
DECxpress 100

DECxpress 100 Gateway

Installation/Owner's Manual

Prepared by
Computer Special Systems

1st Edition, November 1989

Printed in U.S.A.

This document was produced by Computer Special Systems Documentation Services in Merrimack, NH.

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Preface

This manual provides the technical user with information on how to install and operate the DECxpress™ 100 gateway. Although this manual is written for the technical user, it is recommended that Digital™ Field Service or other Digital qualified service personnel install your DECxpress 100 gateway.

The only tools required to install your DECxpress 100 gateway are a small, flat blade screwdriver and a medium, Phillips screwdriver.

Throughout this manual the DECxpress 100 gateway will also be referred to as the gateway. You should keep this manual with your gateway.

How to Use This Guide

Before you install DECxpress 100 gateway, it is recommended that you read Chapters 1, 2, and 3. These chapters provide a functional overview of the gateway and the installation process including important site verification information. Chapter 4 provides the procedures to install and verify the gateway installation. If problems occur during verification, refer to the troubleshooting procedures in Chapter 5. The appendices offer additional information that may be useful during installation.

NOTE

The information in Appendix G covers the removal and replacement of field replaceable units and it is intended for use by Digital field service personnel.

Structure of this Document

This document is a combination installation guide and owner's manual, and it is organized as follows:

Chapter 1 — Provides a general description of the gateway and also an overview of the hardware connection (standard and ThinWire) to the Ethernet network.

Chapter 2 — Describes the shipping configuration and how to obtain help if there are any items missing or damaged in shipment.

Chapter 3 — Provides information concerning items that must be considered before installing the gateway.

Chapter 4 — Describes how to install, power up, and verify the operation of the gateway.

Chapter 5 — Provides help in isolating and solving problems that might occur during operation of the gateway.

Appendix A — Describes the controls and indicators on the gateway.

Appendix B — Lists the devices supported by the gateway.

Appendix C — Provides the specifications for the gateway.

Appendix D — Describes the service options available to support the gateway.

Appendix E — Describes how to connect the gateway transceiver cable to another transceiver cable in an Etherjack junction box.

Appendix F — Provides instructions on how to rack mount the gateway.

Appendix G — Provides removal/replacement procedures for field service personnel.

Related Documents

For ordering information concerning the following related documents contact your AT&T® sales representative:

- *A Tutorial for Learning Datakit Multiplexed Host Interface Commands*
- *Datakit VCS Multiplexed Host Interface Software and DECxpress 100 Gateway Software Installation and System Administration Manual*
- *DECxpress 100 VMS Client Software System Manager's Guide*
- *DECxpress 100 VMS Client Software Installation Manual*

Additional information on configuring your installation site can be found in the following documents. For ordering information concerning these documents, contact the Digital Equipment Corporation.

- *DECconnect System Planning and Configuration Guide*
- *DECconnect System Satellite Equipment Room Installation Guide*
- *DECconnect System Facilities Cabling Installation Guide*

NOTES, CAUTIONS AND WARNINGS

Where notes, cautions and warnings are used in this document, they highlight specific types of information as follows:

NOTE Calls the attention to any item of information that may be of special importance to the reader.

CAUTION Contains essential information to avoid damage to the equipment.

WARNING Contains essential information for the safety of the user.

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FCC USER STATEMENT

NOTICE:

This equipment generates, uses, and may emit radio frequency energy. The equipment has been type tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such radio frequency interference. Operation of this equipment in a residential area may cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.


CHAPTER 1

Chapter 1

Introduction

This chapter describes the DECxpress 100 gateway and the hardware connection to the Ethernet/IEEE 802.3 and Datakit® networks.

1.1 DECxpress 100 Gateway

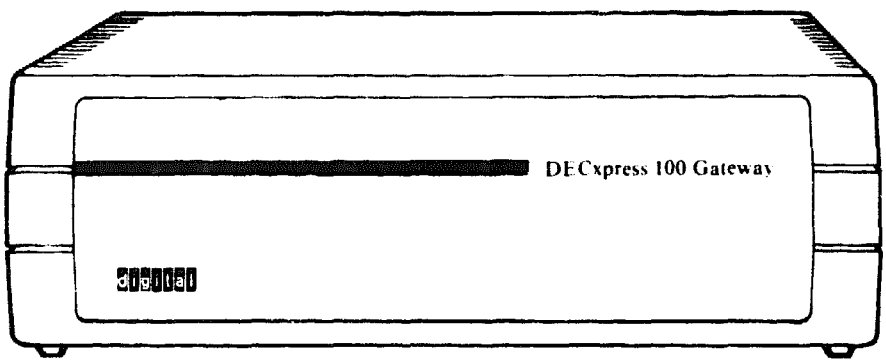
The DECxpress 100 gateway shown in Figure 1-1 is a software-dependent device used in a Local Area Network (LAN) to connect an Ethernet/IEEE 802.3 network to the Datakit network using a fiber optic link. The gateway is simple to operate and can be installed in a variety of environments.

The gateway can connect up to 512 multiplexed logical channels from a Datakit Virtual Circuit Switch (VCS™) to VAX™ processors on an Ethernet/IEEE 802.3 network. Currently the VAX System V Operating System can only use up to 256 channels.

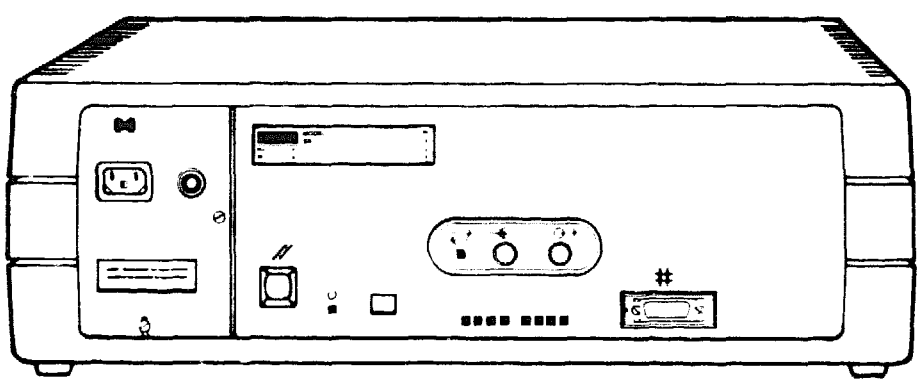
® Datakit is a registered trademark of the American Telephone and Telegraph Company.

™ VCS is a trademark of American Telephone and Telegraph Company.

Figure 1–1: DECxpress 100 Gateway



FRONT VIEW



REAR VIEW

CS-7479

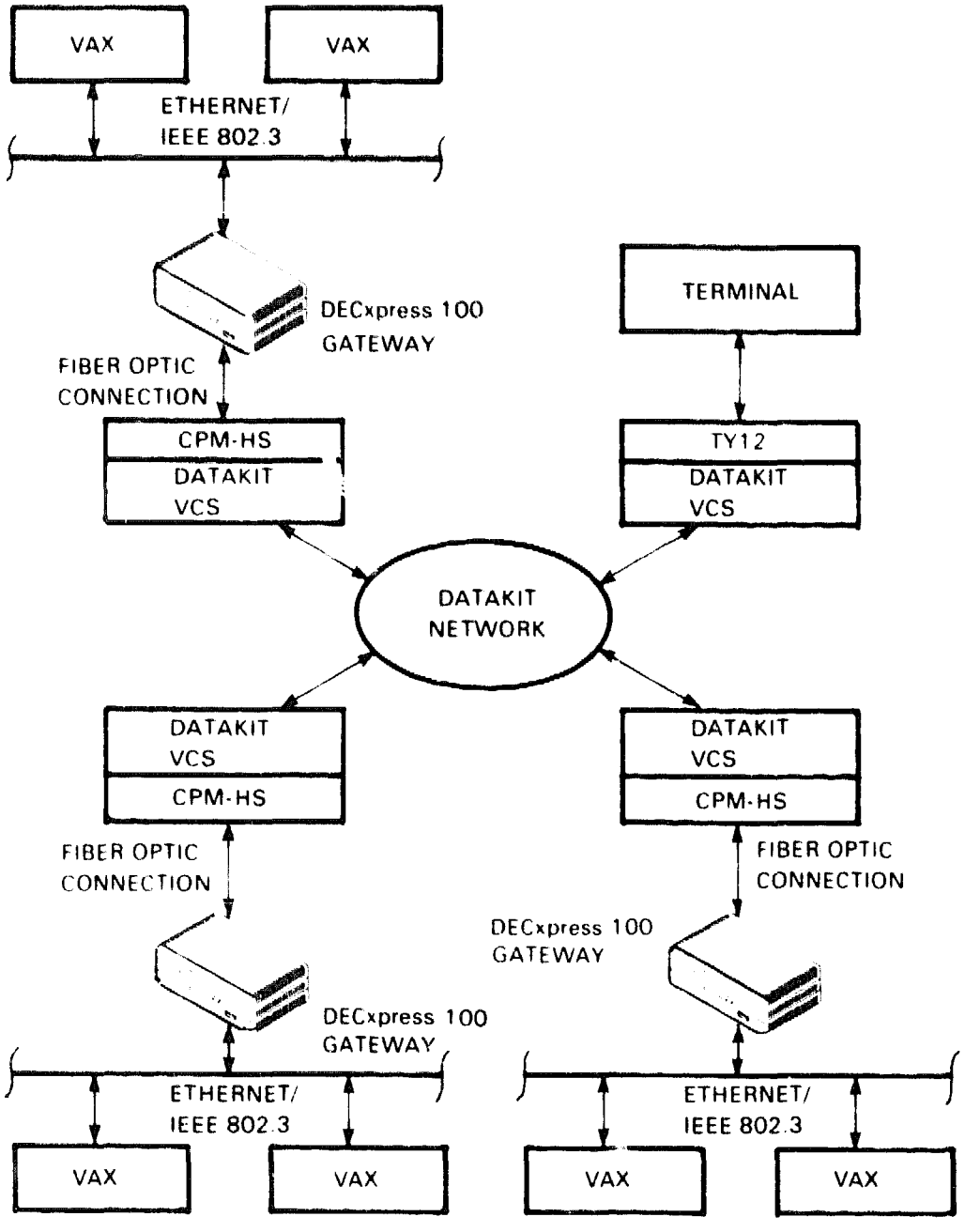
The gateway has two high speed serial ports. One port supports a full duplex fiber-optic link (one transmit line and one receive line) to a Datakit VCS. This connection supports the AT&T Computer Port Module-High Speed (CPM-HS) interface protocol. The second port supports an Ethernet/IEEE 802.3 interface connection to a Digital Network Interface (NI) port.

With the gateway, VAX systems running on either the Virtual Memory System (VMS™) Operating System or the VAX System V Operating System can communicate with:

- VAX units on other Ethernet/IEEE 802.3 networks connected in the same manner to the Datakit Network.
- Terminals connected to the Datakit Network by way of asynchronous ports such as Terminal Port Modules (TPM). Some examples of TPM are: TY6, TY12 and SAM.
- Datakit Network by way of a CPM-HS device.

Refer to Figure 1-2 for a simple example of the relationship between the gateway, three Ethernet/IEEE 802.3 networks, and a TPM connected to the Datakit Network.

Figure 1–2: DECxpress 100 Gateway/Systems Relationship



The gateway is a table top unit. However, by removing its plastic cover set, it can be installed as a rack mounted unit in a standard 19-inch RETMA† rack cabinet. The gateway is shipped to operate on 100 to 120 Vac, but it is switch selectable to operate on 220-240 Vac. To operate the gateway on 220-240 Vac, the user must supply the appropriate power cord assembly.

1.2 Hardware Installation Overview

The following information provides an overview of the gateway connection to the Ethernet/IEEE 802.3 network. Details on site preparation and installation are covered in Chapters 3 and 4. Installing the gateway hardware consists of:

- Connecting the gateway to Ethernet
- Verifying the hardware installation

The transmit and receive fiber optic cables from the Datakit VCS are connected to the gateway after the hardware installation is verified.

NOTE

The gateway is considered operational when the gateway hardware is installed and the gateway has passed its self-test.

1.2.1 Connection to the Ethernet Network

A transceiver cable connects the gateway to the Ethernet network (see Figure 1-3).

NOTE

The transceiver cable must conform to the Ethernet/IEEE 802.3 standard.

The transceiver cable may be connected to any of the following:

- Another transceiver cable section. This cable can be secured in an Etherjack junction box.
- A Digital Ethernet Local Network Interconnect (DELNI).

† RETMA racks are standard sized cabinets used by Digital and other major manufacturers of electronic equipment. The cabinet rails, mounting hole patterns, and spacing conform to international standards that allow compatibility with products manufactured by Digital and other major manufacturers.

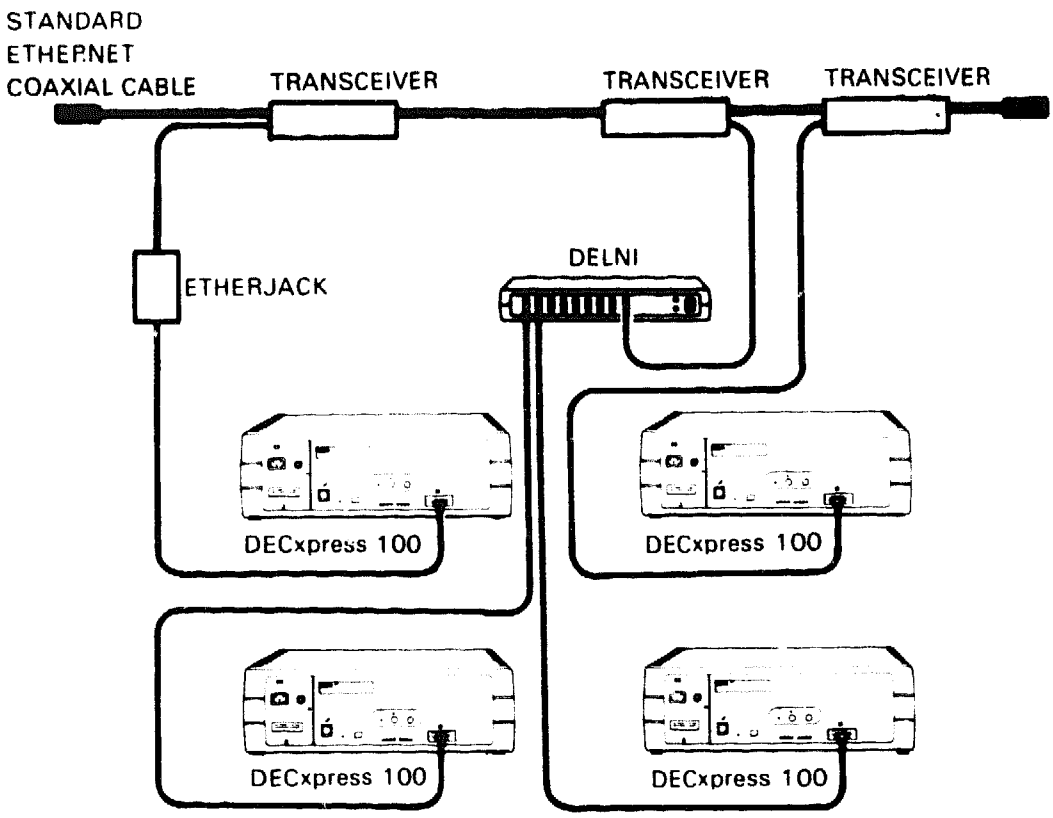
- A transceiver on a standard Ethernet coaxial cable of a Digital broadband network.
- A ThinWire Ethernet Station Adapter (DESTA) on a ThinWire Ethernet coaxial cable (see Figure 1-4).

The DELNI can either stand alone or be connected to the Ethernet coaxial cable. When connecting the DELNI to the Ethernet coaxial cable or to an Etherjack junction box, allow for an additional transceiver cable.

Make sure the transceiver connection is ready before the gateway installation begins. This means that the Etherjack, the DELNI, the DESTA, or the transceiver is installed and the required transceiver cabling is in place, tested, and tagged. Refer to the appropriate product installation guide to install these products.

Refer to Appendix B for a listing of all gateway hardware options and order codes. Appendix E provides details on hardware Ethernet connections.

Figure 1–3: Standard Ethernet Coaxial Cable Connection



NOTE: CABLES NOT MARKED ARE TRANSCEIVER CABLES

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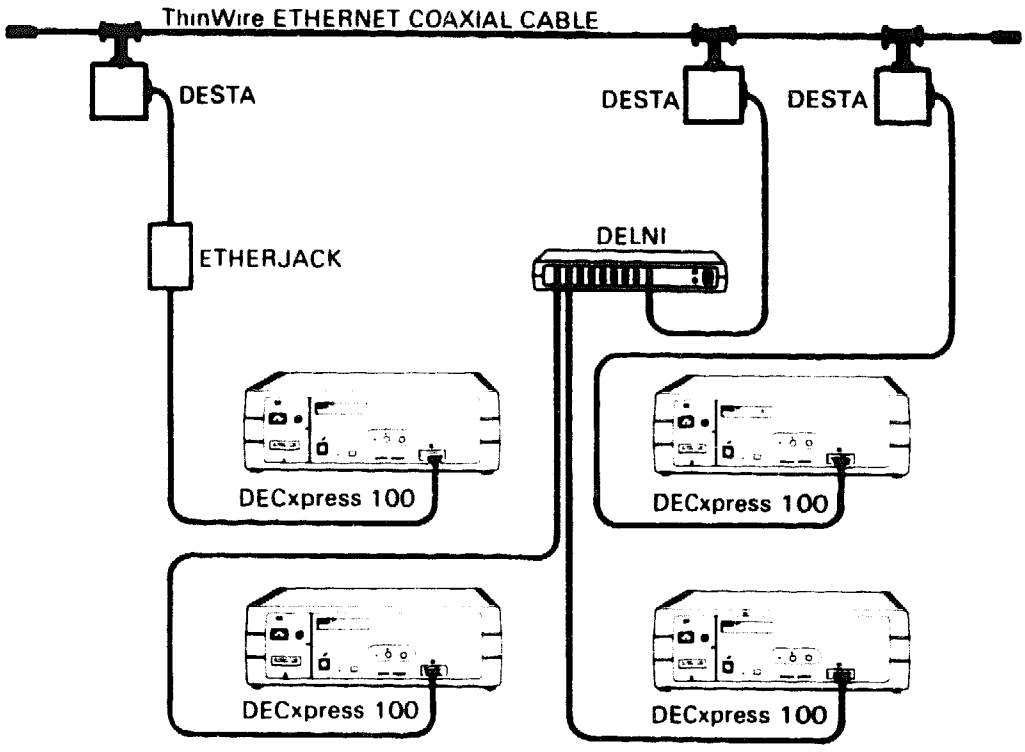
Figure 1–4: ThinWire Ethernet Coaxial Cable Connection



NOTE: CABLES NOT MARKED ARE TRANSCEIVER CABLES

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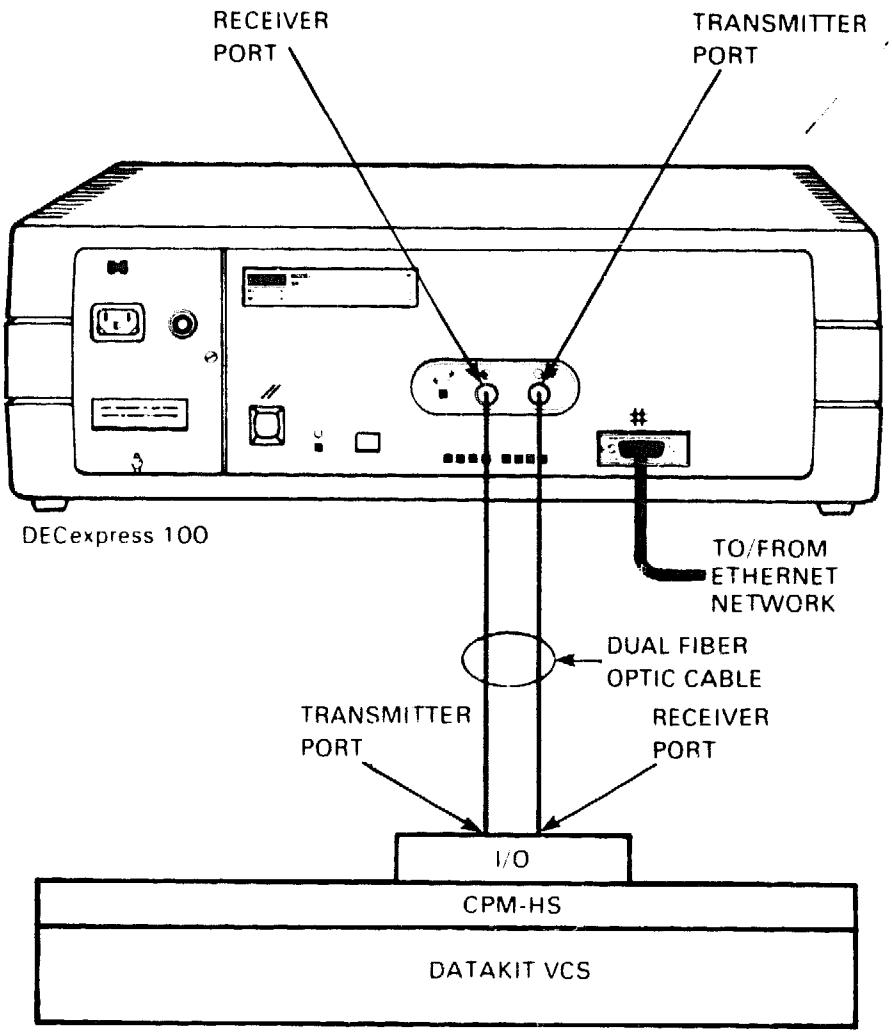
1.2.2 Connection to the Datakit Network

A transmit and a receive fiber optic cable connects the gateway to the Datakit network. The two cables are connected to a CPM-HS interface module residing in a Datakit VCS of the Datakit network (see Figure 1-5).

