T1	T1	T1	T1	A1	T1	T1		PXR1	T1	TXT1	T1
BL-W	01	R1	R1	V1R1	R1	V1R1	R1	R1	R1	B1	R1	R1		PXT1	R1	TXR1	R1
W-O	27		T2	CT1	T2	CT1	TXT1	SZ1				T11		TXT1	T2	PXT1	
O-W	02		R2	CR1	R2	CR1	TXR1	SZ11				R11		TXR1	R2	PXR1	
W-G	28		T3	P-1	T3	P-1	PXT1	S1				E1		PXR2	T3	TXT2	
G-W	03		R3	P+1	R3	P+1	PXR1	S11		C1		M1		PXT2	R3	TXR2	
W-BR	29		T4	V1T2	T4	V1T2	T2	T2	T2	A2	T2	T2		TXT2	T4	PXT2	T2
BR-W	04		R4	V1R2	R4	V1R2	R2	R2	R2	B2	R2	R2		TXR2	R4	PXR2	R2
W-S	30			CT2	T5	CT2	TXT2	SZ2				T12		PXR3	T5	TXT3	
S-W	05			CR2	R5	CR2	TXR2	SZ12				R12		PXT3	R5	TXR3	
R-BL	31			P-2	T6	P-2	PXT2	S2				E2		TXT3	T6	PXT3	
BL-R	06			P+2	R6	P+2	PXR2	S12		C2		M2		TXR3	R6	PXR3	
R-O	32			V1T3	T7	V1T3	T3	T3	T3	A3	T3	T3		PXR4	T7	TXT4	T3
O-R	07			V1R3	R7	V1R3	R3	R3	R3	B3	R3	R3		PXT4	R7	TXR4	R3
R-G	33			CT3	T8	CT3	TXT3	SZ3				T13		TXT4	T8	PXT4	
G-R	08			CR3	R8	CR3	TXR3	SZ13				R13		TXR4	R8	PXR4	
R-BR	34			P-3	T9	P-3	PXT3	S3				E3		PXR5	T9	TXT5	
BR-R	09			P+3	R9	P+3	PXR3	S13		C3		M3		PXT5	R9	TXR5	
R-S	35			V1T4	T10	V1T4	T4	T4	T4	A4	T4	T4		TXT5	T10	PXT5	T4
S-R	10			V1R4	R10	V1R4	R4	R4	R4	B4	R4	R4		TXR5	R10	PXR5	R4
BK-BL	36			CT4	T11	CT4	TXT4	SZ4				T14		PXR6	T11	TXT6	
BL-BK	11			CR4	R11	CR4	TXR4	SZ14				R14		PXT6	R11	TXR6	
BK-O	37			P-4	T12	P-4	PXT4	S4				E4		TXT6	T12	PXT6	

Continued on next page

1 Install and Wire Telephones and Other Equipment

Table 1-32. Circuit Pack and Auxiliary Equipment Leads (Pinout Charts)

Color	Connector Pin Numbers	Analog Line Line 8 ports	2-Wire Digital Line and Analog Line 16 ports	Data Line and Digital Line 4-wire	Digital Line 2-Wire 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
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	
G-V	23		R15	TXR8	R23	CR8							LO*	PXT12		TXR12	

Continued on next page

**Table 1-32. 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	Digital Line 2-Wire 24 Ports	Hybrid Line	MET Line	AUX Trunk	CO Trk.	CO Trunk 3-wire	DID/DFOD Trunk	Tie Trk.	DS1 Tie Trunk	ISDN BRI Line 4-wire	ISDN BRI Line 2-wire	Packet Data Line	Four Port DIOD
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 T Tip (A) Green
- T1,R1 PBX receive voice R Ring (B) Red
- M PBX transmit signal S Sleeve
- E PBX receive signal PX PBX transmit
- TX Terminal transmit LO, LO\* Digital Trunk OUT
- LI, LI\* Digital Trunk IN

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

## Setting Options

# 2

---

Some of the interface units used between the system and other types of equipment require specific option settings for each application. This section lists the settings required for data modules, modems, printers, and so forth. Refer to the user's guide for each type of equipment for information on how to locate and set the options.

### Data Module Option Settings

#### DCS Switch Settings

The distributed communications system (DCS) for a DEFINITY System is sometimes connected through the TN765 processor interface circuit pack or a TN778 packet interface circuit pack. The first circuit can be connected directly to the DCS through the processor interface (**PI**) connector on the rear of the control carrier.

Any of the remaining three circuits on the processor interface used to support the DCS must be connected through a data module serving as the interface link.

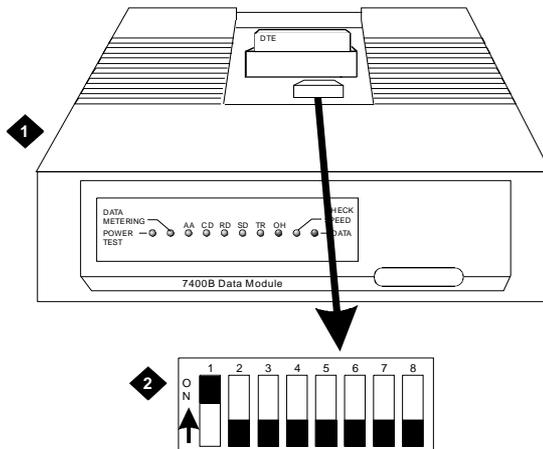
 **NOTE:**

The CMC DCS+ is connected via the TDM/LANbus.