Figure 1–5: Fiber Optic Cable Connection



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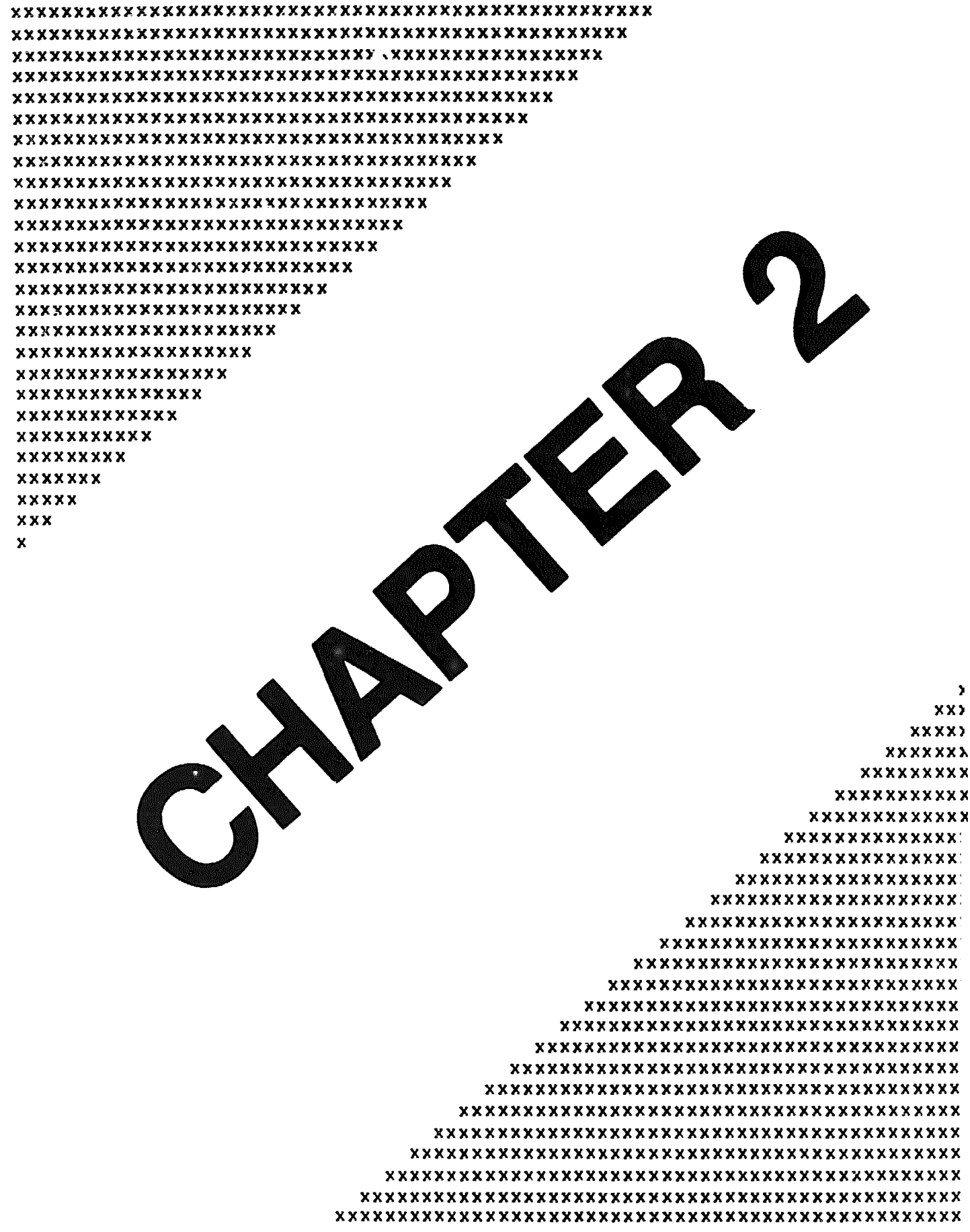

CHAPTER 2

Chapter 2

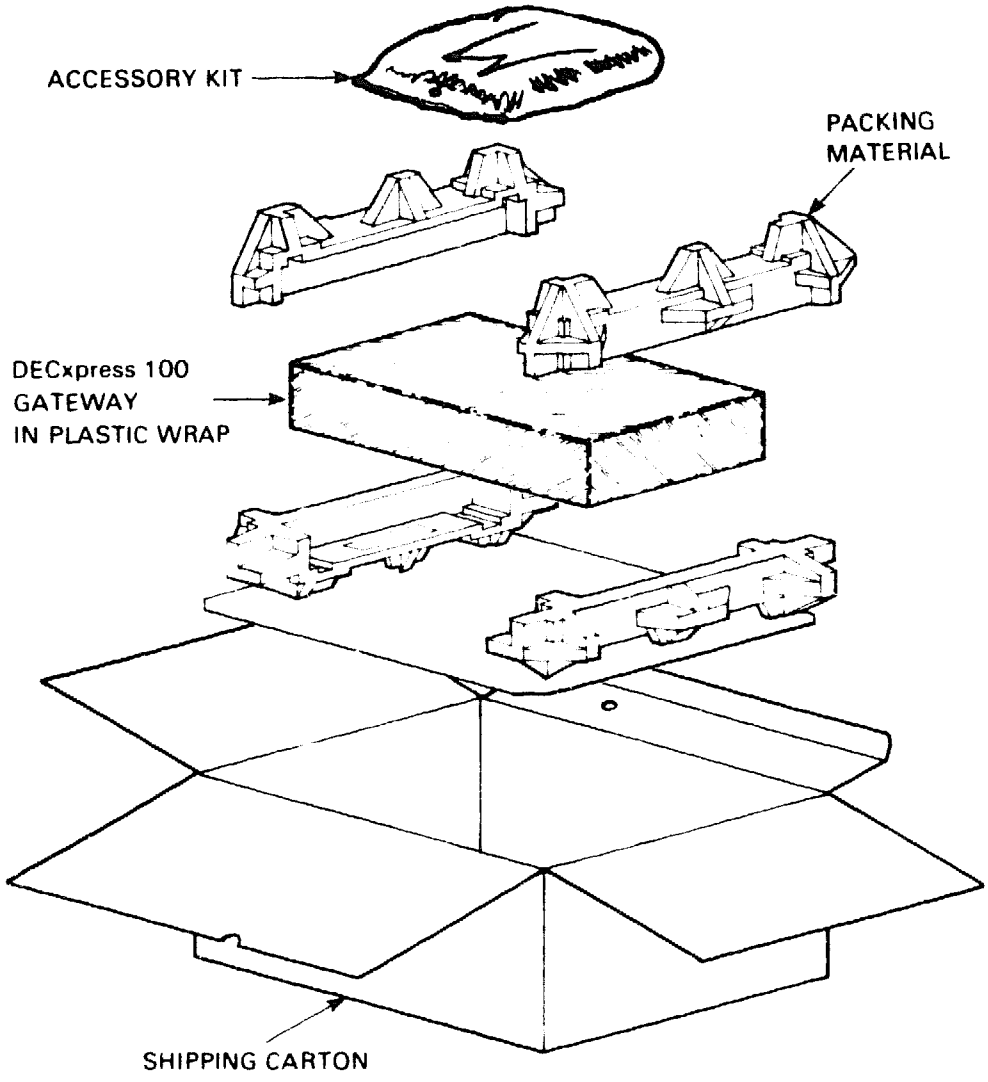
Checking Shipping Contents

This chapter contains instructions for checking the contents of the gateway and accessory shipping boxes. A single DECxpress 100 gateway shipment consists of one or more boxes, depending on the optional equipment ordered. Check the shipment to ensure that it includes all of the ordered equipment. The gateway is packed in the shipping box as shown in Figure 2-1.

NOTE

Save all shipping material in case any items need to be returned.

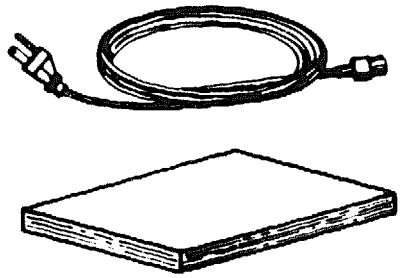
Figure 2–1: Shipping Box Contents



2.1 Gateway Box

Check the contents of the gateway shipping box. The box should contain all of the items shown in Figure 2-2. If any items are damaged, contact your delivery agent. If any items are missing, contact your AT&T sales representative.

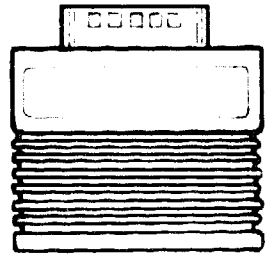
Figure 2–2: Checking the Contents



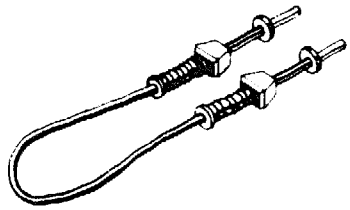
POWER CORD

DOCUMENTATION:

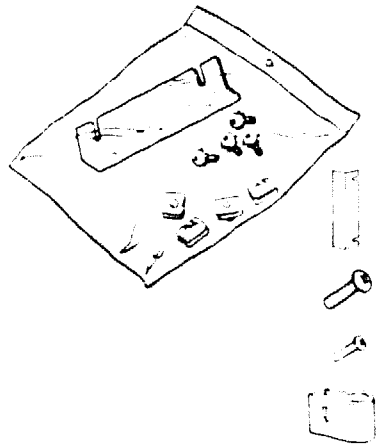
DECxpress 100 GATEWAY
INSTALLATION/
OWNER'S MANUAL



ETHERNET LOOPBACK CONNECTOR



FIBER OPTIC LOOPBACK CABLE



RACK MOUNT KIT:

TWO RACK MOUNT BRACKETS

FOUR 10-32 X 1/2 IN.
TRUSS-HEAD SCREWS

SIX 6-32 X 5/16 IN.
ROUND-HEAD SCREWS

FOUR RETAINER NUTS

CS-7484

2.2 Accessories Box

Open the accessories shipping box and check the contents against the ordered items listed in the bill of materials. If any items are damaged, contact your delivery agent. If any items are missing, contact your AT&T sales representative.

NOTE

Save the box(es) and packing material in case any items need to be returned.

CHAPTER 3

Chapter 3

Site Preparation

This chapter describes site preparations necessary prior to the installation of the DECxpress 100 gateway as follows:

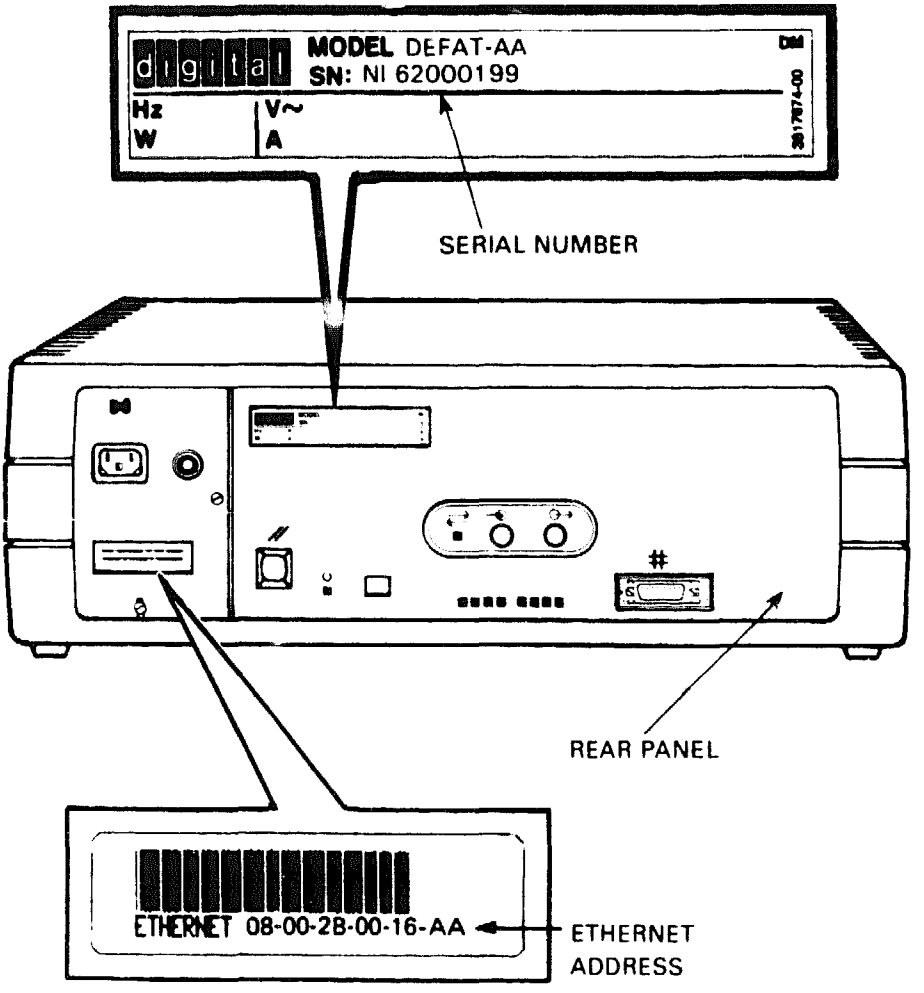
- Arranging for Software Installation
- Environment
- Table Top Installation
- Rack Mount Installation
- Cable Configuration Rules
- Preinstallation Checks

3.1 Arranging for Software Installation

Before the gateway can be fully operational, the software must be loaded into the host computer system. (The software and its documentation are shipped in a separate box.) To arrange for the software installation, proceed as follows:

1. Locate the serial number and the Ethernet address on separate labels on the gateway rear panel (see Figure 3-1).

Figure 3–1: Serial Number/Ethernet Address Location



2. Locate the *DECxpress 100 Gateway Identification Card* placed at the end of this manual. Copy the following information in the spaces provided on the identification card as shown in Figure 3-2:
   - The serial number of the gateway
   - The Ethernet address for the gateway
   - The location of the gateway (for example: office number, building, or floor)
   - Your name and the date of installation

Figure 3–2: Identification Card

DECxpress™ 100 Gateway
Identification Card

The serial number and Ethernet address uniquely identify your DECxpress 100 hardware unit. Please copy the information from your hardware unit onto this card. Include your name, the date of installation, and the location (for example, office number, building, floor) of the hardware unit. You should then give this card to your system/network manager at the same time as you hand over the software carton.

Serial number: N I 6 2 0 0 0 / 9 9

Ethernet address: 0 8 - 0 0 - 2 B - 0 0 - / 6 - A A

Location: Room 136

Your name: S. SMITH Date: 6 /18 /87

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3. Give the identification card and any software you receive to the system/network manager (the person responsible for software installation). Ask to be notified when the distribution software is installed on the load host(s) and when the gateway is configured in the load host database, if this is required by the load host(s).

3.2 Environment

The installation site must meet gateway environmental and electrical requirements. Refer to Appendix C for electrical requirements, environmental limits and physical dimensions.

3.3 Table Top Installation

The gateway is shipped as a table top unit. With this type of installation, allow ten centimeters (four inches) of airspace around the gateway air vents, and place the gateway on a table that is greater than 45 centimeters (18 inches) above the floor. This allows adequate ventilation for the gateway cooling fans and reduces exposure to excess dust from foot traffic.

3.4 Rack Mount Installation

The gateway can be rack mounted in a standard 19-inch RETMA rack cabinet. Rack mounting installation instructions are in Appendix F.

3.5 Cable Configuration Rules

Make sure that transceiver cables, device cables, and the gateway power cord do not exceed the maximum lengths as stated in Table 3–1, and in the configuration rules following the table. **It should be noted that plant cable management is the responsibility of the customer.**

Table 3–1: Maximum Cable Lengths

From	To	Maximum Cable Length	Cable Type
Transceiver	Gateway	50 m (164 ft) (See rules 1 and 2)	IEEE 802.3 compliant transceiver cable
Datakit VCS	Gateway	1 km (.62 miles)(See rule 3)	62.5/125 fiber optic pair with ST® connectors
Wall outlet	Gateway	1.8 m (6 ft)	110/120 volt power cord

® ST is a registered trademark of the American Telephone and Telegraph Company.

The basic cable configuration rules are as follows:

1. The maximum length of the transceiver cable cannot exceed 50 meters (164 feet). However, this maximum length will be reduced by the internal cabling equivalency of a device (such as a DELNI) connected between the gateway and the transceiver, or by the use of office transceiver cable:

   Cabling equivalency is a measure of the internal timing delay of a device, expressed in meters of transceiver cable. This cabling equivalency must be subtracted from the 50-meter maximum. For example, if the device has a five-meter cabling equivalency, then its maximum allowable transceiver cable length is 45 meters (50m - 5m).

2. When connecting the gateway to a configuration that includes a DELNI, allow five-meter equivalency loss for the DELNI.

3. The gateway will only accept 62.5/125 micron fiber optic cables with ST type of connectors.

WARNING

Never look into the fiber optic connector or cable. High intensity light can damage your eyes.

3.6 Preinstallation Checks

Prior to installing the gateway, use the following checklists to ensure that site preparation is complete.

Hardware

— The appropriate broadband network interface (for example: an Etherjack junction box, DELNI, DESTA, or Ethernet transceiver) is installed, and the required transceiver cabling is in place, tested, and tagged. If the device is not installed, ensure that arrangements for the installation are made before starting on the gateway installation.

— Arrangements are made to connect gateway transceiver cable to the appropriate baseband or broadband network.

— Verify that the fiber optic cables are installed in place and terminated with protective caps, tested and tagged. The tagging should differentiate the transmit cable from the receive cable. These cables should be long enough for proper connection at the gateway installation site.

— Transceiver cables are available in the appropriate lengths.

— The rack mount kit is installed (if required) properly as described in Appendix F.

Software

— The identification card is filled out as described in Section 3.1 and given to the system/network manager.

— The system/network manager has installed or will install the distribution software on the load host(s).

Suitable Environment

The items in this checklist must conform to the specifications described in Appendix C.

— The ac power outlet matches the power requirements of the gateway and is within 1.8 meters (six feet) of the installation site.

— The temperature, altitude, and humidity ranges are correct.

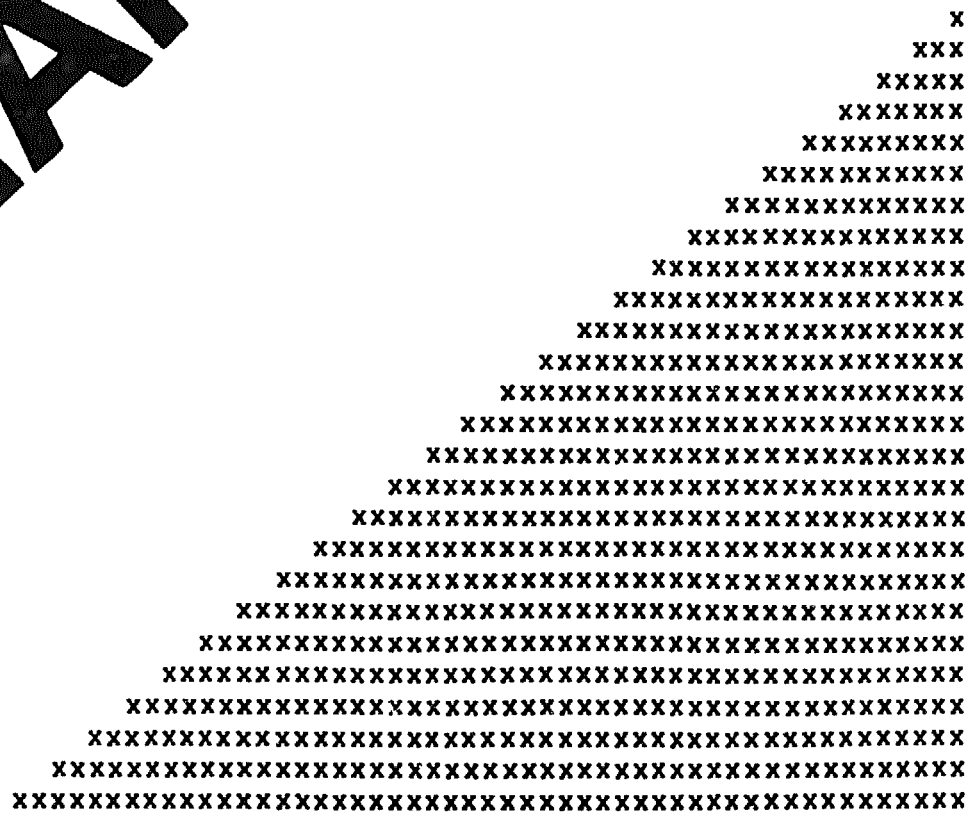
— The space is adequate for ventilation and for maintenance access.

— The location is at least 45 centimeters (18 inches) above the floor surface.

Service

— The service contracts (optional) are in place. See Appendix D for more information on service options.

CHAPTER 4



Chapter 4

Installation

This chapter describes how to install, power up, and verify the operation of your DECxpress 100 gateway. The gateway is a table top unit, but it can be modified as a rack-mount unit and installed in a standard 19-inch RETMA rack cabinet. Before performing the following procedures, read Chapter 3, Site Preparation.

CAUTION

To avoid damage to the gateway, do not plug in the gateway power cord until you are instructed to do so.

The following procedures should be performed in the sequence listed to ensure proper installation.

NOTE

For a rack-mount installation, perform procedure in Appendix F, then continue with the following procedures.

- Verifying the AC Voltage Select Switch Setting (Section 4.1)
- Verifying the Operation of the Gateway (Section 4.2)
- Connecting the Transceiver Cable (Section 4.3)
- Connecting the Fiber Optic Cables (Section 4.4)
- Initializing the Gateway in the System (Section 4.5)

4.1 Verifying the AC Voltage Select Switch Setting

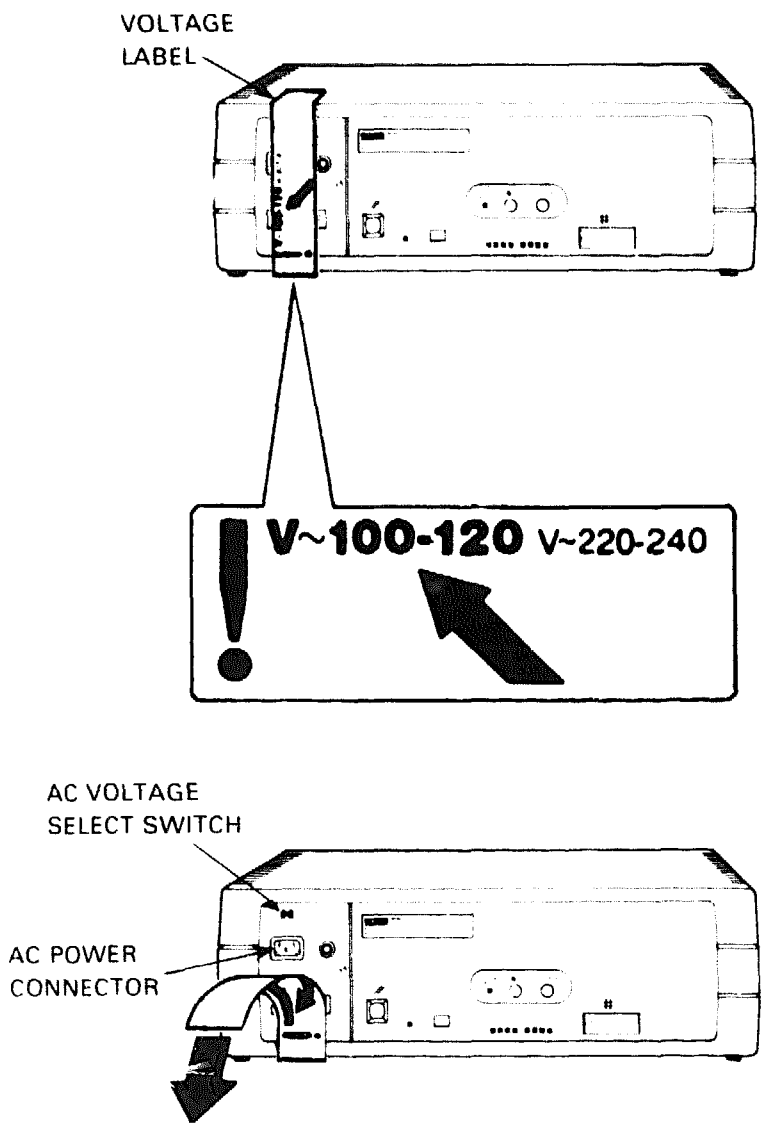
To verify the ac voltage setting of the gateway:

1. Locate and peel off the voltage label as shown in Figure 4-1. This exposes the AC Voltage Select Switch and the AC Power Connector.

NOTE

The factory-set operating voltage range is indicated by an arrow on the label.

Figure 4–1: Locating/Removing the Voltage Label

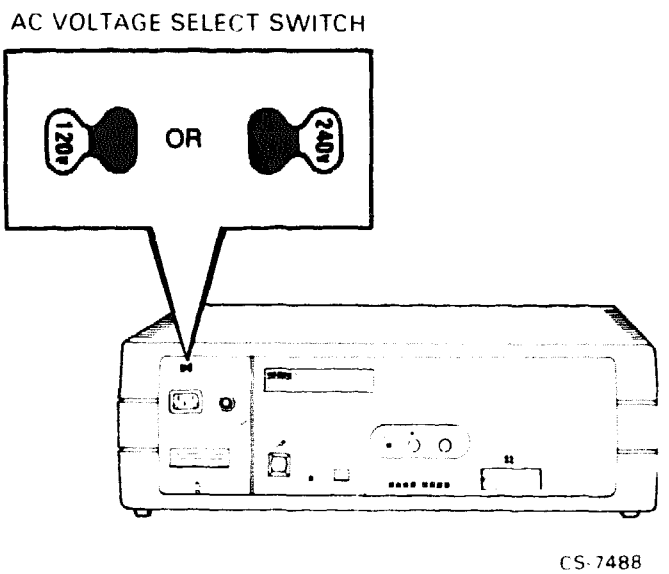


2. Verify that the AC Voltage Select Switch (Figure 4-2) is set to the operating range indicated on the voltage label, and that this is the correct setting for the power source. (Check with an electrician if you are not sure of the correct setting.)

CAUTION

An incorrect voltage setting can damage the gateway.

Figure 4–2: Verifying the AC Voltage Select Switch Setting

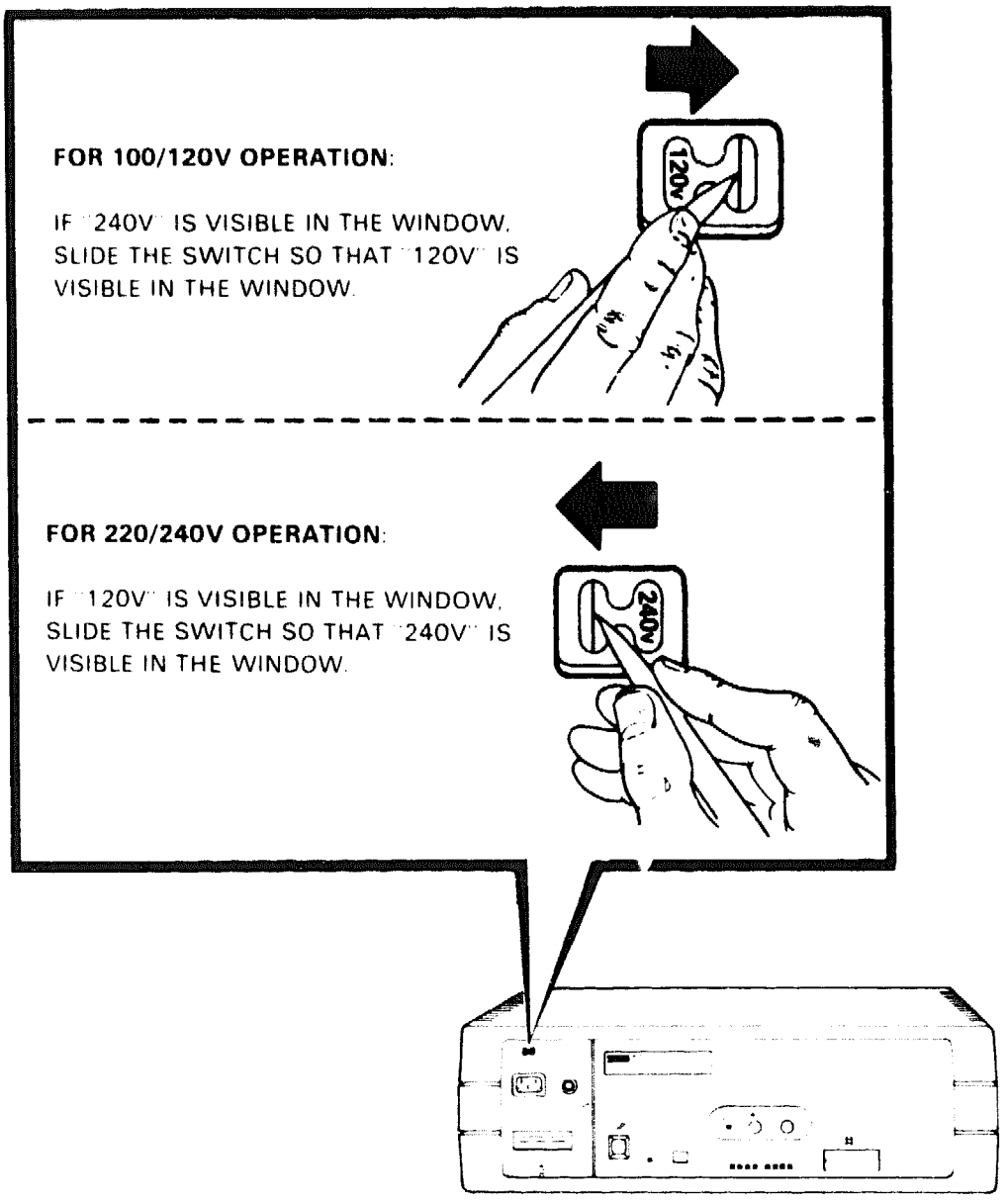


CAUTION

An incorrect voltage setting can damage the gateway. The gateway is shipped with a 120-volt power cord. To operate on 220-240 volts, you must supply the appropriate power cord. Power cords are available from AT&T (see Appendix B).

3. If the voltage setting is not correct for the power source, set the AC Voltage Select Switch to match the ac power source voltage. See Figure 4-3.

Figure 4–3: Changing the AC Voltage Setting



4.2 Verifying the Operation of the Gateway

Before connecting the gateway into the system, check to ensure that it was not damaged in shipment. Checking the gateway requires:

- Connecting the loopbacks
- Initializing self-test/connecting ac power

4.2.1 Connecting the Loopbacks

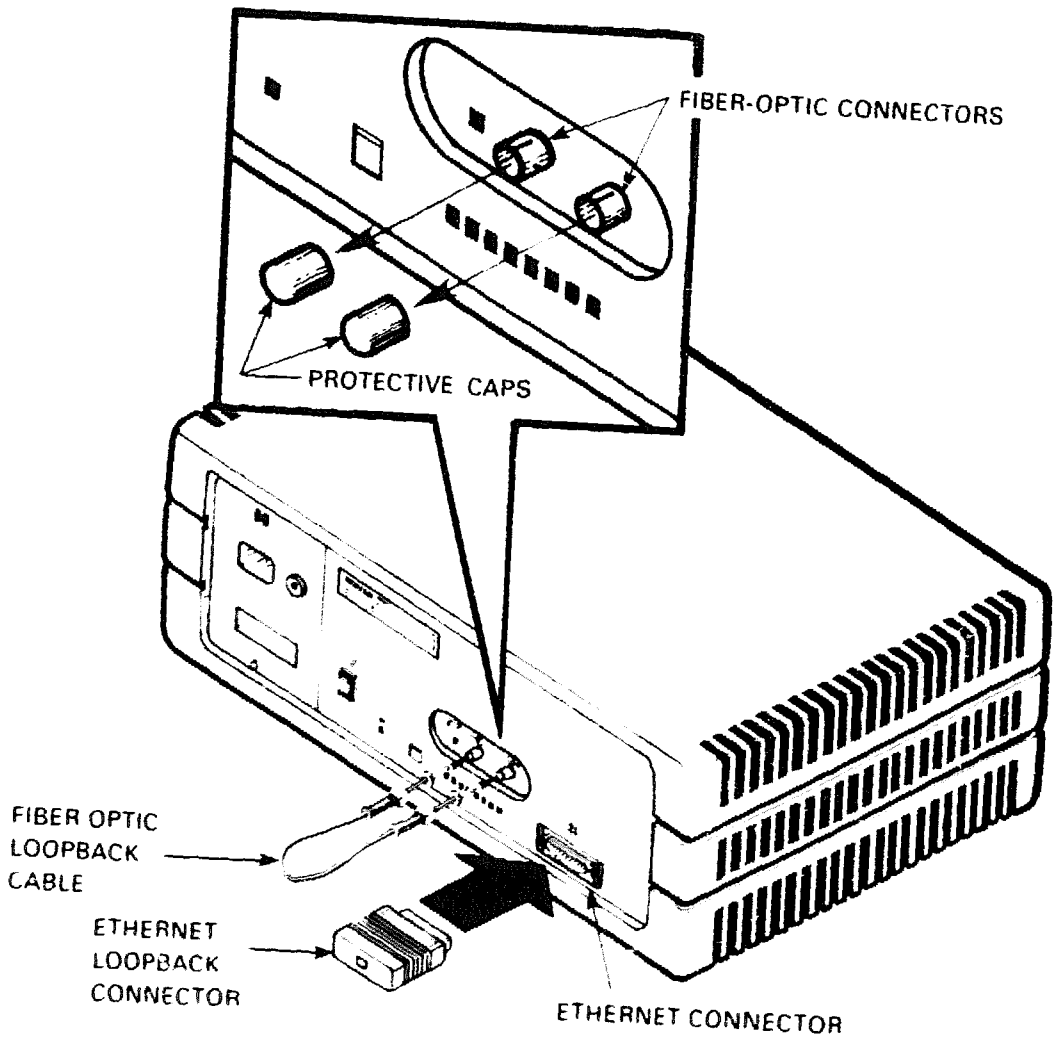
To connect the Ethernet Loopback Connector and the Fiber Optic Loopback Cable, see Figure 4-4 and proceed as follows:

WARNING

Never look into the fiber optic connector or cable. High intensity light can damage your eyes.

1. Remove and save the two protective caps on the gateway fiber optic connectors. (See insert in Figure 4-4.)

Figure 4–4: Connecting the Loopback Connector and Cable



CAUTION

Take care when performing the next step. Undue pressure could damage the gateway fiber optic connector or loopback cable.

2. Align and slowly insert the Fiber Optic Loopback Cable into the two gateway fiber optic connectors.
3. Plug the Ethernet Loopback Connector into the gateway Ethernet connector.

4.2.2 Initializing Self-Test/Connecting AC Power

To initialize the self-test, perform the following:

1. Set the Continuous Self-Test Function Switch 1 and the External Fiber Optic Loopback Function Switch 2 to the 1 (up) position. (See Figure 4-5 insert.)

CAUTION

Before performing the next step, make sure the outlet voltage matches the AC Voltage Select Switch setting on your gateway. An incorrect voltage setting can damage the gateway.

2. Connect the ac power cord to the ac power connector (see Figure 4-5).
3. Plug the other end of the power cord into the wall outlet. The gateway does not have a power ON/OFF switch. Plugging in the gateway power cord applies power directly to the gateway and starts the gateway self-test. Approximately 30 seconds later the green Non-Mute Indicator blinks followed by the lighting of the green Self-Test Indicator.

   If the Self-Test Indicator does not light and the Status Indicators (D8 through D1) display an error code, record which Status Indicator(s) are lit and refer to Appendix A for a description of the error. Then call your AT&T Service representative for service.

   If the Self-Test Indicator does not light and there is no error code display, proceed as follows:

   a. Check the power cord for a loose connection to the gateway ac power connector and to the ac outlet.

   b. Check with an electrician to make sure there is power at the ac outlet and that the ac voltage matches the gateway AC Voltage Select Switch setting.

      If steps a and b do not eliminate the problem, call your AT&T representative for service. If a problem is found, correct it and run the self-test again.

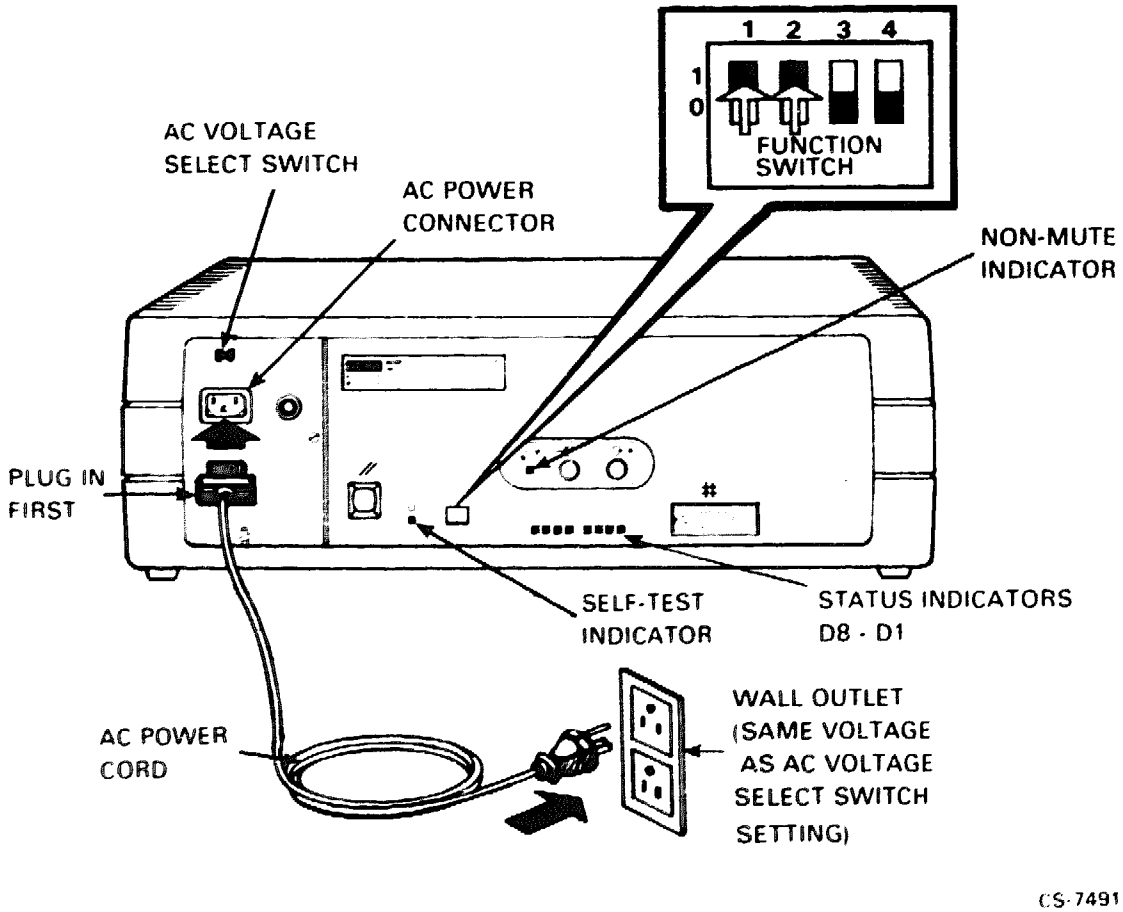
4. Return Function Switches 1 and 2 to the 0 (down) position.

NOTE

Performance of the next step will force a failure and cause the Self-Test Indicator to go off and a status display to occur. Disregard this. It is a normal condition.

5. Disconnect the Ethernet Loopback Connector and the Fiber Optic Loopback Cable.

Figure 4–5: Setting Function Switch/Connecting AC Power Cord



4.3 Connecting the Transceiver Cable

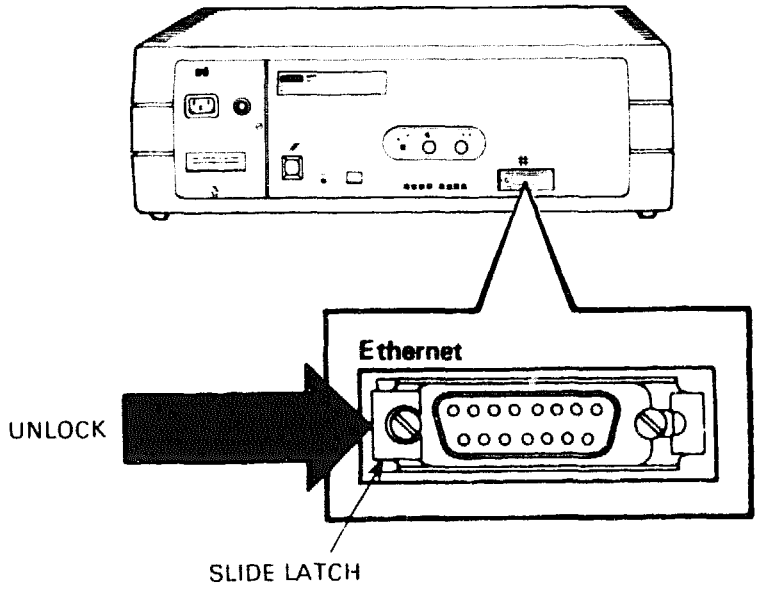
The transceiver cable connects the gateway Ethernet connector to one of the following devices as described in Appendix E.

- Etherjack junction box
- DELNI
- Ethernet transceiver
- DESTA ThinWire Ethernet station adapter

To connect the transceiver cable from one of the above devices, proceed as follows:

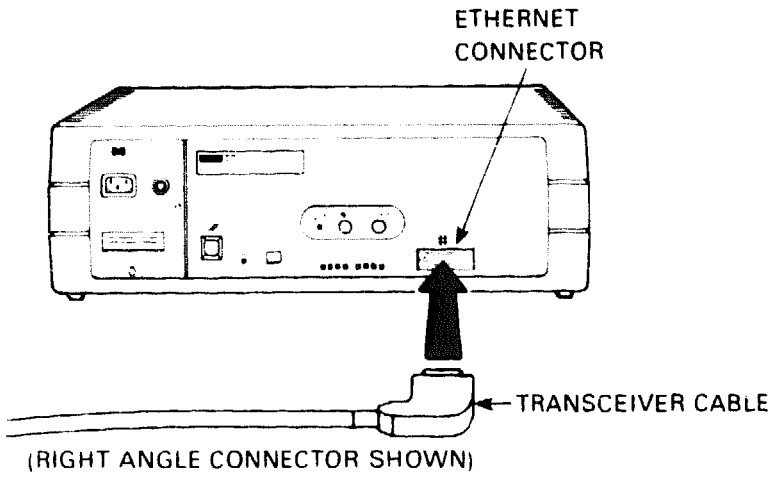
1. Unlock the slide latch on the gateway Ethernet connector. See Figure 4-6.

Figure 4–6: Unlocking the Gateway Ethernet Connector



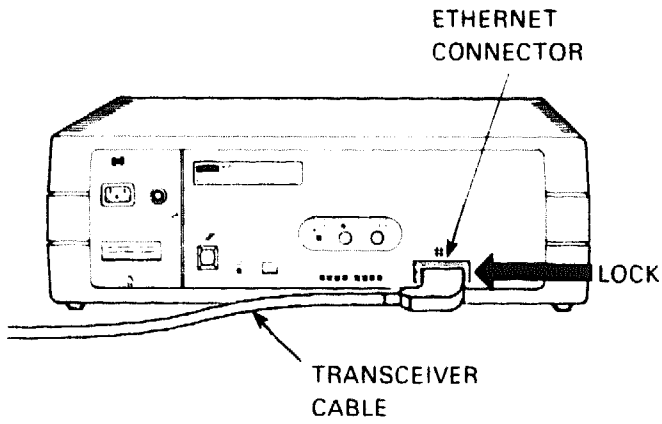
2. Connect the transceiver cable to the gateway Ethernet connector. Either a straight connector or a right-angle connector can be used as shown in Figure 4-7.

Figure 4–7: Installing the Transceiver Cable on the Gateway



3. Lock the slide latch on the gateway Ethernet connector. Tug gently on the cable to ensure it is secured. See Figure 4-8.