The option settings for a 7400B data module are shown in [Table 2-1](#). Refer to [Figure 2-1](#) for the location of the switches. Also refer to *7400B Data Module User's Manual*, 555-020-707.

**⇒ NOTE:**

The options for the 7400A and 7400C data modules are set from the front panel interface. For the 7400A, refer to *7400A Data Module User's Manual*, 555-020-706. For the 7400C, refer to *DEFINITY Communications System High Speed Link User's Guide*, 555-020-711. For the 8400B, refer to the *8400B Plus Data Module User's Guide*, 555-020-709.



**Figure Notes**

- 1. Data module (7400B Shown)
- 2. DIP Switch

**Figure 2-1. DIP Switch Locations**

1. Remove the top cover from the data module. See page 5-76.
2. Switches 1, 5, and 8 are the only switches to be set. Refer to [Table 2-1](#) for the switch option settings.

**Table 2-1. Data Module Option Switch Settings**

DIP Switch	Function	Setting
1	With phone Without phone	ON OFF
5	Data metering No data metering	ON OFF
8	Make busy on loc loop No make busy on loc loop	ON OFF
2, 3, 4, 6, and 7		OFF

## 7400D Data Module Option Settings

The option settings shown in [Table 2-2](#) are for the Answer Only interface and are set from the front panel interface. Set only the desired speed of the 7400D. All other default settings can be used. Refer to the next page to set the speed.

**Table 2-2. 7400 Series Data Module Options (Answer Only Interface)**

Set Option Display	Abbreviation	Possible Values	Default
Set 300 SPEED?	300	ON, OFF	ON
Set 1200 SPEED?	1200	ON, OFF	ON
Set 2400 SPEED?	2400	ON, OFF	ON
Set 4800 SPEED?	4800	ON, OFF	ON
Set 9600 SPEED?	9600	ON, OFF	ON
Set 19200 SPEED?	19200	ON, OFF	ON
Set ANSWER?	ANS	AUTO, MANUAL	AUTO
Set CI LEAD?	CI	ON, OFF	OFF
Set CH LEAD?	CH	ON, OFF	OFF
Set CTS LEAD?	CTS	NORMAL, ON	ON
Set DCD LEAD?	DCD	NORMAL, ON	ON
Set DSR LEAD?	DSR	NORMAL, ON	ON
Set DTR DETECT?	DTR	0, 10, 20, 30, 50, 100 MSEC	50
Set DTR LEAD?	DTR	EIA STANDARD, IGNORE	EIA STANDARD
Set LL LEAD?	LL	ON, OFF	OFF
Set REMOTE LOOP?	REMLOOP	GRANT, DENY	GRANT
Set RI LEAD?	RI	CYCLE, ON	ON
Set RL LEAD?	RL	ON, OFF	OFF
Set SIGLS DISC?	SIGLS DISC	ON, OFF	ON
Set TIMING?	TIMING	INTERNAL, EXTERNAL	INT
Set TM LEAD?	TM	ON, OFF	OFF

**NOTE:**

It is recommended that CI and CH be set to ON, and DCD and DSR be set to normal. This allows login information to be displayed on the screen without having to send a carriage return character.

## Set 7400D Options

---

The following steps are used as an example to change the default setting of 9600 to the custom setting of 19200.

### NOTE:

If the link is between a Release 6r and a CMS, set the 7400D to 19200. If the link is between any other system and a CMS, leave the speed of the 7400D set at 9600.

1. From the HOME screen, press **NEXT/NO** until SET OPTIONS ? is displayed.
2. Press **ENTER/YES** to stay in the SET OPTIONS ? menu.
3. Press **NEXT/NO** until SET 9600 SPEED ? is displayed.
4. Press **ENTER/YES** when SET 9600 SPEED ? is displayed.
5. Press **NEXT/NO** when 9600 = ON ? is displayed.
6. Press **ENTER/YES** when 9600 -> OFF ? is displayed.
7. Press **ENTER/YES** when CONTINUE ? is displayed.
8. Press **ENTER/YES** when SET 19200 SPEED ? is displayed.
9. Press **NEXT/NO** when 19200 = OFF ? is displayed.
10. Press **ENTER/YES** when 19200 -> ON ? is displayed.
11. Press **NEXT/NO** when CONTINUE ? is displayed.
12. Press **ENTER/YES** when 19200 -> ON ? is displayed.
13. Press **ENTER/YES** when SAVE CHANGES ? is displayed.

### NOTE:

The SET OPTIONS ? menu cannot be terminated if all speeds are set to off.

## Modem Pooling (Combined) Option Settings

---

Combined modem pooling requires option switch settings on different modems and data modules. Refer to the vendor's documentation.

## **7400A and 7400B Option Settings**

---

Determine if the 7400A or 7400B is interfacing with D-lead modems or attention control modems. Use [Table 2-3](#) for D lead modems and [Table 2-4](#) for attention control modems.