Figure 4–8: Locking the Gateway Ethernet Connector



4.4 Connecting the Fiber Optic Cables

Before connecting the fiber optic cables from the Datakit VCS, ensure that the send and receive cables are clearly identified and that they are terminated with ST type connectors. If necessary, check with the cable installer or system manager. To install the fiber optic cables, see Figure 4-9 and proceed as follows:

WARNING

Never look into the fiber optic connector or cable. High intensity light can damage your eyes.

CAUTION

To prevent damaging the fiber optic cables, make sure the cable bends have a minimum radius of six inches.

1. Pull off the protective caps from the fiber optic cable plugs and save for future use.

NOTE

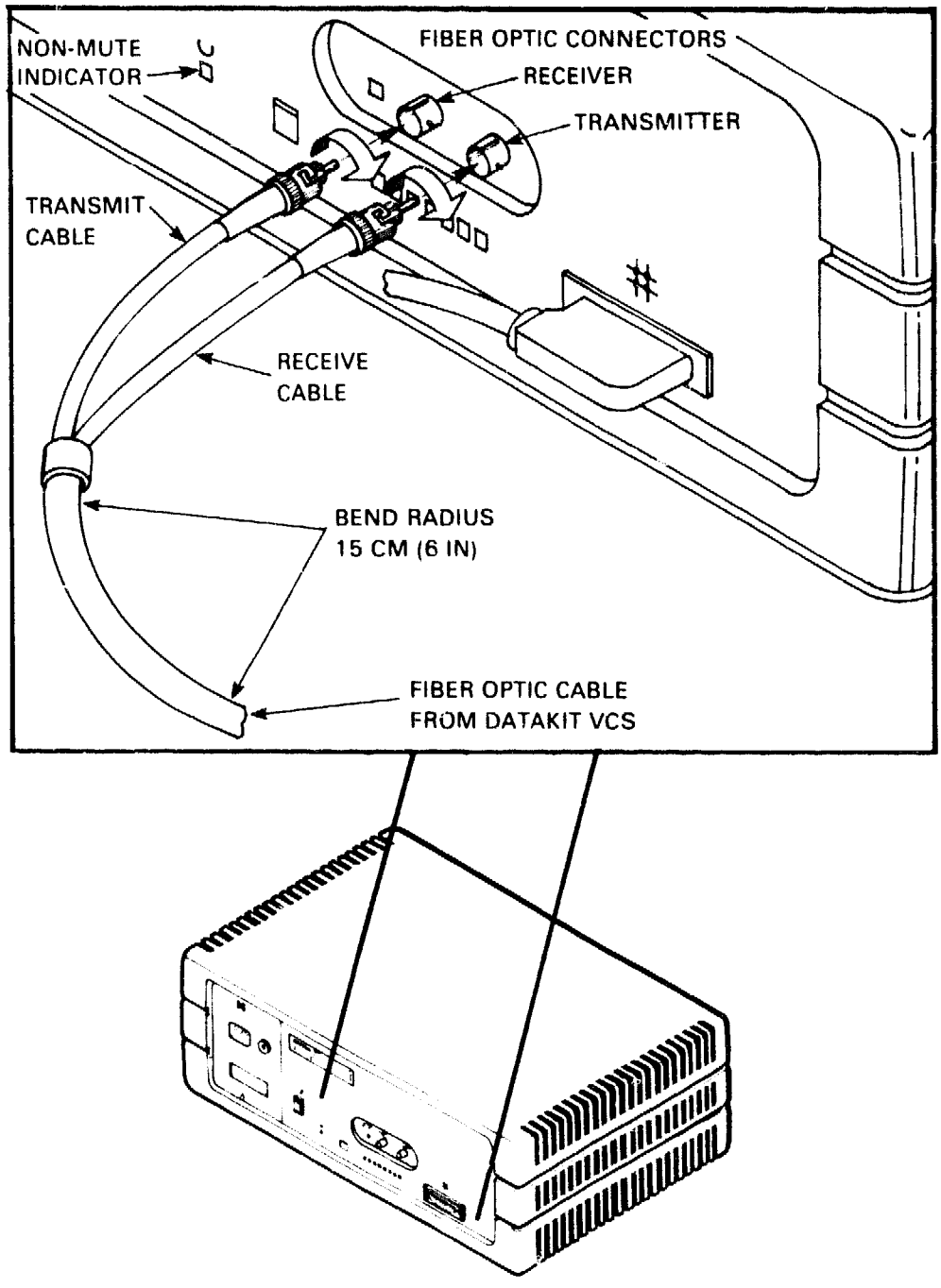
When performing the next step, the green Non-Mute Indicator may light due to activity on the transmitter cable from the Datakit VCS. Disregard this.

2. Connect the transmit cable from the Datakit VCS to the receiver fiber optic connector on the gateway. To connect the transmit cable, insert its plug into the gateway receiver fiber optic connector, then twist it to the right to lock.
3. Connect the receive cable from the Datakit VCS to the transmitter fiber optic connector on the gateway. To connect the receive cable, insert its plug into the gateway transmitter fiber optic connector, then twist it to the right to lock.

NOTE

If the fiber optic cables are not clearly marked, connect them to the gateway and see if the Non-Mute Indicator lights. If it does, the cables are connected properly. If it does not, switch the cable connections.

Figure 4–9: Connecting the Fiber Optic Cables



4.5 Initializing the Gateway in the System

Before initializing the gateway, check with the system manager to ensure that the distribution software is installed on the load host(s), and the gateway is configured in the load host database (if required by the load host). This can be confirmed by the system manager.

NOTE

If the distribution software installation is not complete, the load host cannot send the gateway image to the gateway. The gateway does not operate without software. Wait for notification that the software installation is complete.

To start the self-test and initialize the gateway in the system, press the Reset Switch (see Figure 4-10). In approximately 30 seconds the green Self-Test Indicator should light. Then sometime later, the Status Indicator D1 will start blinking, indicating that the software is being loaded. When loading is completed, D1 stays lit. At this point, the gateway hardware installation is complete and its operation verified.

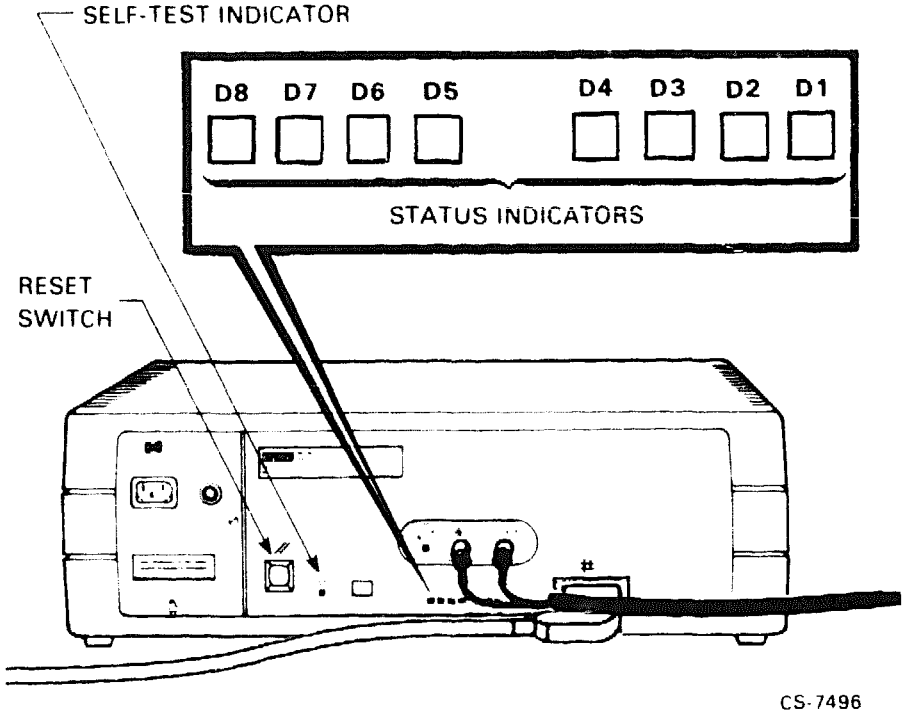
The system consists of the installed gateway hardware with the DECxpress 100 gateway software running on the gateway. Depending on the software being installed, refer to the *DECxpress 100 VMS Client Software Installation Manual* or the *Datakit VCS Multiplexed Host Interface Software and DECxpress 100 Gateway Software Installation and System Administration Manual* for details on the System Verification Procedure.

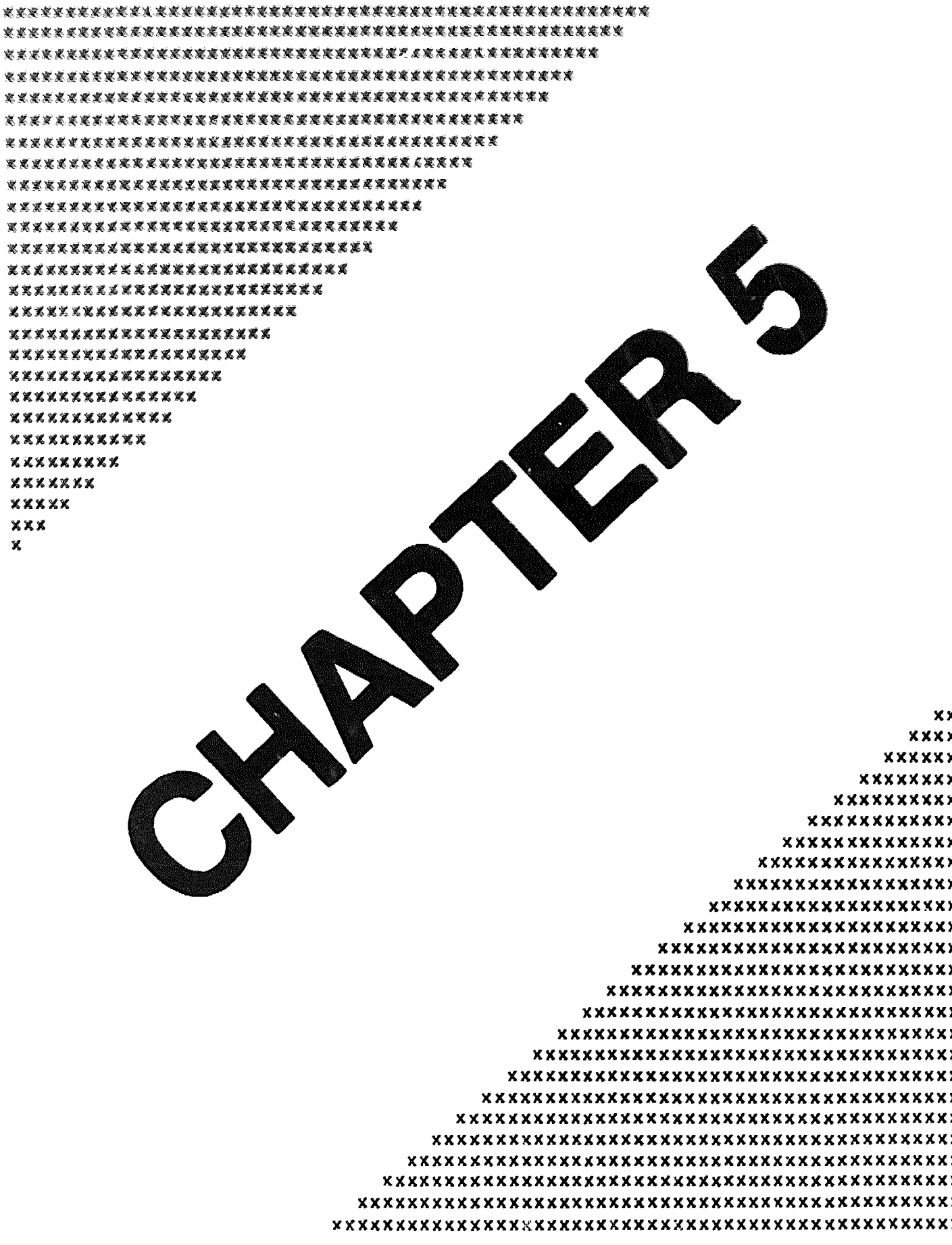
If the Self-Test Indicator does not light, record which Status Indicators (D8 through D1) are lit and refer to Appendix A for a description of the error. Then refer to Chapter 5 for troubleshooting information.

If the gateway passes Self-Test (Self-Test Indicator is lit) but D1 does not indicate that software is being loaded, check with your system manager to ensure that:

- Gateway software has been installed in the host system.
- Host system knows the correct Ethernet address for the gateway.
- There is no problem with the operation of the Datakit VCS.

Figure 4–10: Initializing the Gateway




CHAPTER 5

Chapter 5

What To Do If You Have Problems

This chapter provides information for solving hardware related problems that may be encountered during the operation of the DECxpress 100 gateway. Troubleshooting procedures are contained in Section 5.2 in the form of troubleshooting flowcharts (Figures 5-1 through 5-4). These charts help in isolating and correcting hardware related problems to the field replaceable unit level. A description of the gateway self-test feature used in troubleshooting is described in Section 5.3. The gateway Status Indicators D8 through D1 also provide error codes that aid in troubleshooting. The indicators have two main functions:

- Monitor activity through the gateway during normal operation.
- If a problem is detected during self-test, provide an error code to help isolate the problem.

For details on the location and function of the gateway connectors, controls, and indicators, refer to Appendix A.

CAUTION

Prior to starting any troubleshooting activity, notify your Datakit VCS system manager and your VAX system manager. The interaction between the host and Datakit should be halted and users notified.

5.1 Diagnosing Gateway Problems

In the following procedure, it is assumed that the gateway was installed properly and fully operational. When the host system develops a problem and the system manager determines that the gateway is at fault, use the troubleshooting flowchart, starting in Figure 5-1. The chart will help isolate the problem and provide the recommended action.

WARNING

Never look into the fiber optic connector or cable, high intensity light can damage your eyes.

CAUTION

To prevent damaging the fiber optic cables during any removal/replacement in troubleshooting, make sure that any bends made in the cable have a radius greater than six inches.

Figure 5–1: Gateway Troubleshooting Flowchart (Sheet 1 of 4)

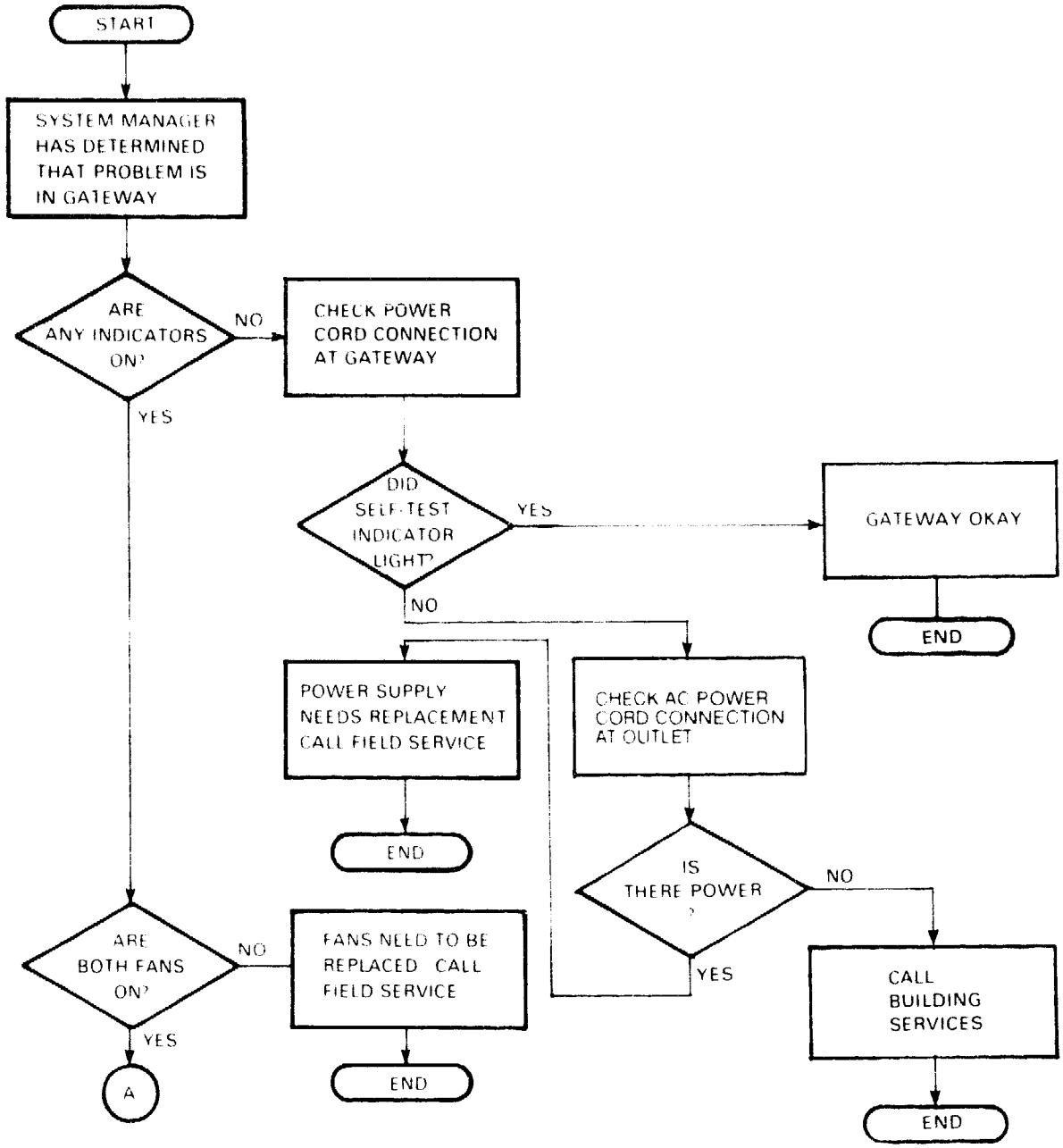


Figure 5–2: Gateway Troubleshooting Flowchart (Sheet 2 of 4)

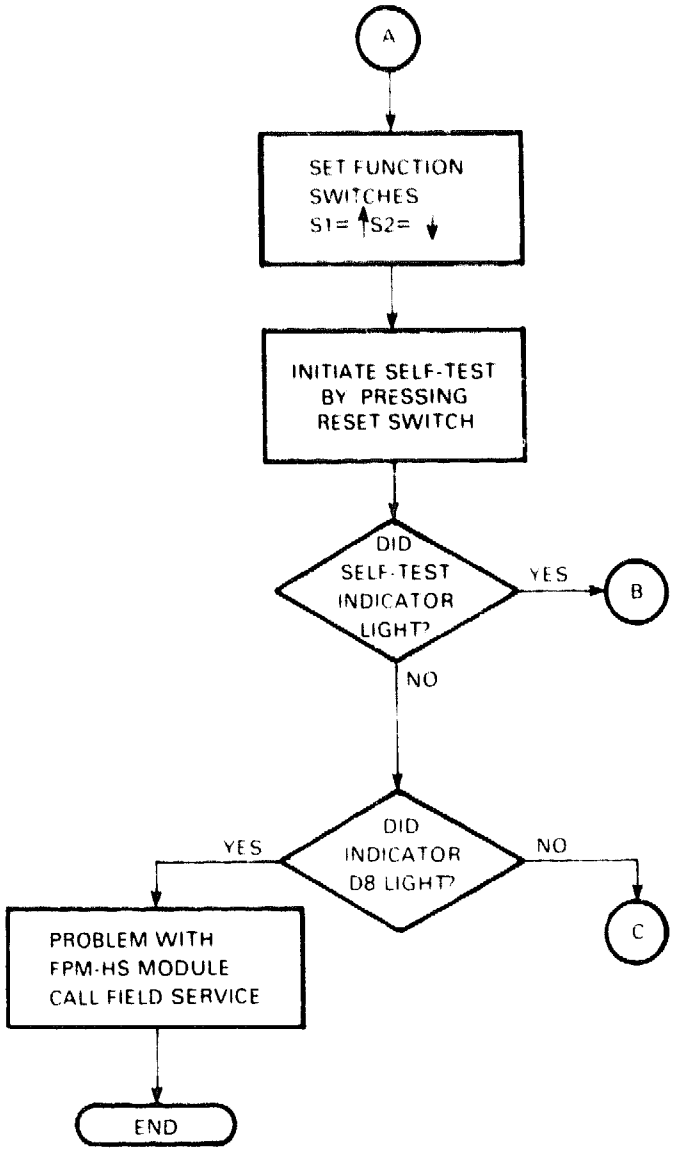
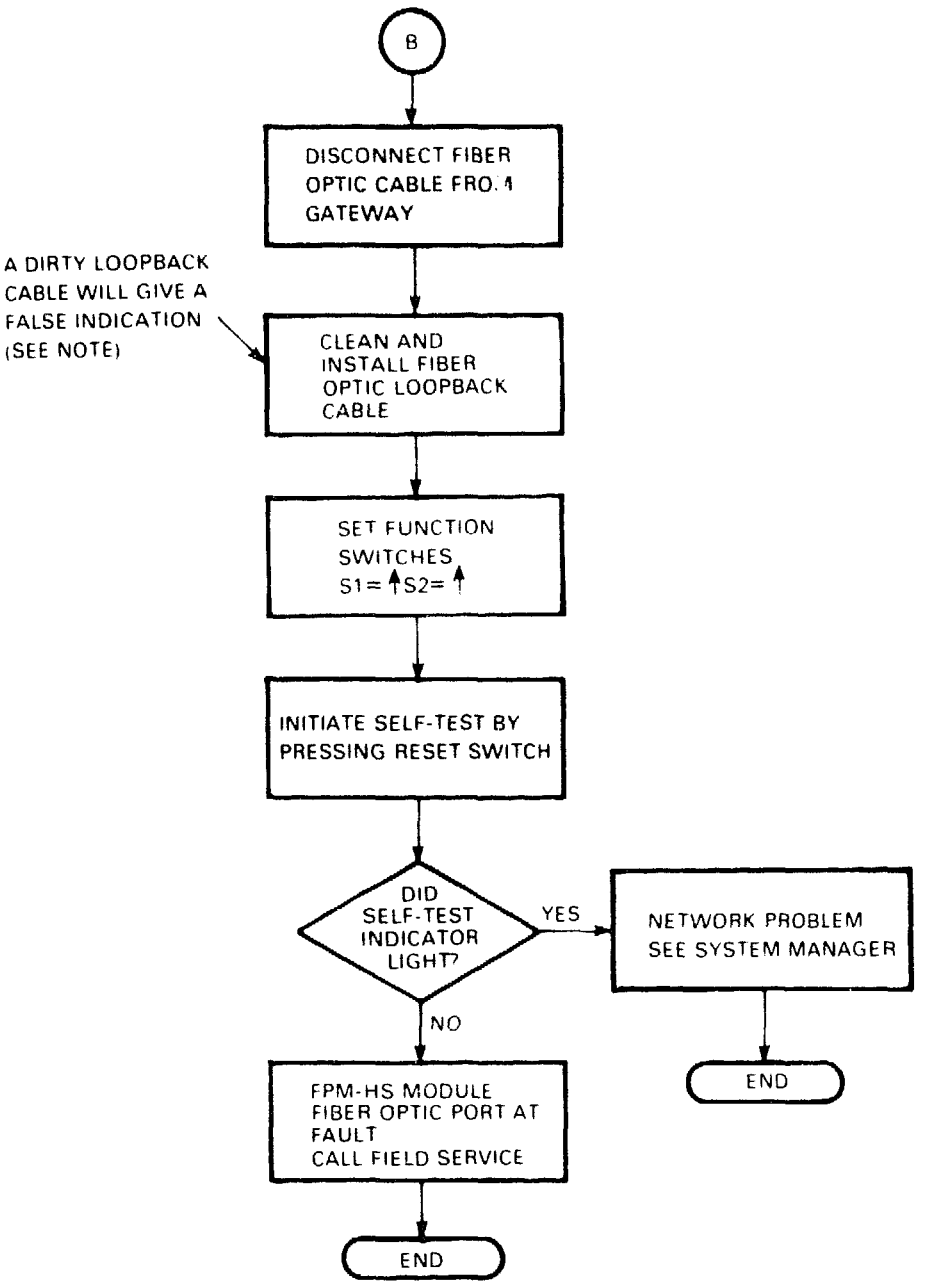


Figure 5–3: Gateway Troubleshooting Flowchart (Sheet 3 of 4)



NOTE: USE LINT-FREE CLOTH DAMPENED WITH ISOPROPYL ALCOHOL TO CLEAN TIPS OF FIBER OPTIC CABLE

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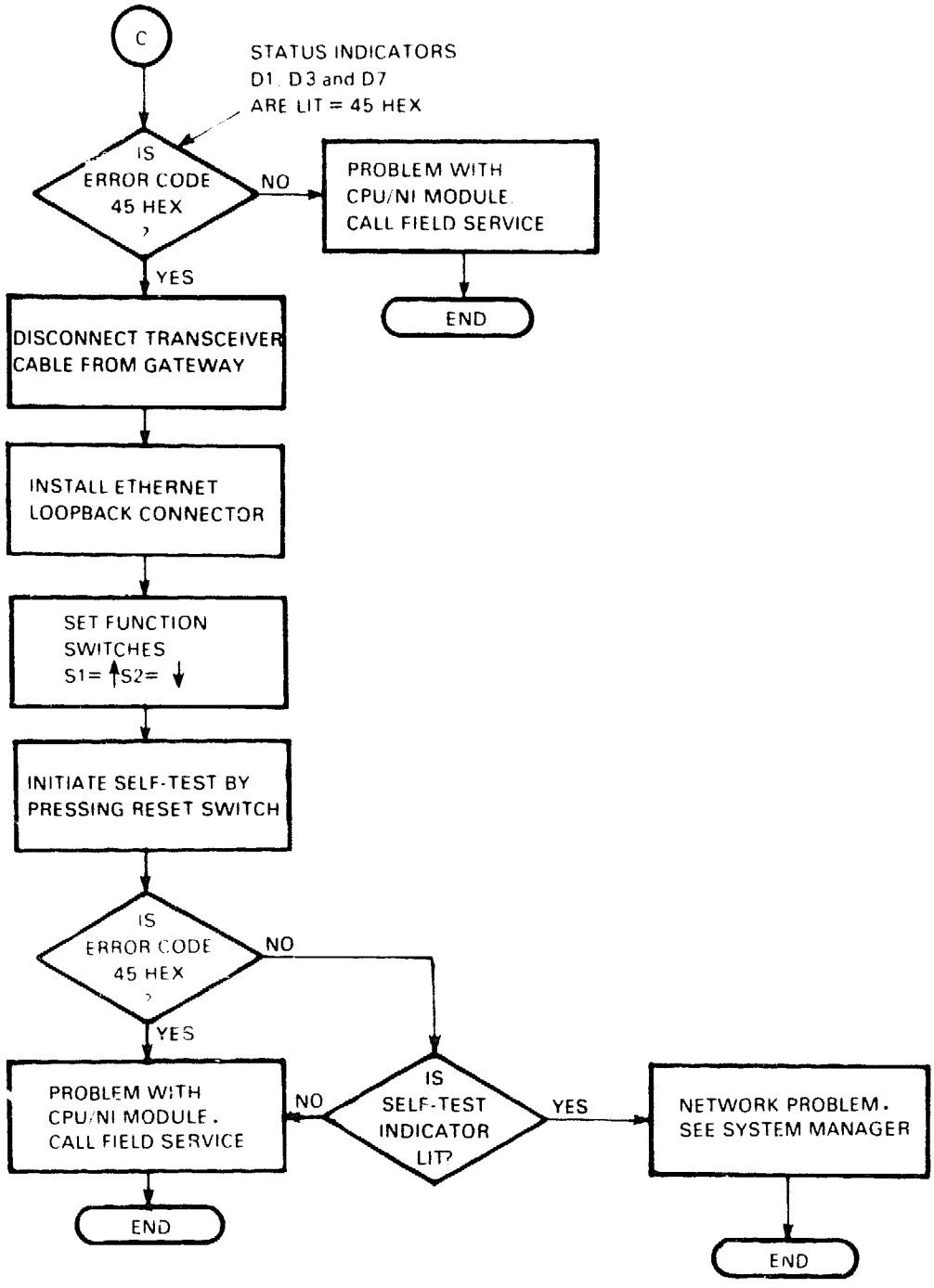
Figure 5–4: Gateway Troubleshooting Flowchart (Sheet 4 of 4)



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5.2 Self-Test

This section describes how to initiate the Self-Test and what to do if an error is detected.

CAUTION

Prior to starting any troubleshooting activity, notify your Datakit VCS system manager and your VAX system manager. The interaction between the host and Datakit should be halted and user's notified.

You can initiate the Self-Test by either pressing the Reset Switch, or unplugging and plugging in the gateway power cord into the ac outlet (see Caution below).

CAUTION

The ac voltage at the outlet must match that set on the gateway AC Voltage Select Switch. Otherwise, damage could result to your gateway.

After approximately 30 seconds, the green Self-Test Indicator should light and shortly afterwards, Status Indicator D1 will start blinking and then stay lit, indicating that the software has been loaded and the gateway is on line. If the Self-Test fails, the Status Indicators will display an error code. Appendix A provides a description of the error codes.


APPENDIX A

Appendix A

Controls, Indicators and Connectors

This appendix identifies and describes the controls, indicators and connectors on the DECxpress 100 gateway.

A.1 Rear Panel

As shown in Figure A-1, the controls, indicators and connectors are located on the rear panel of the gateway. There are no user controls inside the gateway. For a description of the controls, indicators and connectors, refer to Tables A-1 and A-2.

Figure A–1: Controls, Indicators and Connectors

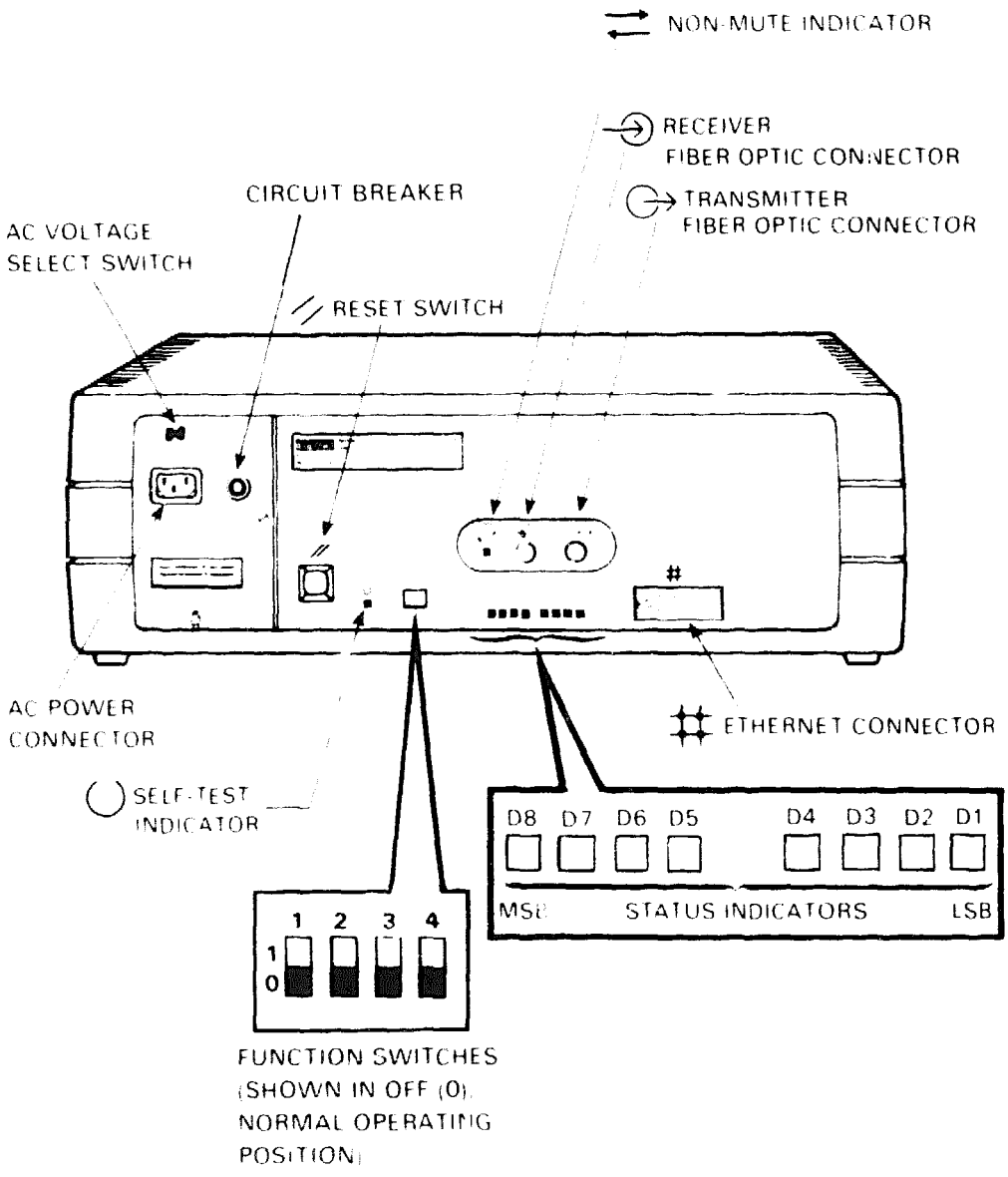


Table A–1: Controls,Indicators and Connectors

Item	Symbol	Function
AC Power Connector	None	Receives the ac power cord to provide power to the gateway. **CAUTION** **The gateway does not have a Power Switch. Connection of the ac power cord serves as the Power Switch.** Connecting the power will cause the gateway to run its self-test and, depending on the setting of function Switch 1, request the download of operating software from the host.
AC Voltage Select Switch	None	Enables the setting of the gateway ac input voltage range for 100- to 120-Vac or 220- to 240-Vac operation. The switch is factory set for 100- to 120-Vac operation. **CAUTION** **An incorrect voltage setting can damage the gateway. Do not change this switch setting unless you are sure the switch setting is incorrect (see an electrician to confirm voltage at the outlet). Chapter 4 provides details on setting this switch.**
Circuit Breaker	None	Provides overcurrent protection for the gateway. If an overcurrent condition occurs, a white button in the center of the circuit breaker pops out and ac power is cut off from the gateway. The circuit breaker can be reset by pressing the white button back in.
Reset Switch	//	Causes the gateway to run its self-test and, depending on the setting of Function Switch 1 and whether the gateway passes the self-test, requests the host computer to download the operating software.

Table A–1 (Cont.): Controls,Indicators and Connectors

Item	Symbol	Function
Self-Test Indicator	◯	Green indicator that lights when the gateway passes its self-test. This indicator will remain lit until power is disconnected or the gateway detects a failure. This indicator will not be lit while self-test is in progress. When a failure is detected the status indicators will display an error code indicating the failure.
Function Switches[1]	None	Switch 1 (Continuous Self-Test): • When set to 0 (down) and the ac power cord is plugged in or the Reset Switch is pressed, causes the gateway to run its self-test and then request the host computer to download the operating software. • When set to 1 (up) and the ac power cord is plugged in or the Reset Switch is pressed, the gateway continuously runs its self-test without requesting a download of the software and halts on an error condition. Switch 2[2](External Fiber Optic Port Loopback): • When set to 0 (down), causes the gateway to loopback internally between the fiber optic transmitter and receiver ports. • When set to 1 (up), the gateway is set up to loopback externally over a connection between the transmitter and receiver fiber optic connectors. (For example, a connection made with the Fiber Optic Loopback Cable.) When the gateway is not in self-test, the fiber optic ports are activated for normal communication. Switch 3 and Switch 4 are reserved switches. **NOTE** **Do not use these two switches. They should be left in the 0 (down) position.**

[1]Normal operating position for Function Switches 1 through 4 is position 0 (down).
[2]Function Switch 2 is effective only when the gateway is performing its self-test.

Table A–1 (Cont.): Controls,Indicators and Connectors

Item	Symbol	Function
Non-Mute Indicator		Green indicator that lights when the fiber optic receiver is receiving information from the Datakit VCS. This is a non-mute condition. When not lit, indicates that information is not being received. This is a mute condition.
Fiber Optic Receiver Connector		Fiber Optic, ST-type connector for receiving optical information.
Fiber Optic Transmitter Connector		Fiber Optic, ST-type connector for sending optical information.
Ethernet Connector		Standard 15-pin, female, D-type AUI transceiver interface connector. This interface connector is provided with a slide latch for locking the transceiver cable in place.
Status Indicators	None	Red Indicators (D8 through D1) provide dynamic status information during normal operation and static error information if the gateway detects a failure. For details on the information provided by the Status Indicators, refer to Tables A-2 and A-3.

Table A-2 describes the function of Status Indicators D8 through D1 during normal operation. During a self-test operation, D8 through D1 display an error code whenever a failure is detected. Section A.2 describes error codes.

Table A–2: Status Information During Operation

Status Indicator(s)	Function
D1	When not lit, indicates software is not loaded. Gateway will not connect clients until software is loaded. When blinking, indicates software is being loaded from host. When lit, indicates software is loaded and ready to connect clients.
D2	Lights when the Datakit Common Signaling Channel (CSC) is operational.
D3	Lights when at least one client is connected.
D4	Lights when at least one channel other than the CSC channel is operational.
D5 thru D8*	These indicators show the relative number of clients (traffic) being handled by the gateway as described below: When D8 is lit, there is a low amount of traffic. When D8 and D7 are lit, there is a moderate amount of traffic. When D8, D7 and D6 are lit, there is heavy traffic. When D8, D7, D6 and D5 are lit, the gateway is operating near capacity.

*These four indicators also show that the gateway is operational by blinking at approximately every two seconds.

A.2 Error Codes

If the gateway detects an error condition during self-test, it will display an error code indicating the source of the failure. The code is displayed in binary code on the Status Indicators D8 through D1 with D1 as the Least Significant Bit (LSB). This can be used by a qualified service representative as a tool to help isolate the problem to a module assembly in the gateway.

In general, when an error occurs and D8 in the display is lit, there is a an error on the FPM-HS Protocol Module. This is the Fiber Optic Module that controls the direct connection to the Datakit VCS. If D8 is not lit, the failure is on the CPU/NI Module. This module controls the Ethernet interface on the gateway.

See Table A-3 for details on the range of error codes identifying failures on each module and the error source.

Table A–3: Self-Test Error Codes

Self-Test Range (hex)[1]	Error Source
00	Self-Test Passed
01-7F	CPU/NI Module
80-FF	FPM-HS Module or fiber optic cable[2]

[1]Indicator D1 represents the LSB and D8 the MSB. A lit indicator represents a 1, not lit is a 0.
[2]For details on isolating the error source to either the FPM-HS Module or the fiber optic cable, refer to Chapter 5.

APPENDIX B

Appendix B

Ordering Information

This appendix provides a list of the optional DECxpress 100 hardware products. See your AT&T Account Team to purchase the equipment. For a listing of software options, refer to the DECxpress 100 software documentation that applies to your system.

B.1 DECxpress 100 Products

- DECxpress 100 Gateway (VMS Version)
  - Gateway Hardware
  - Installation/Owner's Manual
  - VMS Client Software
  - Single Use VMS Client License
  - VMS Client Documentation Kit
- DECxpress 100 Gateway (UNIX® Version)
  - Gateway Hardware
  - Installation/Owner's Manual
  - VAX System V Client Software
  - Single Use VAX System V Client License
  - VAX System V Client Documentation Kit

® UNIX is a registered trademark of American Telephone and Telegraph Company.

B.2 DECxpress 100 Spares/Options

- Hardware

  Fan Unit (Bracket) Assembly
  Power Supply
  Fiber Port Module (FPM-HS Protocol Module)
  CPU/Network Interface Module (CPU/NI Module)
  Fiber Loopback Connector
  Ethernet Loopback Connector
  Power Cord (120 Volts)
  Power Cord (240 Volts)
  Self Maintenance Starter Kit

The Self Maintenance Starter Kit contains the following:

CPU/Network Interface Module (CPU/NI Module)
Fiber Port Module (FPM-HS Protocol Module)
Fan Unit (Bracket) Assembly
Power Supply

- Documentation

  Installation/Owner's Manual
  VMS Client Documentation Kit
  VAX System V Documentation Kit
  Data Game Tutorial for Learning Multiplexed Host Interface Commands

- Licenses

  Single Use VMS Client License

APPENDIX C

Appendix C
Specifications

Table C-1 lists the specifications for the DECxpress 100 gateway.

Table C–1: DECxpress 100 Specifications

Item	Specification
I/O PORTS	
Ethernet	Ethernet /IEEE 802.3 serial port. Interfaces with Digital Network Interface (NI) ports.
Fiber Optics	Full-optic link (one transmit and one receive line). Interfaces with AT&T Computer Port Module-High Speed ports.
PHYSICAL	
With Plastic Covers	
Height	16.2 cm (6.4 in)
Width	49.4 cm (19.4 in)
Depth	31.3 cm (12.3 in)
Weight	7.3 kg (16 lb)
Without Plastic Covers	
Height	13.3 cm (5.3 in)
Width	43.6 cm (17.2 in)
Depth	29.8 cm (11.7 in)
Weight	5.2 kg (11.5 lb)
ENVIRONMENTAL	
Temperature	
Operating	10°C (50°F) to 40°C (104°F)
Nonoperating	-40°C (-40°F) to 66°C (151°F)
Temperature Change/Hour	11°C (20°F) maximum

Table C–1 (Cont.): DECxpress 100 Specifications

Item	Specification
RELATIVE HUMIDITY	
Operating (noncondensing)	10% to 90%
Nonoperating (noncondensing)	0% to 90%
Wet-bulb temperature (operating)	32°C (90°F), maximum
Dew point (operating)	2°C (36°F), maximum
Air flow	70.0 CFM, minimum
ALTITUDE	
Operating	2.4 km (8,000 ft)
Nonoperating	9.1 km (30,000 ft)
AC POWER	
Switch selectable for 120 V or 240 V operation	
120 Operation	100 to 120 Vac, 60 Hz
240 Operation	220 to 240 Vac, 50 Hz
Power Consumption	240 W maximum
HEAT DISSIPATION	275 Btu/hr


APPENDIX D

Appendix D

Service Options

Several hardware service options in support of the DECxpress 100 gateway are available from Digital as described below. For more information on Digital services, contact your Digital sales representative.

D.1 Digital On-Site Service

Digital provides on-site service under a service agreement or on a per-call basis. Trained service specialists perform hardware maintenance on site.

D.2 DECmailer

DECmailer is used to ship your DECxpress 100 gateway or a Field Replaceable Unit to a Customer Return Center for repair.

D.3 Installation Service

Installation service includes services provided by trained service specialists for a successful installation of your DECxpress 100 gateway.

APPENDIX E

Appendix E
Ethernet Connection

The transceiver cable from the gateway can be connected to the Ethernet network by using any of the following:

NOTE

The transceiver cable must comply to IEEE 802.3 standards for proper operation of the gateway.

- Digital Ethernet Local Network Interconnect (DELNI).
- Transceiver on a standard Ethernet coaxial cable for Digital broadband networks.
- ThinWire Ethernet Station Adapter (DESTA) on a ThinWire Ethernet coaxial cable.
- Another transceiver cable section secured in an Etherjack junction box.

A DELNI can stand alone or connect to an Ethernet coaxial cable. When connecting a DELNI to the Ethernet coaxial cable or to an Etherjack junction box, you will need an additional transceiver cable.

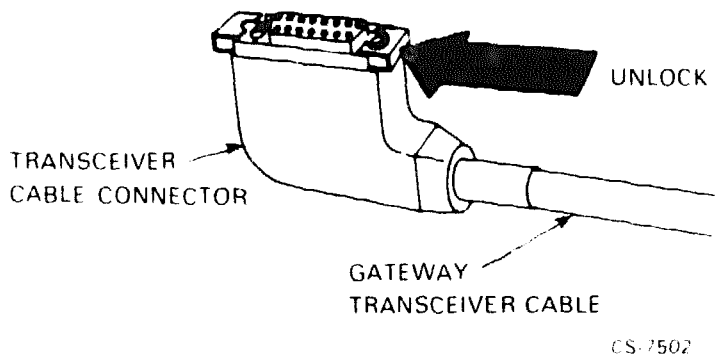
Instructions for connecting the transceiver cable to an Ethernet is covered in Section E.1. Details on an Etherjack junction box connection are covered in Section E.2.