**Table 2-3. 7400A Options for D-Lead Modems**

<b>Set Option Display</b>	<b>Option</b>	<b>Desired Setting</b>
Set 300 Speed?	300	Note 1
Set 1200 Speed?	1200	Note 1
Set 2400 Speed?	2400	Note 1
Set 4800 Speed?	4800	Note 1
Set 9600 Speed?	9600	Note 1
Set 19200 Speed?	19200	Note 1
Set AT Control?	AT	OFF
Set CI Lead?	CI	Note 2
Set CI2 Lead?	CI2	Note 2
Set CH Lead?	CH	Note 2
Set CH2 Lead?	CH2	Note 2
Set LL Lead?	LL	Note 2
Set REMOTE Loop?	REMLOOP	Grant
Set RL Lead?	RL	Note 2
Set SIGLS Disc?	SIGLS DISC	ON
Set TM Lead?	TM	Note 2

---

**⇒ NOTE:**

1. Set speed to match remote modem. At least one speed must be set ON.

**⇒ NOTE:**

2. Set to match remote modem.

**Table 2-4. 7400A Options — Attention Control Modems**

---

<b>Set Option Display</b>	<b>Option</b>	<b>Setting</b>
Set 300 Speed?	300	Note 1
Set 1200 Speed?	1200	Note 1
Set 2400 Speed?	2400	Note 1
Set 4800 Speed?	4800	Note 1
Set 9600 Speed?	9600	Note 1
Set 19200 Speed?	19200	Note 1
Set AT Control?	AT	ON
Set CI Lead?	CI	Note 2
Set CI2 Lead?	CI2	Note 2
Set CH Lead	CH	Note 2
Set CH2 Lead?	CH2	Note 2
Set LL Lead?	LL	Note 2
Set REMOTE Loop?	REMLOOP	Grant
Set RL Lead?	RL	Note 2
Set SIGLS Disc?	SIGLS DISC	ON
Set TM Lead?	TM	Note 2

---

**⇒ NOTE:**

1. Set speed to match remote modem. At least one speed must be set ON.

**⇒ NOTE:**

2. Set to match remote modem.

## **8400B Data Module Option Settings**

Set the options on the 8400B with an ASCII data terminal or a PC using a terminal emulation package (such as TERRANOVA ECS Administration). Connect the data terminal or PC to the EIA interface connector on the back of the 8400B. For the server-to-link (the link is an adjunct device, such as PMS, CMS, or CDR), only a subset of options must be changed. Use the "AT" command set to change the subset of these options. To set the options on the 8400B, do the following:

1. Set the speed on the data terminal or terminal emulation package to match the speed of the link.
2. From the data terminal or PC, type **at** and press Enter. The 8400B senses and automatically sets the speed and parity for the connection. The OK prompt should display.
3. Type the following command as shown.

### **⇒ NOTE:**

*Before* you press **enter**, make sure that the command is entered correctly. One part of this command turns off keyboard echo (E0). After you enter this command, keyboard entries will *not* be displayed.

**at&F&C1&D2E0Q1S0=1&W0&Y0**

4. Disconnect the data terminal or PC from the 8400B and reconnect the unit to the linked adjunct device.

If your adjunct device requires a different set of options, consult the *8400B Plus Data Module User's Guide*, (555-020-709).

## External Modem Option Settings

### The COMSPHERE 3700, 3800, and 3900 Series

The COMSPHERE external modem is recommended for Release 5 and later TN790-based systems. These systems operate with the COMSPHERE modems set to the factory default settings. To set the modems, refer to [Table 2-5](#) and to the documentation that accompanies the modem.

#### ⇒ NOTE:

A locally obtained, type-approved external modem may be used. Contact your Lucent Technologies representative for more information.

1. Enter the **change system-parameters maintenance** command. The modem screen (Page 3) is modified. See [Screen 2-1](#).