E.1 Connecting the Transceiver Cable to Ethernet

Tool Required: Medium, flat blade screwdriver

Prior to connecting the transceiver cable to the appropriate broadband network interface, unlock the slide latch on the transceiver cable from the gateway (see Figure E-1).

Figure E–1: Unlocking Latch on Transceiver Cable Connector

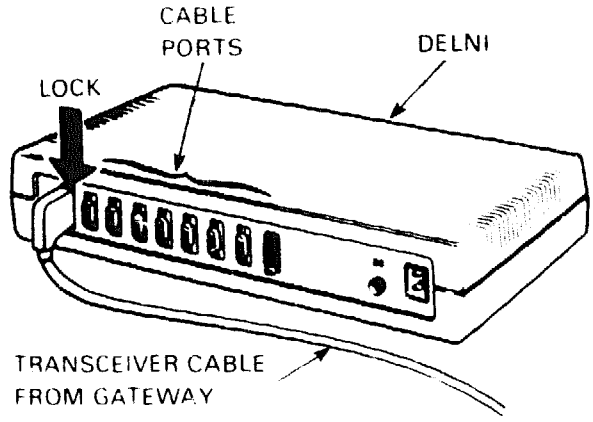


Connect the transceiver cable to the appropriate broadband network interface using one of the following:

- Cable port on a DELNI (see Figure E-2)

  Lock the slide latch after connecting the cable.

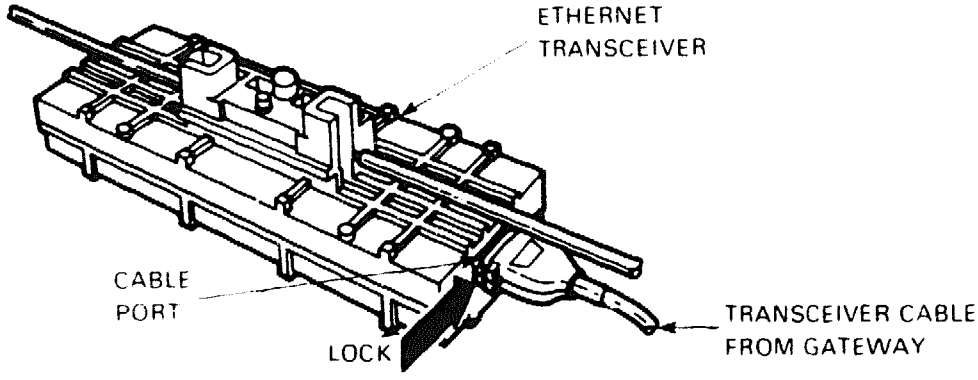
Figure E–2: Connecting to a DELNI



- Cable port on an Ethernet Transceiver (see Figure E-3)

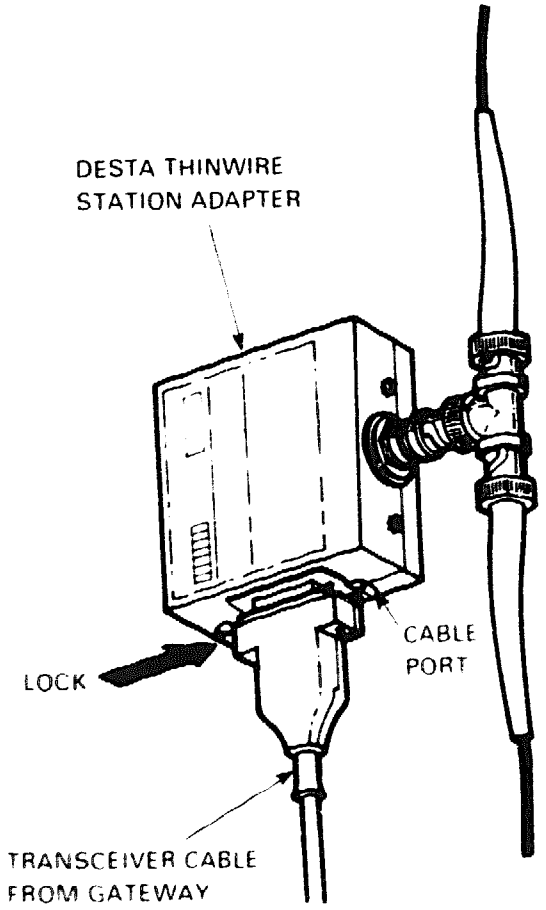
  Lock the slide latch after connecting the cable.

Figure E–3: Connecting to an Ethernet Transceiver



- Cable port on a DESTA ThinWire station adapter (see Figure E-4)
  Lock the slide latch after connecting the cable.

Figure E–4: Connecting to a DESTA ThinWire Station Adapter



- Another transceiver cable in an Etherjack junction box. Refer to Section E.2 for details on making the connection to the Etherjack junction box.

E.2 Connecting the Transceiver Cable to an Etherjack junction box

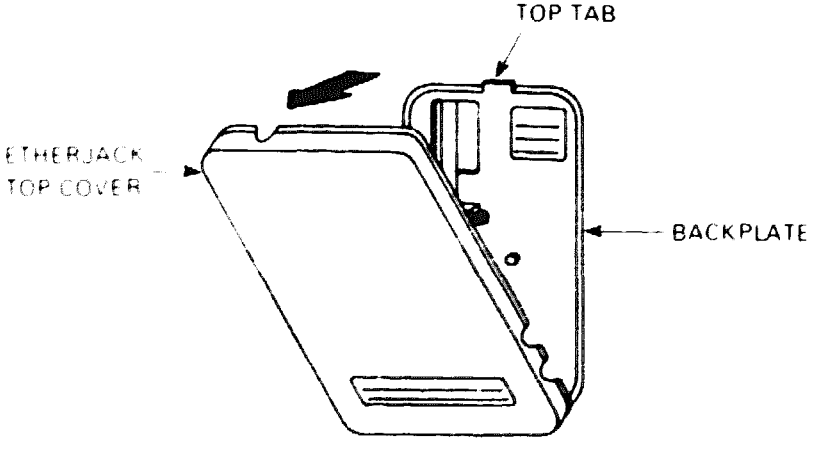
In the following procedure, it is assumed that the Etherjack junction box has been installed according to its installation instructions.

Tool required: Medium, flat blade screwdriver

To connect the gateway transceiver cable to the Etherjack junction box, proceed as follows:

1. Remove the Etherjack top cover by lifting it slightly to clear the top tab on the backplate; and then pull it away from the Etherjack junction box (see Figure E-5).

Figure E–5: Removing the Etherjack Top Cover

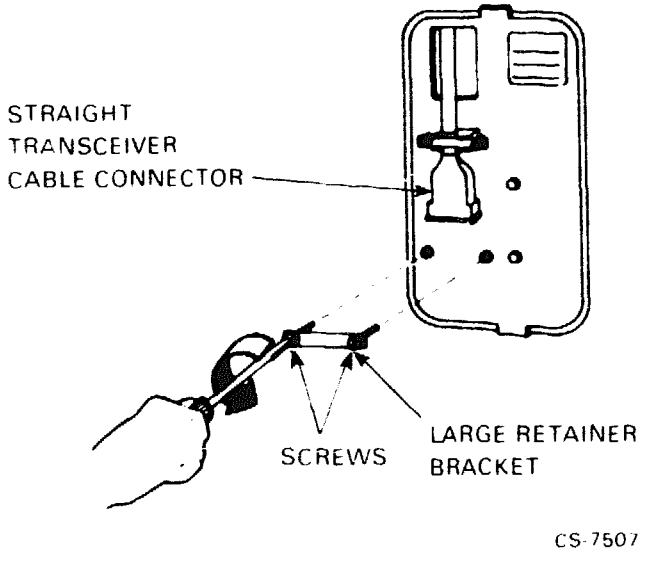


2. Using a medium, flat blade screwdriver, remove the two screws securing the larger retainer bracket and remove the bracket (see Figure E-6).

NOTE

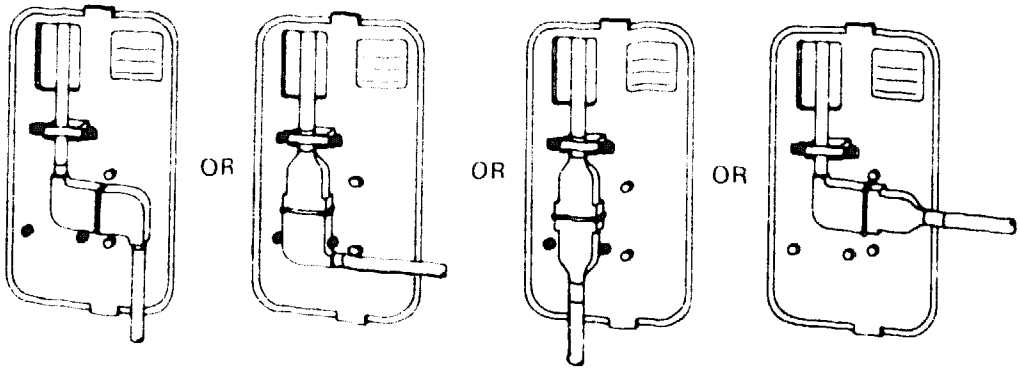
The transceiver cable mounted inside the Ethernet junction box can have either a right-angle or straight connector.

Figure E–6: Removing the Retainer Bracket



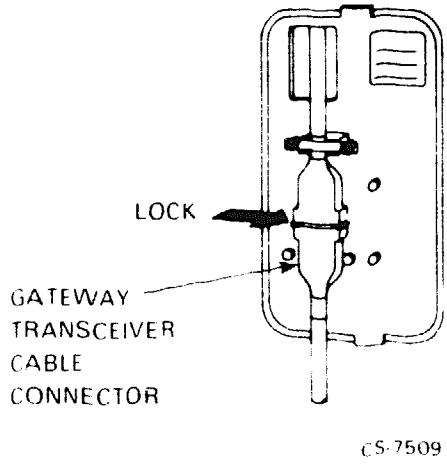
3. Connect the gateway transceiver cable to the Etherjack transceiver cable. Figure E-7 shows four possible combinations of straight and right-angle connections.

Figure E–7: Possible Straight/Right-Angle Cable Connections



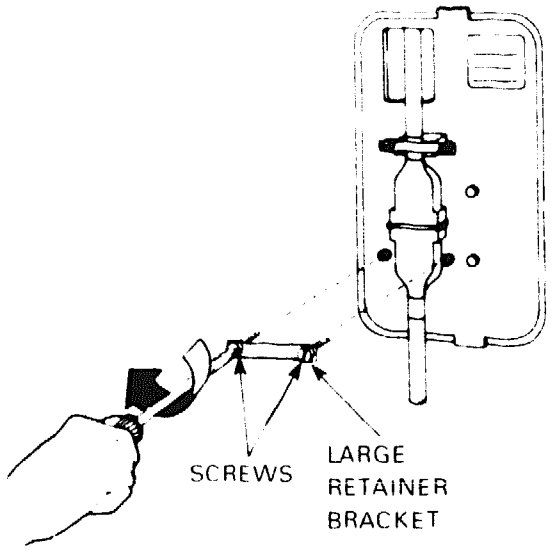
4. Push the slide latch on the gateway transceiver cable connector until the connectors are locked securely (see Figure E-8).

Figure E–8: Locking the Transceiver Cable Connector



5. Using a medium, flat-blade screwdriver, fasten the large retainer bracket with the two screws (see Figure E-9).

Figure E–9: Replacing the Large Retainer Bracket



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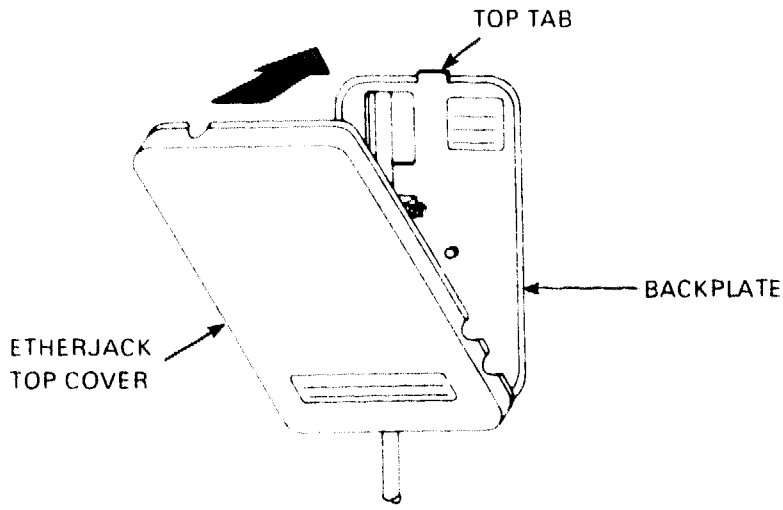
NOTE

When performing the next step, ensure that the cables align with the slots in the cover.

6. Replace the Etherjack cover by hooking the cover on the lower tab of the backplate, then push the cover up over the top tab until the cover locks into place (see Figure E-10).

Figure E–10: Replacing the Etherjack Top Cover



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APPENDIX F

Appendix F

Rack Mount Hardware Installation

This appendix describes how to prepare and install the DECxpress 100 gateway into a standard 19-inch RETMA rack. The installation procedures include:

- Removing the Plastic Covers
- Attaching the Mounting Brackets
- Mounting the Gateway into the Rack

A medium size, Phillips screwdriver is needed to rack mount the gateway.

After completing the procedures listed here, perform the procedures contained in Chapter 4 to complete the installation.

F.1 Removing the Plastic Covers

To remove the plastic covers, see Figure F-1 and proceed as follows:

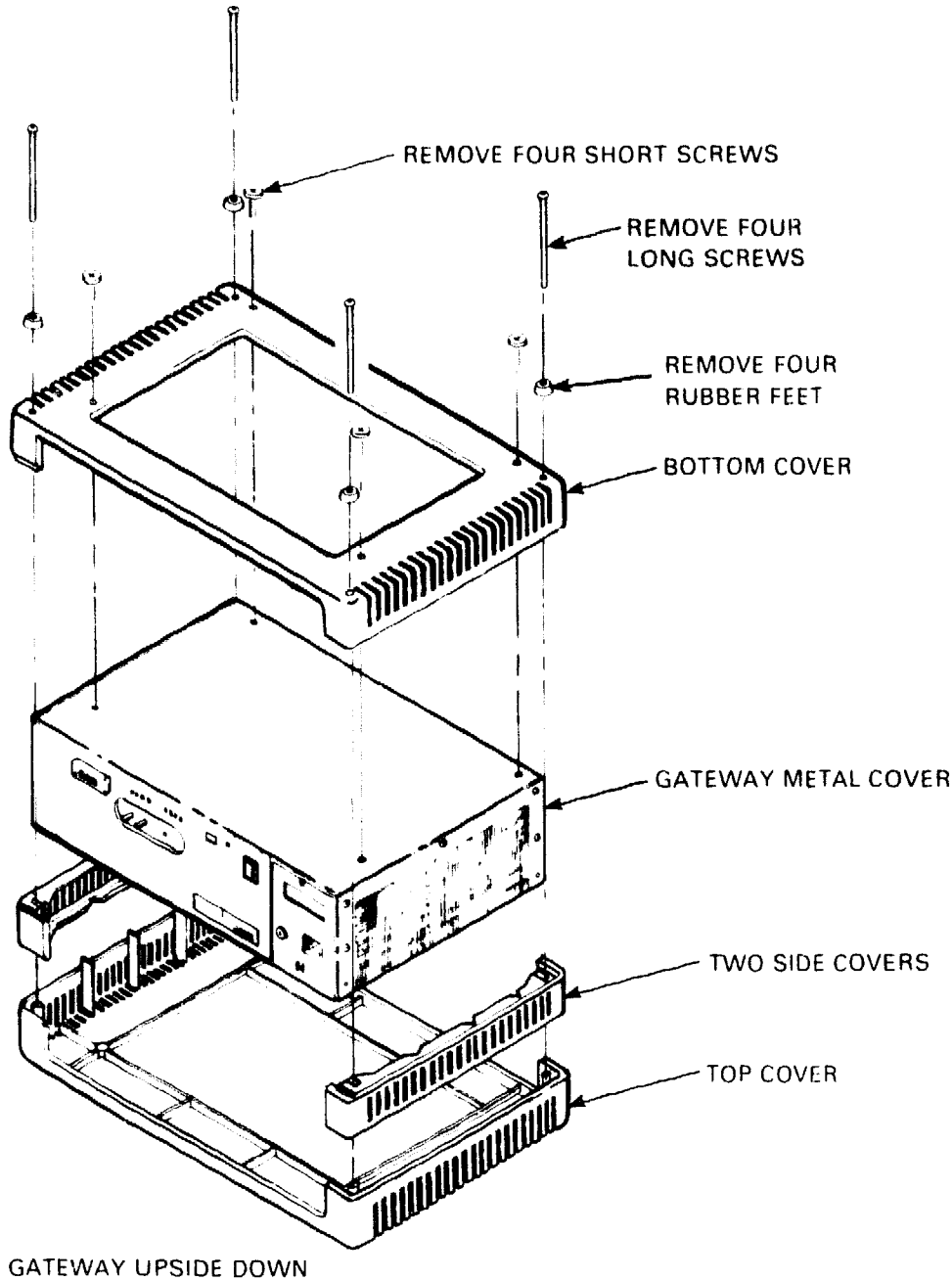
1. Place the gateway upside down on a sturdy table or floor.
2. Remove and save the four long screws with rubber feet and four short screws from the bottom of the gateway.
3. Remove the bottom cover and the two side covers, then lift the unit out of the top cover and place it right side up on the sturdy surface.

Store the eight screws and the plastic covers for possible future use or reconfiguration for a table top installation.

CAUTION

Do not reinstall screws in the gateway metal cover for storage. Doing so could damage the gateway.

Figure F–1: Removing Plastic Covers



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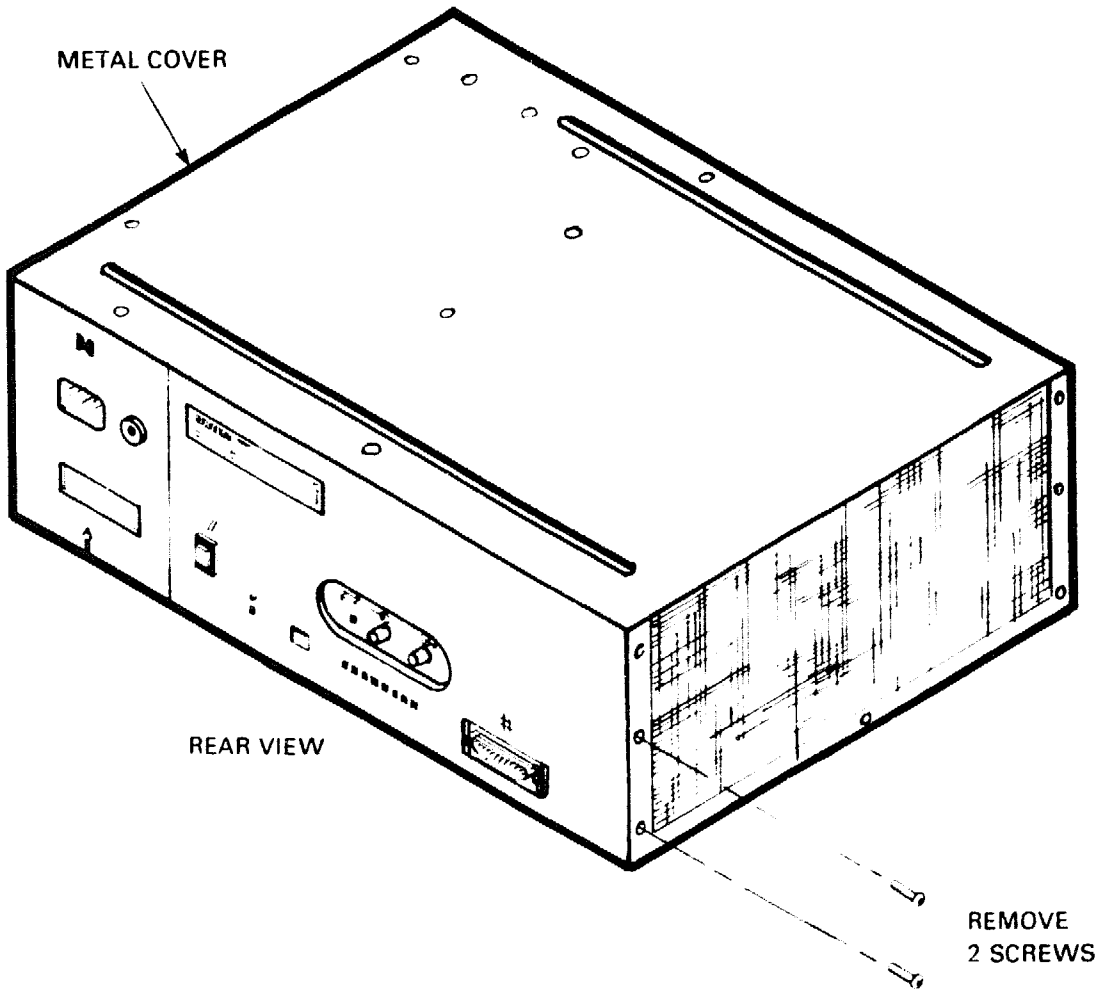
F.2 Attaching the Mounting Brackets

Attach the mounting brackets as follows:

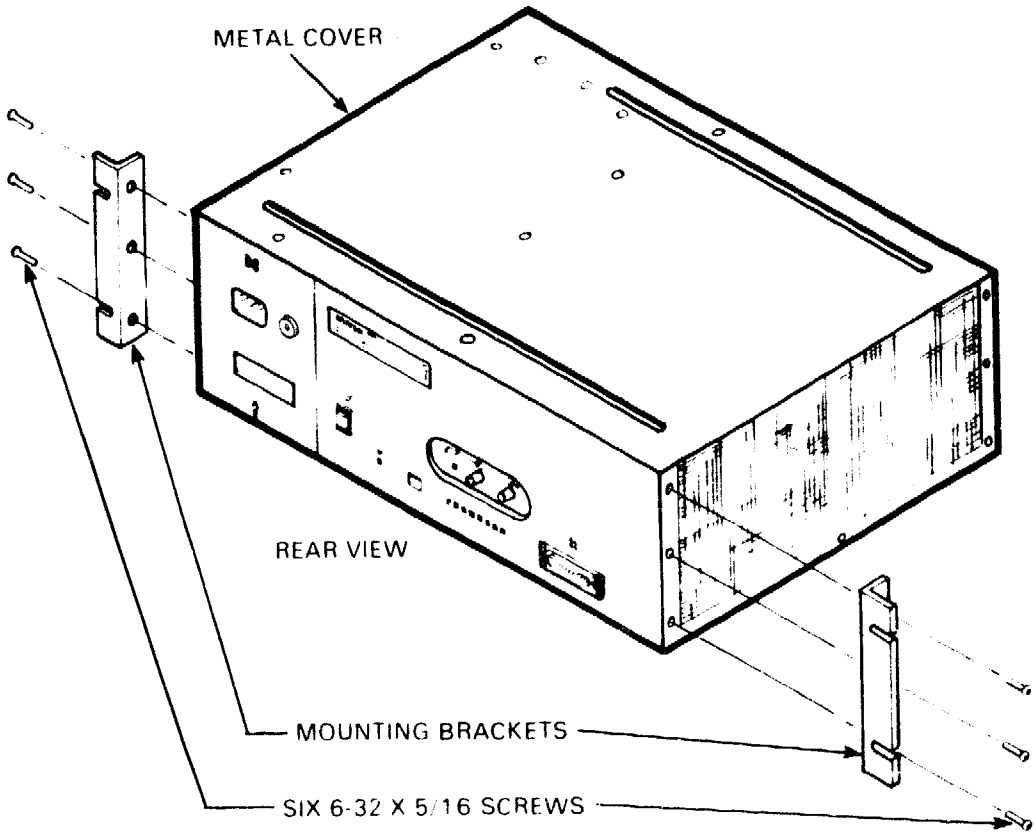
1. Remove the two screws from the side of the metal cover as shown in Figure F-2.