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

      Modem Connection: external
      Data Bits: 8
      Parity: none

      Modem Name: _____

      RTS/CTS Enabled: \Q3           Auto Answer Ring Count (rings): S0=10
      Asynchronous Data Mode: &M0&Q0           Dial Type: T
      DTE Auto-Data Speed: _____           Adjustable Make/Break Ratio: _____
      Disable Data Compression: _____           Dial Command: D
      Enable Error Control: _____           No Answer Time-out: S7=255
      Misc. Init. Param: _____
```

Screen 2-1. External Modem Default Settings

2. Set the Modem Connection field to **external**.
3. Set the Data Bits: field to **8**.
4. Set the Parity: field to **none**.
5. Set the remaining modem fields as shown in [Table 2-5](#).

**Table 2-5. TN790-Based Modem Fields**

Field	Description
Modem connection	Valid entries are "internal" or "external". Default is internal. Set to <b>external</b> .
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 <b>\Q3</b> 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 <b>&amp;M0&amp;Q0</b> 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 <b>S90=1</b> to enable this functionality while the Intel product uses the command <b>\J1</b> 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 <b>"H0%C0"</b> to disable V.42bis & MNP Class 5 data compression algorithms. The Paradyne products only use <b>%C0</b> to disable both algorithms. This field is not case sensitive. Default is upper case.
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 <b>\N5</b> to enable V.42/MNP/Buffer error control while the Intel product uses <b>\N3</b> 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.

**Table 2-5. TN790-Based Modem Fields — Continued**

Field	Description
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.
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	<p>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.</p> <p>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)</p>

## U.S. Robotics Model 839

The U.S. Robotics Model 839 external modem (comcode 407633999) is the recommended external modem for Release 6 csi systems. A locally obtained, type-approved external modem may be used. Contact your Lucent Technologies representative for information.

1. If a non-U.S Robotics Model 839 modem is installed, refer to the setup instructions provided with that modem. Refer to [Table 2-7](#) while setting up the modem. Go to Step 4 to complete the modem administration.
2. If no modem is installed, or if a U.S Robotics Model 839 modem is installed, perform the following.
3. Use [Table 2-6](#) to set the 8 option switches on the U.S. Robotics modem.

**Table 2-6. U.S. Robotics Model 839 External Modem Switch Settings**

Switch	Setting	Function
1	OFF (Up)	DTR (Data Terminal Ready) override
2	OFF (Up)	Verbal result codes (text-formatted feedback characters such as "connected" or "no carrier")
3	ON (Down)	Enable result codes
4	OFF (Up)	Displays keyboard commands (local echo)
5	ON (Down)	Auto answer (modem answers on preset number of rings)
6	OFF (Up)	CD (Carrier Detect) override (modem sends CD signal on connect, drops CD on disconnect)
7	OFF (Up)	Power-on and ATZ reset software defaults (loads Y or Y1 configuration from NVRAM)
8	ON (Down)	AT (Attention) command set recognition (enables recognition, smart mode)

4. At the management terminal, enter **change system-parameters maintenance** and press Enter. Scroll to page 3 of the form.
5. Set the `Modem Connection:` field to **external** if a modem is installed. Set the field to **none** if no modem is installed. This field must be administered or alarms will be generated.



**NOTE:**

The `Modem Connection:` field cannot be set to **none** if Alarm Origination is activated.

6. Set the `Data Bits:` field to **8** (default).
7. Set the `Parity:` field to **none** (default).
8. Set the remaining modem fields as shown in [Table 2-7](#).
9. Press Enter when the modem fields are properly administered.

**Table 2-7. Release 6 CMC Modem Fields**

<b>Field</b>	<b>Description</b>
Modem Connection	Default is <b>none</b> for Release 6 CMC. Set to <b>external</b> if a modem is used.
Modem Name	This field is 20 characters long and permits alphanumeric characters to provide a unique qualifier for a given modem (such as <b>USRobotics839</b> ).
RTS/CTS Enabled	Informs modem that communication with the data source UART is driven with RTS/CTS flow control. The default 6-character field name is <b>&amp;H1</b> . Set the field name to <b>\Q3</b> for Intel modems. This field is not case-sensitive.
Asynchronous Data Mode	Configures modem as an asynchronous device. This 8-character field name has a default value of <b>&amp;M0</b> (default) for Release 6csi. Set the field to <b>&amp;M0&amp;Q0</b> for Intel modems. This field is not case-sensitive.
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 6-character blank default value. The Paradyne products use <b>S90=1</b> to enable this functionality while the Intel product uses <b>\J1</b> to enable similar functionality. This field is not case-sensitive.