Figure F–2: Removing Screws from Metal Cover



2. Locate the two mounting brackets and the six 6-32 x 5/16-inch round-head screws shipped with the gateway.
3. Using the 6-32 x 5/16-inch screws, fasten the brackets to the sides of the metal cover as shown in Figure F-3.

Figure F–3: Attaching the Mounting Brackets



F.3 Mounting the Gateway into the Rack

The following procedure describes how to mount the gateway into the rack.

NOTE

Allow 13.65-cm (5 3/8-inch) vertical space in the rack to mount the gateway.

To mount the gateway into the rack, refer to Figure F-4 and proceed as follows:

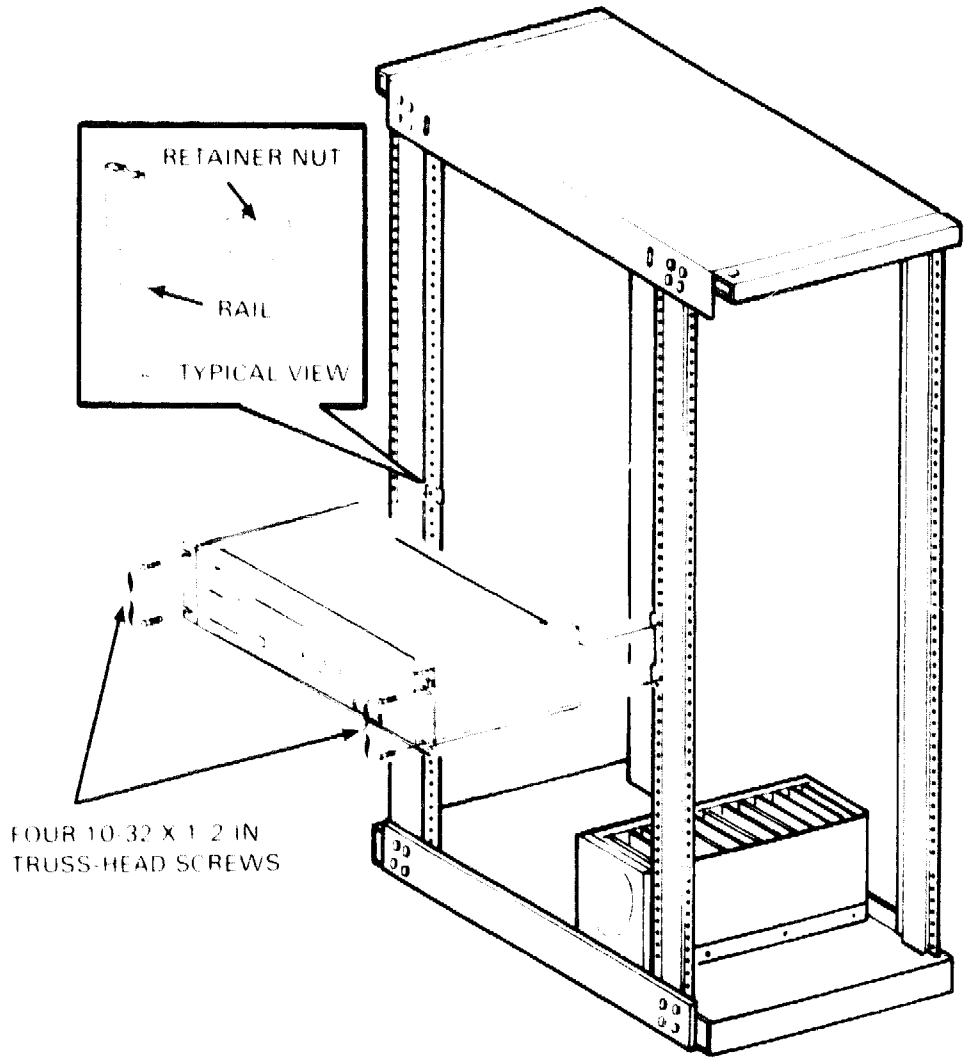
1. Locate the four 10-32 x 1/2 inch, truss head screws and the four retainer nuts shipped with the gateway.
2. Slide on the retainer nuts (see Figure F-4 insert) at the appropriate locations on the rails of the rack so that the clips align with the top and bottom holes in the brackets.
3. Using the four 10-32 x 1/2-inch screws, attach the gateway to the rack, inserting one screw through the top and bottom hole of each bracket.

CAUTION

The air inside the rack is hotter than the ambient temperature. To avoid overheating the gateway, ensure that the air entering the gateway air inlet does not exceed the maximum operating temperature of 50° C (122° F).

4. Go to Chapter 4 and continue the installation.

Figure F–4: Mounting the Gateway into the Rack



APPENDIX G

Appendix G
Maintenance

The information contained in this appendix is for use by qualified Digital Field Service representatives. This appendix identifies and provides the removal/replacement procedures for the following Field Replaceable Units (FRUs):

- CPU/NI Module
- FPM-HS Protocol Module
- Fan Bracket Assembly
- 150W Power Supply without Power-OK (POK) Indicators

The location of each gateway FRU and other parts or assemblies involved in the removal/replacement procedures are shown in Figure G-1.

NOTE

In the following procedures, it is assumed that the system Ethernet cable and the fiber optic cables have been disconnected from the gateway.

WARNING

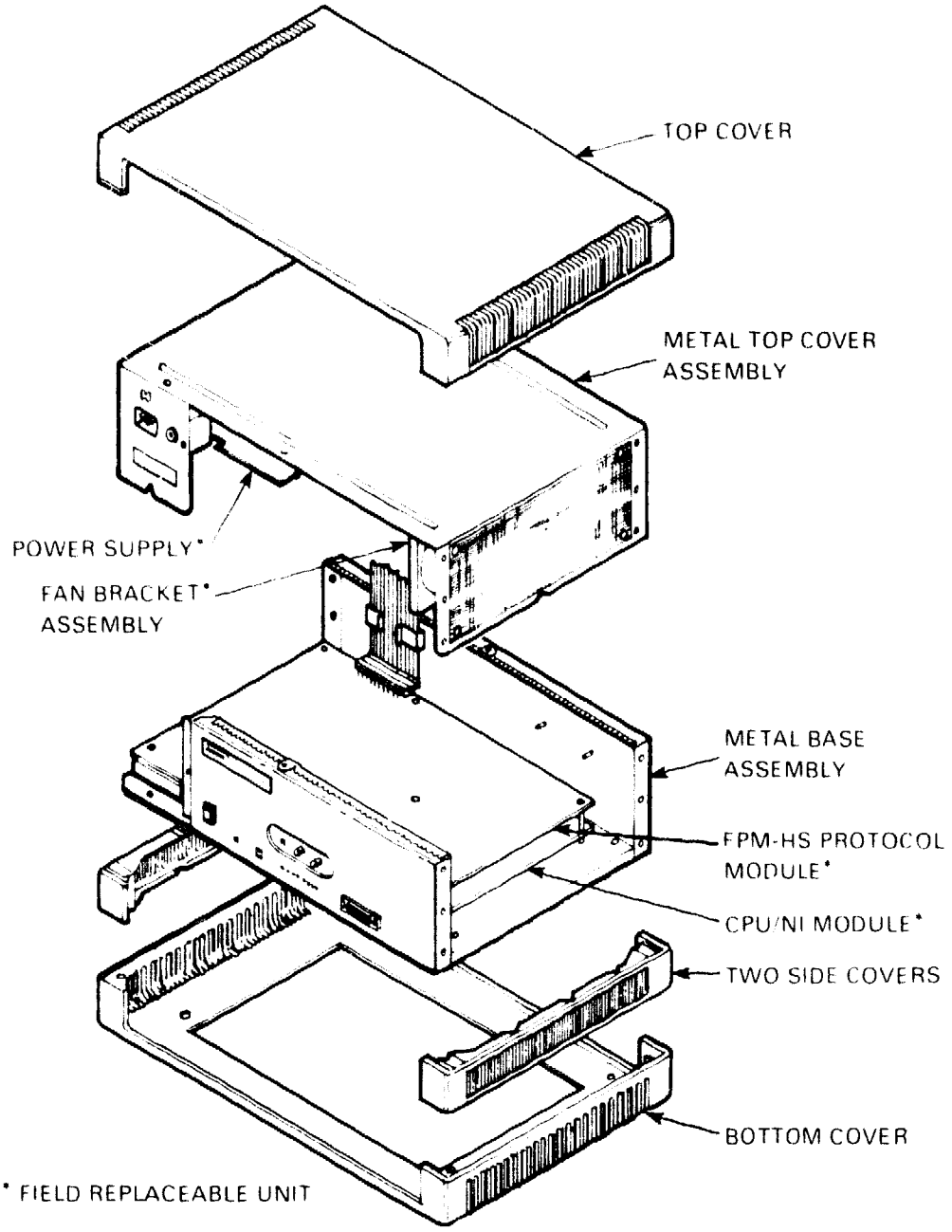
Before performing any removal/replacement procedure on the gateway, ensure that its power cord is disconnected from the power source.

CAUTION

Static electricity can damage electronic modules. When working with or around modules in the following procedures, always use a ground wrist strap and grounded work surface.

- CPU/Network Interface Module (CPU/NI Module)
- Fiber-Port Module (FPM-HS Protocol Module)
- Fan Unit Assembly (Fan Bracket Assembly)
- Power Supply

Figure G–1: Assemblies Involved in Removal/Replacement Procedures



G.1 AC Power Cord Removal/Replacement

The ac power cord is terminated at one end with a three-prong grounded plug and the other end with a three way receptacle, which is plugged into the ac power connector at the rear of the gateway.

Tools Required: None

WARNING

Before performing any removal/replacement procedure on the gateway, ensure that its power cord is disconnected from the power source.

To remove the ac power cord, proceed as follows:

1. Remove the three-prong plug from the ac wall outlet.
2. Unplug the power cord receptacle from the gateway.

To install the ac power cord, reverse steps 1 and 2.

G.2 Plastic Covers, Removal/Replacement

The gateway has a four-piece plastic cover assembly that encloses the metal top cover and base assemblies containing the electronic assemblies. The plastic cover assembly includes: a top cover, two side covers, and a bottom cover.

Tools Required: Medium, Phillips screwdriver

WARNING

Before performing any removal/replacement procedure on the gateway, ensure that its power cord is disconnected from the power source.

To remove the plastic covers, see Figure G-2 and proceed as follows:

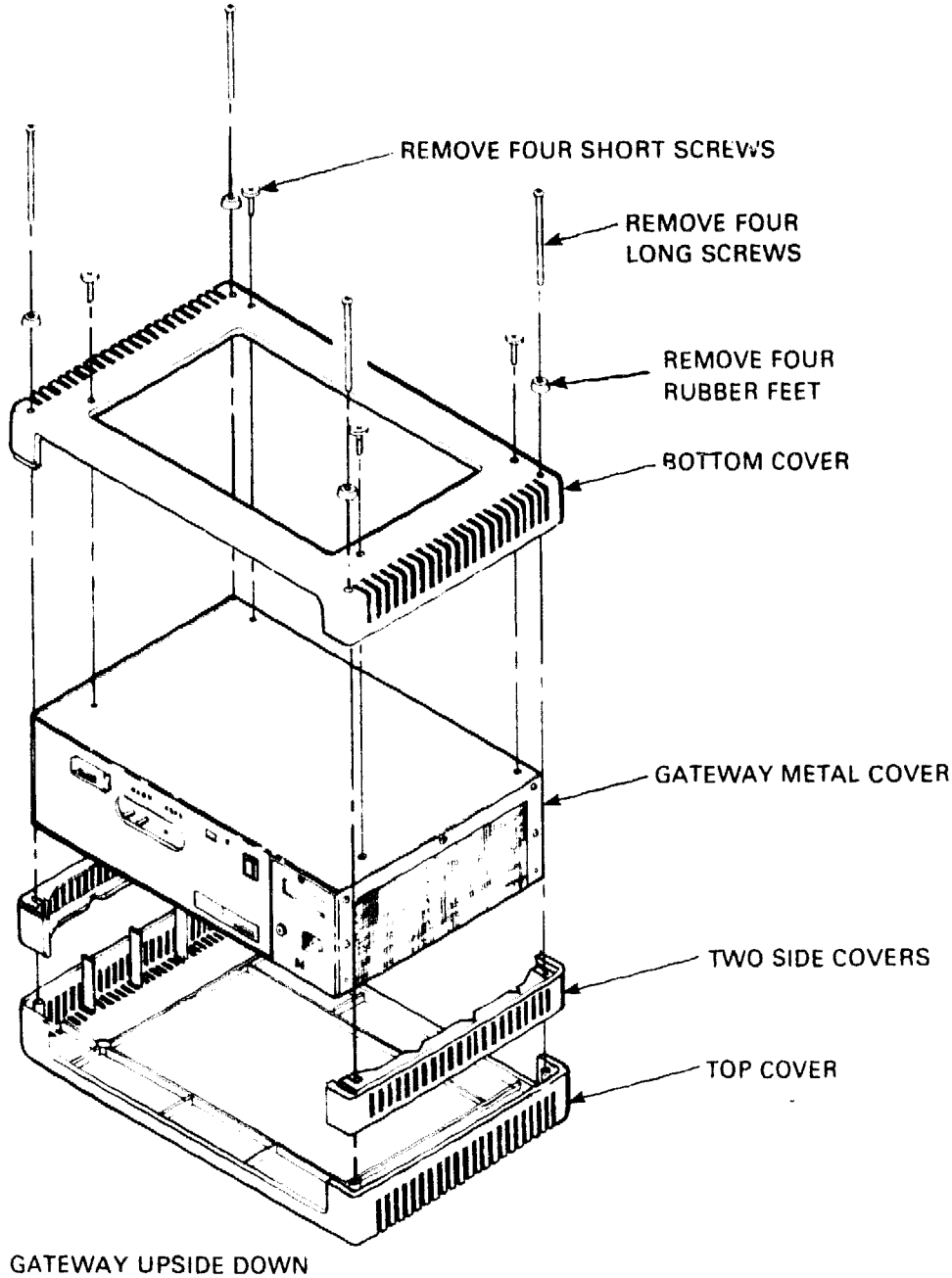
CAUTION

To prevent cable damage, ensure the Ethernet and the fiber optic cables are disconnected from the gateway.

1. Remove the ac power cord (refer to Section G-1).
2. Place the gateway upside down on a sturdy table or floor.
3. Remove and save the four long screws with rubber feet and four short screws from the bottom of the gateway.
4. Remove the bottom cover, the two side covers, and then lift the unit (metal enclosure assembly) out of the top cover and place it right side up on a sturdy surface.

To install the plastic cover assembly, reverse steps 1 through 4.

Figure G–2: Removing the Plastic Covers



G.3 Metal Top Cover Assembly, Removal/Replacement

The metal top cover assembly is fastened to the metal base assembly.

Tools Required: Medium, Phillips screwdriver

WARNING

Before performing any removal/replacement procedure on the gateway, ensure that its power cord is disconnected from the power source.

To remove the metal top cover assembly, proceed as follows:

CAUTION

To prevent cable damage, ensure the Ethernet and the fiber optic cables are disconnected from the gateway.

1. Remove the plastic cover assemblies (refer to Section G-2).
2. Remove two flat head screws in the metal top cover (see Figure G-3).
3. Remove seven round-head screws and loosen three round-head screws attaching the metal top cover assembly to the sides of the metal base assembly (see Figure G-3).

CAUTION

In the next step, take care when lifting off the metal top cover so the ribbon cable or connectors are not damaged.

4. Lift the metal top cover assembly just enough so that it can be placed upside down and next to the ribbon cable assembly side of the metal base assembly (see Figure G-4).
5. Disconnect the ribbon cable assembly from the power supply assembly (see Figure G-4).

To install the metal cover assembly, reverse steps 1 through 5.

Figure G–3: Removing the Metal Top Cover Assembly

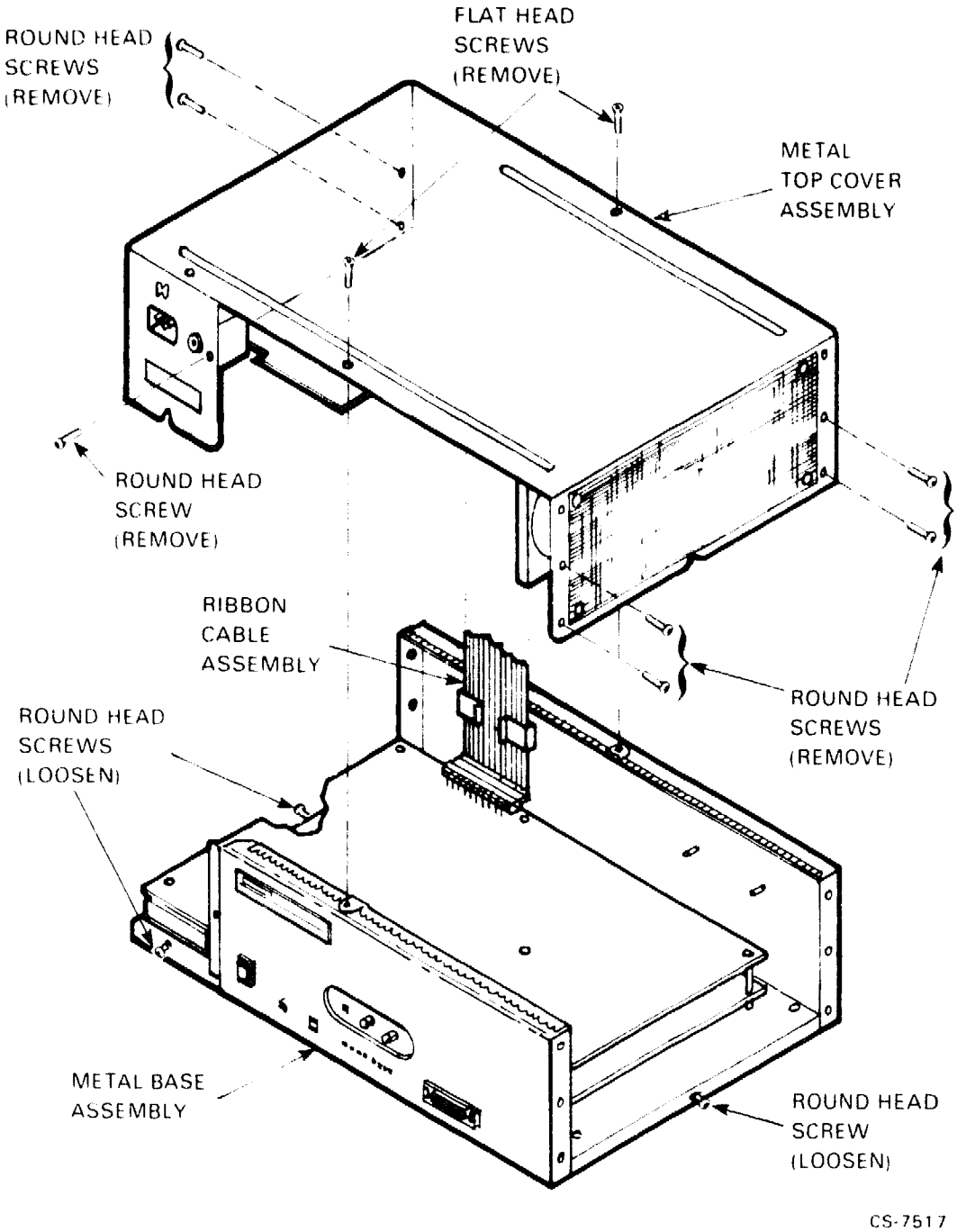
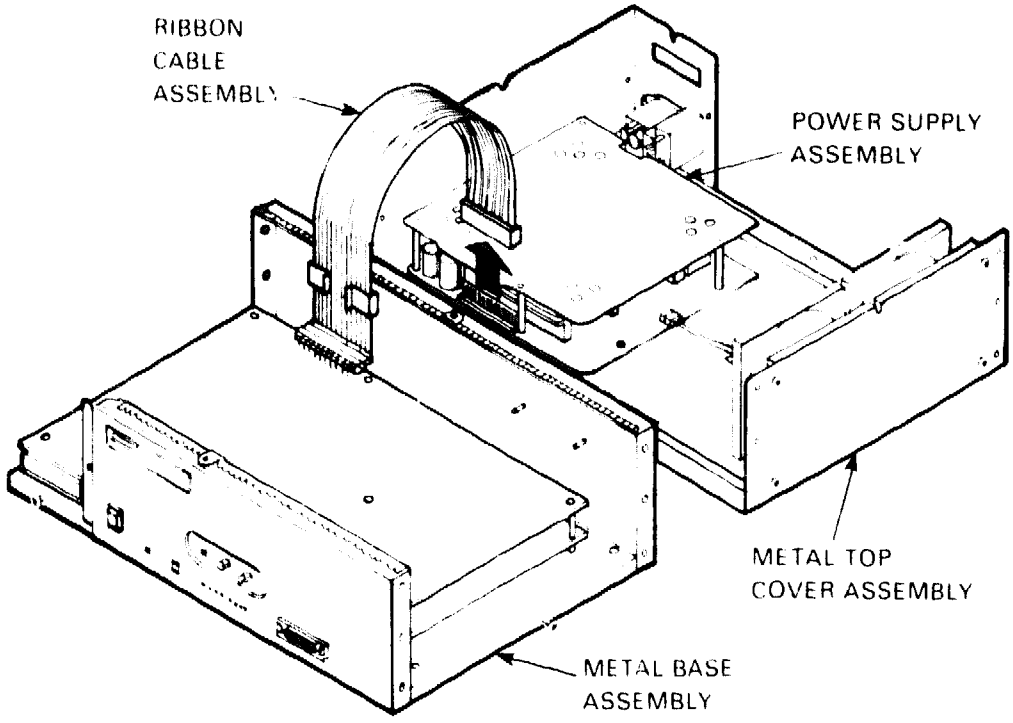


Figure G–4: Disconnecting the Ribbon Cable Assembly



— METAL TOP COVER ASSEMBLY UPSIDE DOWN —

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G.4 FPM-HS Protocol Module, Removal/Replacement

The FPM-HS Protocol Module is fastened to standoffs on the CPU/NI Module in the metal base assembly.

Tools Required: Medium, Phillips screwdriver

WARNING

Before performing any removal/replacement procedure on the gateway, ensure that its power cord is disconnected from the power source.

To remove the FPM-HS Module, proceed as follows:

CAUTION

Static electricity can damage modules. Always use a grounded wrist strap and grounded surface when working with or around modules.

CAUTION

To prevent cable damage, ensure the Ethernet and the fiber optic cables are disconnected from the gateway.

1. Remove the plastic cover assemblies (refer to Section G-2).
2. Remove the metal top cover assembly (refer to Section G-3).
3. Disconnect the ribbon cable assembly from the power connector on the FPM-HS Protocol Module (see Figure G-5).
4. Remove and save the seven pan-head screws fastening the FPM-HS Protocol Module to standoffs on the CPU/NI Module.

NOTE

If the fiber optic connectors on the FPM-HS Module have protective caps, remove them before performing the next step.

5. Place your hand under the FPM-HS Module near connectors J1 and J2 of the CPU/NI Module. Then apply enough upward pressure to disengage the FPM-HS Protocol Module from connectors J1 and J2.

6. Lift up on the power connector side of the FPM-HS Protocol Module and pull the module away from the rear of the gateway until the fiber optic connectors clear the holes in the rear panel. Then lift the module out of the metal base assembly.

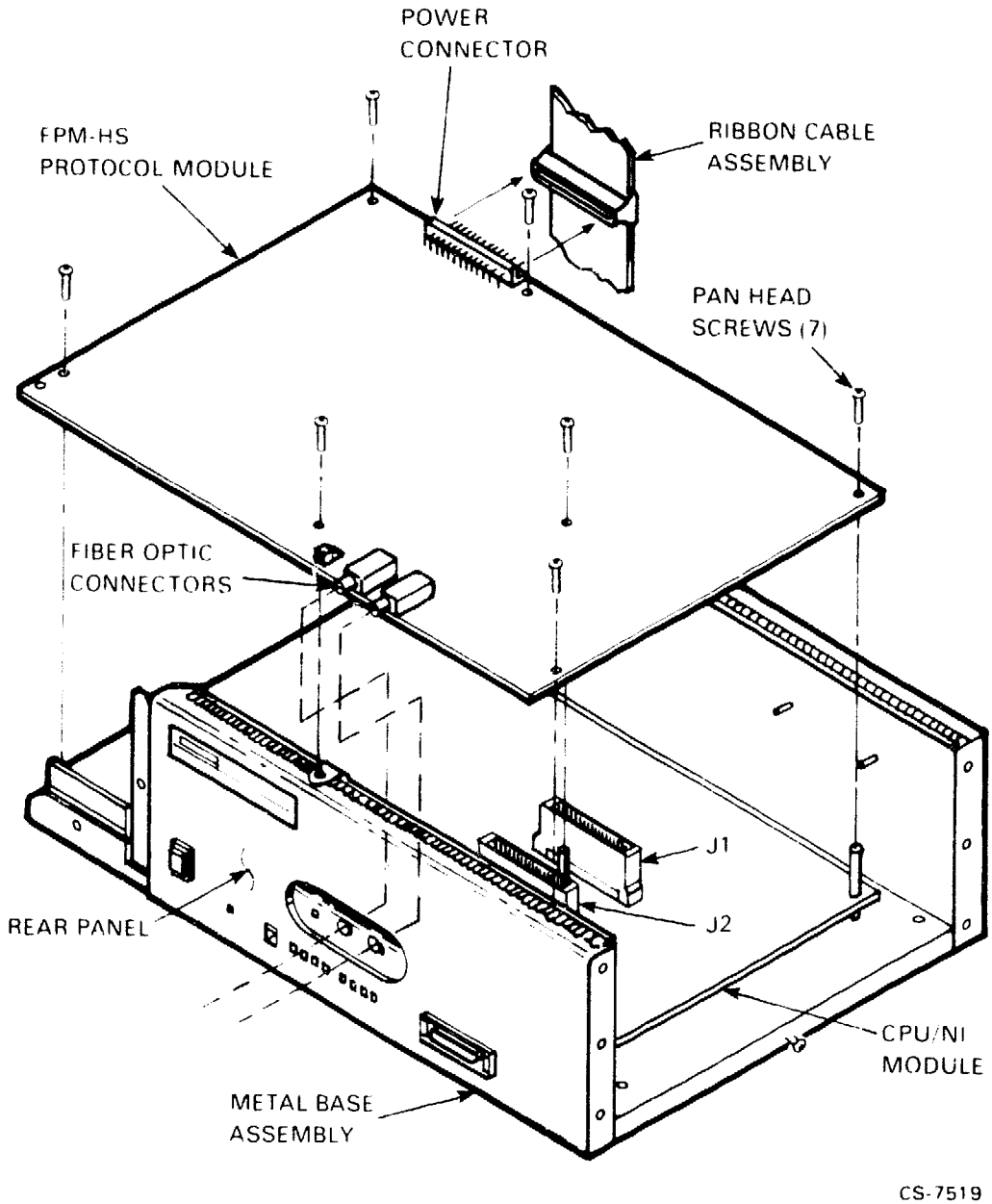
To install the FPM-HS Protocol Module, refer to the following Caution and then perform steps 1 through 6 in reverse order.

CAUTION

When installing the FPM-HS Protocol Module:

- **Keep protection caps on the fiber optic connectors for as long as possible to prevent them from getting soiled.**
- **Take care in aligning FPM-HS Protocol Module connectors with J1 and J2 connectors on the CPU/NI Module before applying any downward pressure to make connection. Otherwise, misalignment of pins can occur and cause damage to J1 and/or J2.**

Figure G–5: Removing the FPM-HS Module



G.5 CPU/NI Module, Removal/Replacement

The CPU/NI Module is fastened to the metal base by seven standoffs.

Tools Required: Medium, Phillips screwdriver, Flat blade screwdriver, 1/4-inch nut driver

WARNING

Before performing any removal/replacement procedure on the gateway, ensure that its power cord is disconnected from the power source.

To remove the CPU/NI Module, proceed as follows:

CAUTION

Static electricity can damage modules. Always use a grounded wrist strap and grounded surface when working with or around modules.

CAUTION

To prevent cable damage, ensure the Ethernet and the fiber optic cables are disconnected from the gateway.

1. Remove the plastic cover assemblies (refer to Section G-2).
2. Remove the metal top cover assembly (refer to Section G-3).
3. Remove the FPM-HS Protocol Module (refer to Section G-4).
4. On the CPU/NI Module, disconnect the ribbon cable assembly from the power connector and disconnect the reset switch assembly from connector J8 (see Figure G-6).
5. Remove the two mounting screws attaching the latch assembly slide to the Ethernet connector. Slide the assembly out.
6. Remove the seven standoffs fastening the CPU/NI Module to the metal base.

NOTE

In the following step, take care not to damage the RFI gasket when removing the CPU/NI Module. When installing the module, make sure the gasket is installed and take care not to damage it.

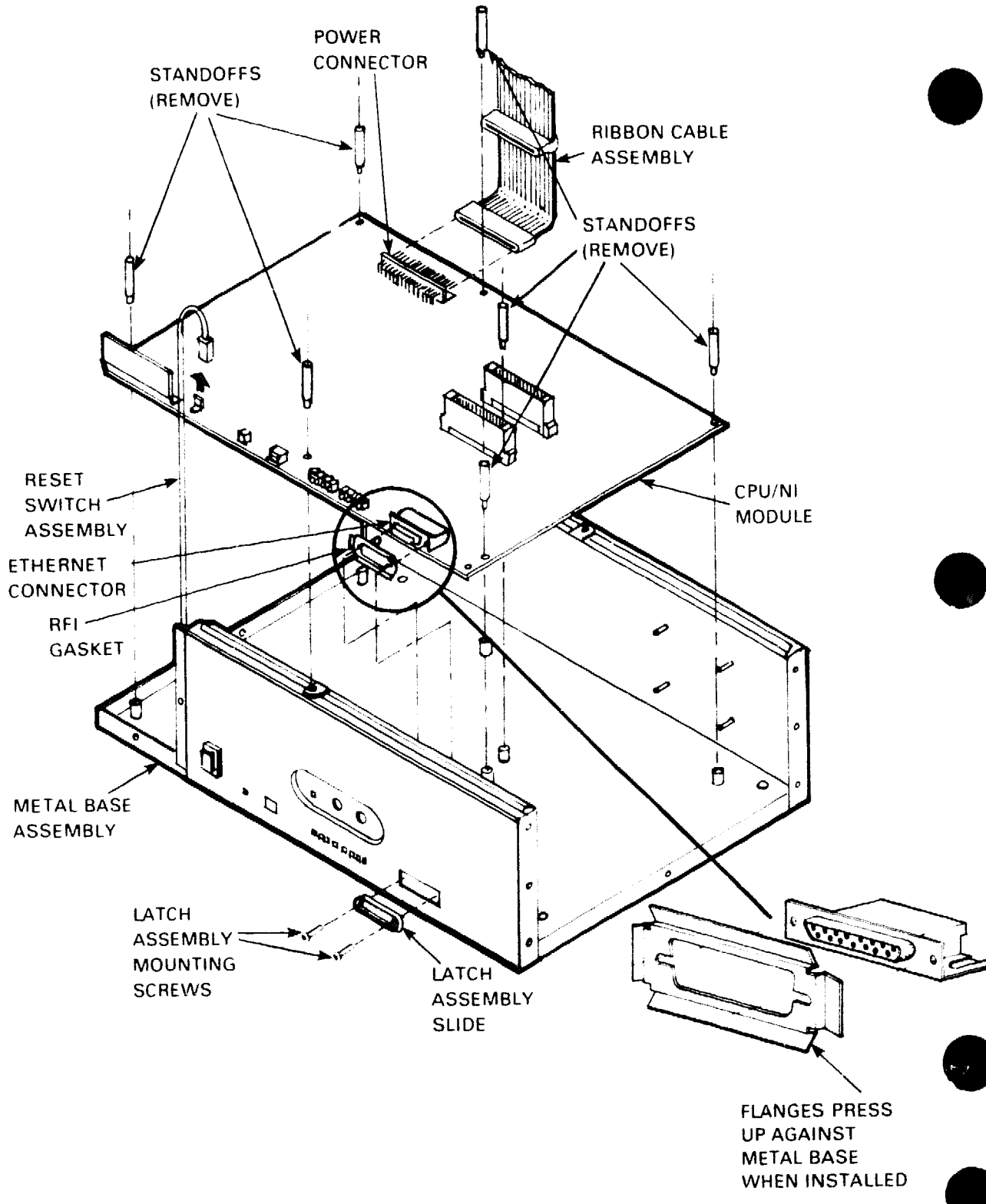
7. Lift the CPU/NI Module out of the metal base. The RFI gasket will drop out.

NOTE

Ensure that the RFI gasket is in place before replacing the CPU/NI Module.

To install the CPU/NI Module, reverse steps 1 through 7.

Figure G–6: Removing the CPU/NI Module



G.6 Fan Bracket Assembly, Removal/Replacement

The fan bracket assembly is attached to the metal top cover by four screws.

Tools Required: Medium, Phillips screwdriver

WARNING

Before performing any removal/replacement procedure on the gateway, ensure that its power cord is disconnected from the power source.

To remove the fan bracket assembly, proceed as follows:

CAUTION

Static electricity can damage modules. Always use a grounded wrist strap and grounded surface when working with or around modules.

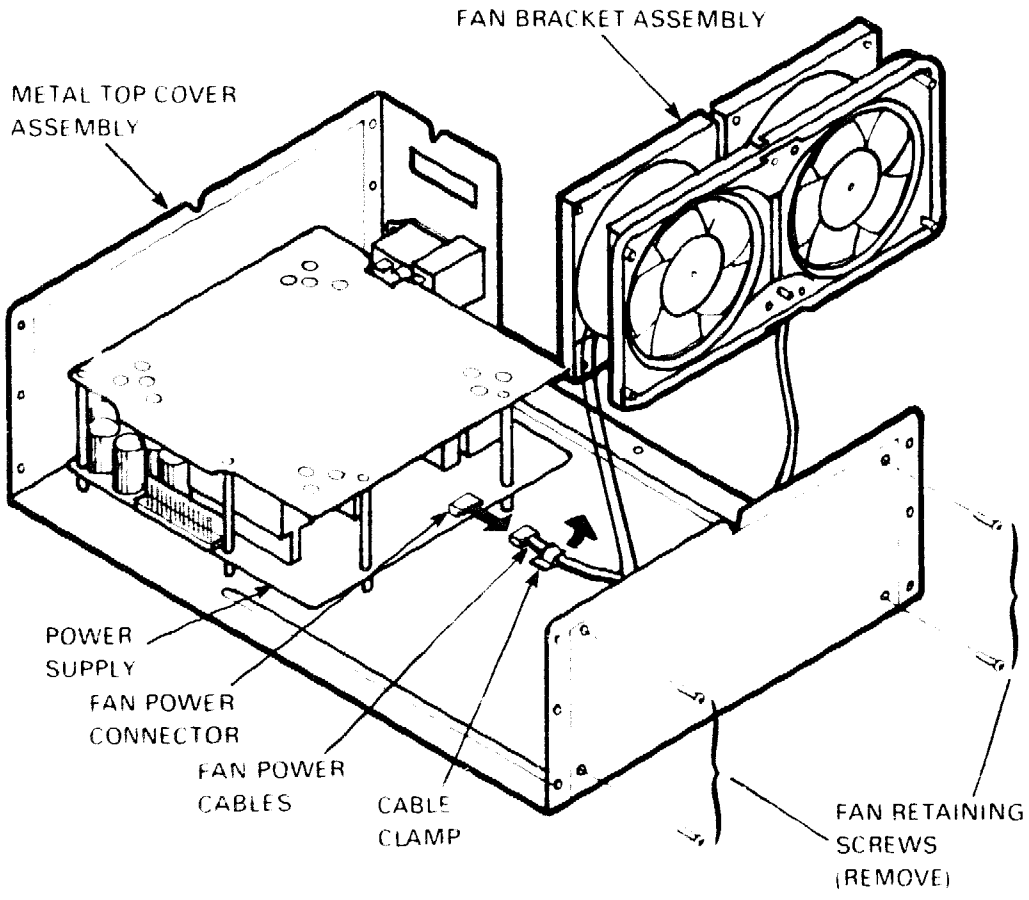
CAUTION

To prevent cable damage, ensure the Ethernet and the fiber optic cables are disconnected from the gateway.

1. Remove the plastic cover assemblies (refer to Section G-2).
2. Remove the metal top cover assembly (refer to Section G-3).
3. Remove the fan power cables from the cable clamp on the metal top cover (see Figure G-7).
4. Disconnect the fan power cables from the fan power connector on the power supply.
5. Remove the four fan retaining screws securing the fan bracket assembly to the metal cover assembly.
6. Lift the fan bracket assembly out of the metal cover assembly.

To install the fan bracket assembly, reverse steps 1 through 6.

Figure G–7: Removing the Fan Bracket Assembly



G.7 Power Supply, Removal/Replacement

The power supply is a circuit board assembly that is fastened to the metal top cover assembly by four standoffs and two screws.

Tools Required:

- Medium, Phillips screwdriver
- Small, adjustable wrench

WARNING

Before performing any removal/replacement procedure on the gateway, ensure that its power cord is disconnected from the power source.

To remove the power supply, proceed as follows:

CAUTION

Static electricity can damage modules. Always use a grounded wrist strap and grounded surface when working with or around modules.

CAUTION

To prevent cable damage, ensure the Ethernet and the fiber optic cables are disconnected from the gateway.

1. Remove the plastic cover assemblies (refer to Section G-2).
2. Remove the metal top cover assembly (refer to Section G-3).
3. Remove the four metal plate retaining screws securing the metal plate to the standoffs on the power supply (see Figure G-8).
4. Disconnect the fan power cables from the fan power connector on the power supply.
5. Disconnect the ac power input cable from the ac power input connector on the power supply.
6. Disconnect the green and yellow ground wire going from the power supply to the ground stud on the metal top cover assembly.

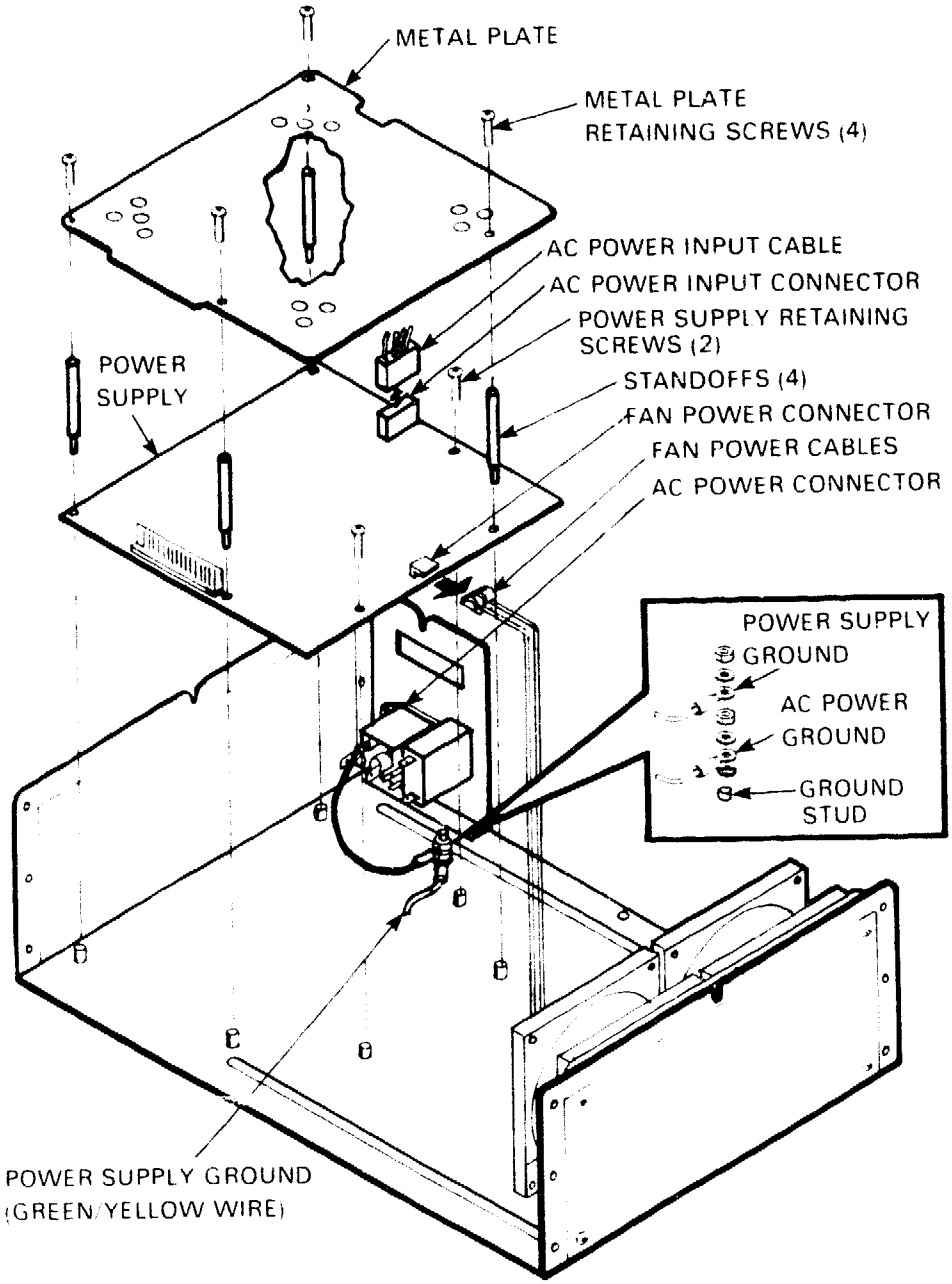
NOTE

When installing the power supply, ensure that the hardware is assembled as shown in the Figure G-8 insert.

7. Remove the two power supply retainer screws.
8. Remove the four standoffs, then lift the power supply out of the metal top cover assembly.

To install the power supply, reverse steps 1 through 8.

Figure G–8: Removing the Power Supply

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