Disable Data Compression	Turns off the default data compression algorithms used 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 <b>H0%C0</b> to disable V.42bis & MNP Class 5 data compression algorithms. The Paradyne products only use <b>%C0</b> to disable both algorithms. This field is not case-sensitive.
Enable Error Control	Turns on the V.42 LAPM and MNP error control protocols. The field has a blank default of 6 characters. The Paradyne products use the command <b>\N5</b> to enable V.42/MNP/Buffer error control while the Intel product uses <b>\N3</b> to provide similar functionality.
Misc. Init. Param	This field has a 20-character blank default and supports any initialization parameters not already specified. The AT commands specified in this field are always the last initialization parameters to be sent to the external modem. This field is not case-sensitive.
Auto-Answer Ring Number	This field controls the number of rings required before the modem answers an incoming call. This field should be set to <b>S0=10</b> .

*Continued on next page*

**Table 2-7. Release 6 CMC Modem Fields — Continued**

Field	Description
Dial Type	This field controls the type of interregister signaling used between the modem and the CO. This 3-character field is denoted by "T" for tone dialing (default) and "P" for pulse dialing. This setting depends on type of line (tone or pulse) to the modem.
Adjustable Make/Break Ratio	This field controls the make/break ratios of pulses and DTMF dialing. Most modems have support for different make/ break options for pulse dialing only. Paradyne, Intel, and U.S. Robotics use the default <b>&amp;P0</b> to select a ratio of 39% make and 61% break for communication for the United States and Canada. The option <b>&amp;P1</b> sets a ratio of 33% make and 67% break for the United Kingdom and Hong Kong. This is a 5-character blank field (default) and is not case-sensitive.
Dial Command	This field has a default of "D" in a 3-character field. This field denotes the standard dialing command of the modem and is not case-sensitive.
No Answer Time-Out	Most modems provide a timer that abandons any outbound data call after a predetermined interval. This is a non-administrable parameter.

**Table 2-8. Release 6csi Modem Fields**

Field	Description
Modem connection	Default is <b>none</b> . Set to <b>external</b> for Release 6csi. If no modem is installed, set to "none."
Modem name	This field is 20 characters long and permits alphanumeric characters to provide a unique qualifier for a given modem (such as <b>USRrobotics839</b> ).
RTS/CTS enabled	Informs modem that communication with the data source UART is driven with RTS/CTS flow control. The default 6-character field name is <b>&amp;H1</b> for Release 6csi. Set the field name to <code>\Q3</code> for Intel modems. This field is not case sensitive.
Asynchronous data mode	Configures modem as an asynchronous communications device. This 8-character field name has a default value of <b>&amp;M0</b> for Release 6csi. Set the field name to <b>&amp;M0&amp;Q0</b> for Intel modems. This field is not case sensitive.
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 6-character blank default value. The Paradyne products use <code>S90=1</code> to enable this functionality while the Intel product uses <code>\J1</code> to enable similar functionality. This field is not case sensitive.  This option is not available for U.S. Robotics modems.
Disable data compression	Turns off the default data compression algorithms used 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 <code>H0%C0</code> to disable V.42bis & MNP Class 5 data compression algorithms. The Paradyne products only use <code>%C0</code> to disable both algorithms. This field is not case sensitive.  This option is not available for U.S. Robotics modems.
Enable error control	Turns on the V.42 LAPM and MNP error control protocols. The field has a blank default of 6 characters. The Paradyne products use the command <code>\N5</code> to enable V.42/MNP/Buffer error control while the Intel product uses <code>\N3</code> to provide similar functionality.  This option is not available for U.S. Robotics modems.

*Continued on next page*

**Table 2-8. Release 6csi Modem Fields — Continued**

Field	Description
Misc. init. parameters	This field has a 20-character blank default. This field supports any initialization parameters not already specified. The AT commands specified in this field are always the last initialization parameters to be sent to the external modem. This field is not case sensitive.
Auto-answer ring number	This field controls the number of rings required before the modem answers an incoming call. This field has a 6-character blank default value. Typically, the maximum value is 255. 1-255 are generally used.
Dial type	This field controls the type of interregister signaling used between the modem and the CO. The field has a 3-character default of "T" for tone dialing. Pulse dialing is indicated by "P". This field is concatenated with the dial string and is not case sensitive.
Adjustable make/break ratio	This field controls the make/break ratios of pulses and DTMF dialing. Most modems have support for different make/ break options for pulse dialing only. Paradyne, Intel, and U.S. Robotics use the default <b>&amp;P0</b> to select a ratio of 39% make and 61% break for communication within the United States and Canada. The option <b>&amp;P1</b> sets a ratio of 33% make and 67% break for the United Kingdom and Hong Kong. This field has a blank default in a field 5 characters long. This field is not case sensitive.
Dial command	This field has a default of "D" in a 3-character field. This field denotes the standard dialing command of the modem. This field is not case sensitive.
No answer time-out	Most modems provide a timer that abandons any outbound data call after a predetermined interval. This is a non-administrable parameter.

**Table 2-9. U.S. Robotics External Modem Switch Settings**

---

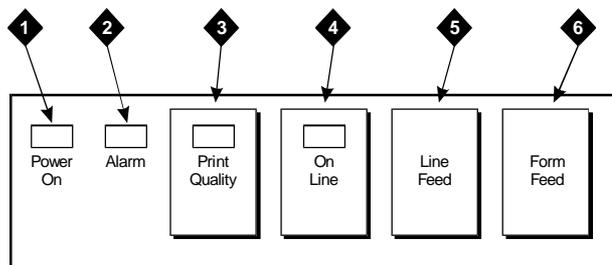
Switch	Setting	Function
1	OFF (Up)	DTR (data terminal ready) override
2	OFF (Up)	Verbal result codes
3	ON (Down)	Enable result codes
4	OFF (Up)	Displays keyboard commands (local echo)
5	OFF (Up)	Auto answer (modem answers on first ring)
6	OFF (Up)	CD (carrier detect) override (modem sends CD signal on connect, drops CD on disconnect)
7	OFF (Up)	Power-on and ATZ reset software defaults (loads Y or Y1 configuration from NVRAM)
8	ON (Down)	AT (attention) command set recognition (enables recognition, smart mode)

---

## 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 2-2](#) shows the arrangement of the function keys on the printer control panel.



### Figure Notes:

- |                         |                     |
|-------------------------|---------------------|
| 1. Power on button      | 4. On line button   |
| 2. Alarm button         | 5. Line feed button |
| 3. Print quality button | 6. Form feed button |

### Figure 2-2. 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 2-10](#). If the printer is used as the system printer, set the options as shown in [Table 2-11](#).
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 2-10. 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
93	PROTOCOL	03	XON/XOFF
94	STOP BIT	01	1
95	PARITY	01	NONE
96	PBS (matches connected device)	01	9600

**Table 2-11. 572 Printer Used as System Printer**

<b>572 Printer Option Settings</b>			
<b>Function</b>	<b>Function Name</b>	<b>Menu</b>	<b>Menu Status</b>
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
93	PROTOCOL	03	XON/XOFF
94	STOP BIT	01	1
95	PARITY	01	NONE
96	PBS	04	1200

## **Call Detail Recording Option Settings**

The interface between the system and CDR equipment may be:

- Data module — Recommended option settings are shown in [Table 2-3](#)
- 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 — all except Release 6 CMC. Data modules or modems are not required.
- For Release 6 CMC — connected to the MODEM (P2) connector on the processor interface cable.

A 572 Printer can be used as an output receiving device for CDR. The recommended option settings for this printer is shown in [Table 2-12](#). Also, a 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 6 Administration and Feature Description*.

**Table 2-12. 572 Printer Used with Management Terminal, CDR, or Journal Printer**

<b>Function</b>	<b>Function Name</b>	<b>Menu</b>	<b>Menu Status</b>
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

*Continued on next page*

**Table 2-12. 572 Printer Used with Management Terminal, CDR, or Journal Printer**

<b>Function</b>	<b>Function Name</b>	<b>Menu</b>	<b>Menu Status</b>
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
93	PROTOCOL	03	XON/XOFF
94	STOP BIT	01	1
95	PARITY	01	NONE
96	PBS	01	9600

## AUDIX Interface Option Settings

The audio information exchange (AUDIX) sometimes connects to the system through the processor interface circuit pack. The first circuit on the processor interface can connect directly to the AUDIX through the PI connector on the rear of the control carrier (all except Release 6 CMC).

For Release 6 CMC, the control link (CL) mode is not used.

Any of the remaining 3 circuits on the processor interface to be used to support AUDIX must connect through a 7400D data module serving as the interface link for AUDIX. The option settings are shown in [Table 2-13](#).

**Table 2-13. Data Module Settings for DEFINITY AUDIX**

DIP Switch 1	Setting
9600	ON
DIP switch 2	Setting
SYNC	ON
INT	ON
AANS	ON
All other switches	OFF

## 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 2-14](#) and [Table 2-15](#)), set the switches on the TN760D and administer the port per [Figure 2-3 on page 2-24](#) and [Table 2-14](#).

### CAUTION:

*To prevent damage from static electricity, wear an EMC wrist strap (Comcode 900698226) when handling circuit packs or other components.*

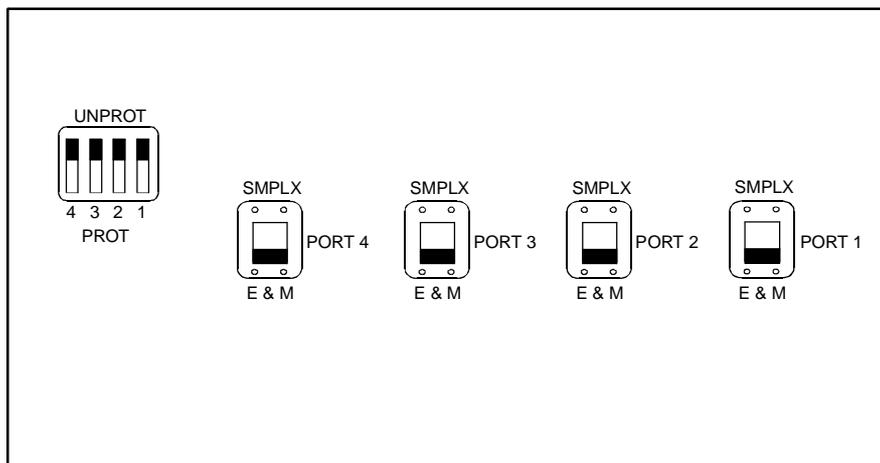
**Table 2-14. Signaling Formats for TN760D**

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 2-15. 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 <sup>1</sup> / battery	Ground
Type I compatible	Open <sup>1</sup> / battery	Ground	Grd	Open <sup>1</sup> / battery
Type V	Open <sup>1</sup> / battery	Ground	Open	Ground
Type V reversed	Ground	Open	Ground	Open

1. An open circuit is preferred instead of battery voltage.



r758183 RBP 050896

Figure 2-3. TN760D Tie Trunk Circuit Pack (Component Side)

Table 2-16. TN760D Option Switch Settings and Administration

Installation Situation		Signaling Format		E&M/ SMPLX Switch	Prot/ Unprot Switch	Port
Condition	To	System	Far-End			
Co-located	Sys85/ G2	Simplex Type 5	Simplex Type 5	SMPLX	Either	Type 5
Inter-building	Sys85/ G2	Simplex Type 5	Simplex Type 5	SMPLX	Either	Type 5
Co-located	Dimension PBX	E&M type 1 Compatible	E&M type 1 Standard	E&M	Unprot	Type 1 Compatible
Inter-building	Dimension PBX	Protected type 1 Compatible	Protected type 1 Standard	E&M	Prot	Type 1 Compatible
Co-located	DEFINITY	E&M type 1 Compatible	E&M type 1 Standard	E&M	Unprot	Type 1 Compatible
Inter-building	DEFINITY	Protected type 1	Protected type 1	E&M	Prot	Type 1

Continued on next page

**Table 2-16. TN760D Option Switch Settings and Administration — *Continued***

		Compatible	Standard plus			Compatible
Co-located	Net integrated	E&M Type 1 Standard	Any PBX	E&M	Unprot	Type 1

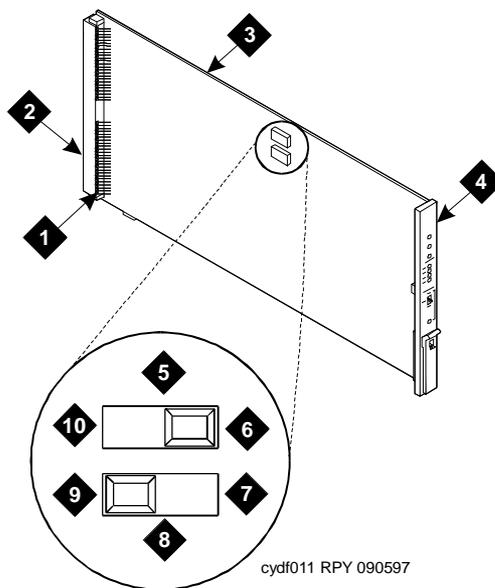
## TN464E/F Option Settings

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 2-17](#) and [Figure 2-4](#).

**Table 2-17. Option Switch Settings on TN464E/F**

120 ohms	Twisted pair
75 ohms	Coaxial requiring 888B adapter
32 channel	2.048 Mbps
24 channel	1.544 Mbps



**Figure Notes:**

- |   |                                |
|---|--------------------------------|
| 1. Backplane connectors                   | 6. 24 channel (shown selected) |
| 2. Rear connector                         | 7. 75 ohm                      |
| 3. TN464E/F DS1/E1 interface circuit pack | 8. 75/120 ohm selector         |
| 4. Faceplate                              | 9. 120 ohm (shown selected)    |
| 5. 24/32 channel selector                 | 10. 32 channel                 |

**Figure 2-4. TN464E/F Option Settings**

# Index

---

## Symbols

"T" Cable, [1-10](#)

---

## Numerics

105C Isolator adapter, [1-42](#)  
1145B power supply, [1-6](#)  
1146B power distribution unit, [1-9](#), [1-13](#)  
1147B battery, [1-9](#)  
1148B battery, [1-9](#)  
1149B battery, [1-9](#)  
1151A and 1151A2 loop range, [1-18](#)  
1151A Power Supply, [1-16](#), [1-17](#)  
1151A2 Power Supply, [1-16](#), [1-17](#)  
120A ICSU, [1-119](#)  
2.5 Amp Hour batteries, [1-6](#)  
2.5 Amp Hour battery, [1-9](#)  
5 Amp Hour battery, [1-9](#)  
572 printer, [2-17](#)  
7400A data module  
    option settings, [2-5](#)  
8 Amp Hour battery, [1-9](#)  
888B converter, [1-92](#)  
909A  
    DC version, [1-19](#)  
909A/B Universal Coupler, [1-28](#)  
909B  
    AC version, [1-19](#)

---

## A

alarm relay contact, [1-3](#)  
answer only interface, [2-3](#)  
APP connector information, [1-190](#), [1-196](#) to [1-198](#)  
AT control modem, [2-5](#)  
AUDIX  
    system, [1-50](#)  
auxiliary equipment  
    909A/B Universal Coupler, [1-3](#)  
    Asynchronous Data Units, [1-3](#)  
    CONVERSANT, [1-4](#)  
    Data Modules, [1-3](#)  
    PagePac paging system, [1-4](#)  
auxiliary equipment pin designations, [1-190](#), [1-196](#) to [1-198](#)

---

## B

back-up battery, [1-7](#)  
back-up battery, PEC codes, [1-9](#)  
battery back-up, [1-9](#)  
battery back-up switch, [1-10](#)  
bit rate  
    setting, [2-26](#)  
Busy Tone Disconnect, [1-131](#)

---

## C

cables  
    diagrams, [1-190](#), [1-196](#) to [1-198](#)  
Call Detail Recording (CDR), [2-17](#)  
calling queue, [1-5](#)  
CallVisor ASAI over DEFINITY LAN Gateway port assemblies  
    R2 (J58890MA-1), [1-46](#)  
CDR, [2-17](#)  
    option settings, [2-20](#)  
    printer, [2-17](#)  
Channel Service Unit  
    cabling to DS1 Converter, [1-168](#)  
    Smart Jacks, [1-168](#)  
circuit packs  
    DEFINITY AUDIX System, [1-50](#)  
    pin designations, [1-190](#), [1-196](#) to [1-198](#)  
    TN2181 Digital Line 2-Wire, [1-130](#)  
    TN2181 Digital Line 2-Wire DCP, [1-100](#)  
    TN2183 Analog Line, [1-5](#)  
    TN2224 Digital Line, [1-192](#)  
    TN2224 Digital Line 24-port 2-Wire DCP, [1-100](#)  
    TNCCSC-1 PRI to DASS Converter, [1-92](#), [1-94](#)  
    TNCCSC-2 PRI to DPNSS converter, [1-92](#), [1-94](#)  
    TNPRI/BRI Converter, [1-93](#), [1-95](#)  
CO trunk, [2-26](#)  
coaxial converter, 888B, [1-92](#)  
COMSPHERE modem, [2-8](#)  
connecting  
    CONVERSANT Voice Information System, [1-128](#)  
    music-on-hold, FCC-registered, [1-32](#)  
connections  
    music-on-hold, non-FCC-registered, [1-32](#)  
connectors  
    data communications equipment, [2-20](#)  
Cordless Telephone Generation 2 (CT2), [1-189](#)

---

## D

data communications equipment connector, [2-20](#)  
data module, [2-1](#)

DC power  
  signaling leads, [2-23](#)  
DCS switch settings, [2-2](#)  
DEFINITY  
  AUDIX System, [1-50](#)  
D-lead modem, [2-5](#)  
DS1  
  interface, [2-26](#)  
DS1 Converter  
  "Y" cable, [1-169](#)  
  cabling, [1-168](#)  
  quad cable, [1-168](#)  
DS1 loopback, [1-115](#)  
DS1 span, [1-115](#), [1-116](#)  
DS1 span test, [1-116](#)  
DS1 span, T1, [1-115](#)

---

## E

E1 interface, [2-26](#)  
EIA port, [2-20](#)  
Electronic Industries Association, see EIA, [2-20](#)  
Endpoints, [1-171](#)  
ESPA radio paging, [1-167](#)  
European Standard Paging Access, [1-167](#)  
expanded power distribution unit, [1-10](#)  
expanded power distribution unit spacer bracket, [1-10](#)  
ExpressRoute 1000 data module, [1-96](#)  
external modem  
  COMSPHERE, [2-8](#)  
external modem connections, [1-132](#)  
external modem option settings, [2-8](#)  
external ringing, [1-5](#)

---

## F

Forum  
  base stations, [1-189](#)  
  Personal Communications Manager, [1-189](#)  
  pocket telephone, [1-189](#)

---

## I

impedance, setting, [2-26](#)  
ISDN, [2-26](#)  
  PRI interface, [2-26](#)

---

## J

J58890MA-1 CallVisor ASAI over DEFINITY LAN Gateway port assemblies, [1-46](#)  
J58890MAP (MAPD), [1-47](#)

---

## K

KS-22911 power supply, [1-19](#), [1-108](#)  
KS-22911L2 power supply, [1-33](#)  
KS-23395, to connect music-on-hold, [1-32](#)

---

## L

lead designations, [1-190](#)  
loop range, 1151A and 1151A2, [1-18](#)  
loopback jack, [1-115](#)

---

## M

MAPD  
    PC connections, [1-48](#)  
MASI  
    Multimedia Application Server Interface, [1-101](#)  
MMCH  
    multimedia call handling, [1-171](#)  
MMCX  
    Multimedia Communications Exchange, [1-101](#)  
modem  
    AT control, [2-5](#)  
    D-lead, [2-5](#)  
    external, switch settings, [2-8](#)  
    pooling, switch settings, [2-4](#)  
Modem Connection field, [2-8](#)  
multimedia call handling, [1-171](#)  
multimedia endpoint  
    PictureTel, [1-173](#)  
    ProShare, [1-175](#)  
    Vistium, [1-178](#)  
    Zydacron, [1-178](#)  
multimedia endpoints, [1-171](#)  
multi-mount DCP extender, [1-100](#)  
music-on-hold equipment  
    connecting non-FCC-registered, [1-32](#)

---

## N

network interface, [1-119](#)

---

## O

option switch settings, [2-1](#)

---

## P

- PassageWay adapter, [1-107](#)
- PC Console, [1-108](#)
- PictureTel endpoint, [1-173](#)
- PictureTel testcall, [1-174](#)
- PictureTel troubleshooting, [1-174](#)
- pin designations, [1-190](#)
  - auxiliary equipment, [1-190](#), [1-196 to 1-198](#)
  - circuit packs, [1-190](#), [1-196 to 1-198](#)
- pinouts, [1-190](#)
  - auxiliary, [1-196 to 1-198](#)
  - circuit packs, [1-196 to 1-198](#)
- power supply
  - 1145B -48V, [1-6](#)
  - 1146B -48V, [1-6](#)
  - 1151A -48V, [1-16](#)
  - 1151A2 -48V, [1-16](#)
- printer
  - 572 option settings, [2-17](#)
  - option settings, [2-17](#)
- processor interface circuit pack
  - AUDIX connections, [2-22](#)
  - switch settings, [2-2](#)
- ProShare endpoint, [1-175](#)
- ProShare testcall, [1-176](#)
- ProShare troubleshooting, [1-176](#)

---

## Q

- queue calling, [1-5](#)
- queue warning indicator, [1-5](#)

---

## R

- rack mount DCP extender, [1-100](#)

---

## S

- security issues, [xv](#)
- setting
  - bit rate, [2-26](#)
  - line impedance, [2-26](#)
- signaling leads, DC power, [2-23](#)
- switch setting
  - 7400 series data modules, [2-3](#)

switch settings

- 572 printer, [2-17](#)
- 7400A, [2-5](#)
- 7400A Data Module, [2-5](#)
- CDR, [2-20](#)
- data module, [2-1](#)
- DCS, [2-2](#)
- external modem, [2-8](#)
- modem pooling, [2-4](#)
- printer, [2-17](#)
- processor interface, [2-2](#)
- TN464 circuit pack, [2-26](#)
- TN760 tie trunk, [2-23](#)

system printer, [2-17](#)

---

## T

T1 DS1 span, [1-115](#)

TDM bus, [2-26](#)

testcall, PictureTel, [1-174](#)

testcall, ProShare, [1-176](#)

testcall, Zydacron, [1-179](#)

tie trunk

- circuit pack option settings, [2-23](#)

TN2183 Analog Line circuit pack, [1-5](#)

TN2224 Digital Line, [1-192](#)

TN464 circuit pack

- option settings, [2-26](#)

TN760 circuit pack

- option settings, [2-23](#)

TNCCSC-1 PRI to DASS Converter, [1-92](#), [1-94](#)

TNCCSC-2 PRI to DPNSS Converter, [1-92](#), [1-94](#)

TNPRI/BRI converter, [1-93](#), [1-95](#)

troubleshooting PictureTel, [1-174](#)

troubleshooting ProShare, [1-176](#)

troubleshooting Zydacron, [1-179](#)

type-approved external modem, [2-8](#)

---

## V

VIS, see Voice Information System

Vistium endpoint, [1-178](#)

Voice Information System, connecting, [1-128](#)

voicemail, AUDIX system, see also AUDIX

---

## W

Wideband endpoints

- non-signaling, [1-104](#)
- remote port module, [1-106](#)
- signaling, [1-105](#)

Wireless Business System, [1-189](#)

wiring

pin designations, [1-190](#), [1-196](#) to [1-198](#)

procedures, [1-1](#)

---

## Z

Zydacron endpoint, [1-178](#)

Zydacron testcall, [1-179](#)

Zydacron troubleshooting, [1-179](#)

