DEChub 90 Ethernet Backplane Owner's Manual

Order Number EK-DEHUB-OM-001

Digital Equipment Corporation

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About This Manual

This manual gives an overview of the DEChub 90 Ethernet Backplane and describes how to configure, install, and troubleshoot the DEChub 90 Ethernet Backplane. This manual also gives the specifications and related documentation for the DEChub 90.

Organization

This guides has four chapters and two appendices.

Chapter	Meaning
1	Provides an overview of the DEChub 90 backplane and the optional DEHUX wall mount plate.
2	Describes the configuration requirements including site considerations, configuration rules, and building wiring. This chapter also describes typical configurations and configuration errors.
3	Describes how to install the DEChub 90 backplane and the optional DEHUX wall mount plate and cover.
4	Describes how to troubleshoot the DEChub 90 backplane and the optional DEHUX wall mount plate and cover.
Appendix A	Describes the physical dimensions; environmental and electrical specifications; and parts list for the DEChub 90 Ethernet backplane.
Appendix B	Provides related documentation and ordering information.

Conventions

The following convention is used in this manual.

Convention	Meaning
NOTE	Provides general information.

1
Overview

The DEChub 90 backplane and optional DEHUX wall mount plate and cover is convenient for wall or rack mounting the Digital Work Group family of products. All of the Digital Work Group products share the same packaging and interconnect scheme. Each unit can be installed as a standalone unit connected to other units by ThinWire coax or installed in the DEChub 90 backplane. The DEChub 90 backplane with work group units installed becomes a work group hub that is an integral part of a structured wiring environment.

Features

DEChub 90 Backplane

- Eight-slot backplane for the Digital Work Group family of products:
  - Provides ThinWire Ethernet connection and termination
  - Allows hot-swap of units
  - Contains a serial management bus
- Single power supply for units installed in backplane
- Power supply auto-selects 120/240 Vac, 50/60 Hz
- Rack mountable with provided rack mount brackets
- Wall mountable on a solid wall

DEHUX Wall Mount and Cover

- Wall mount plate for DEChub 90 backplane:
  - Provides 10½ inches of mounting space for patch panel options
  - Can be installed on solid or hollow walls, or office partitions with provided hangers
- Cover for DEHUX wall mount plate:
  - Provides protection for the backplane and patch panel
  - Provides security for the backplane and patch panel

Figure 1–1 shows the DEChub 90 backplane with eight Work Group units installed.

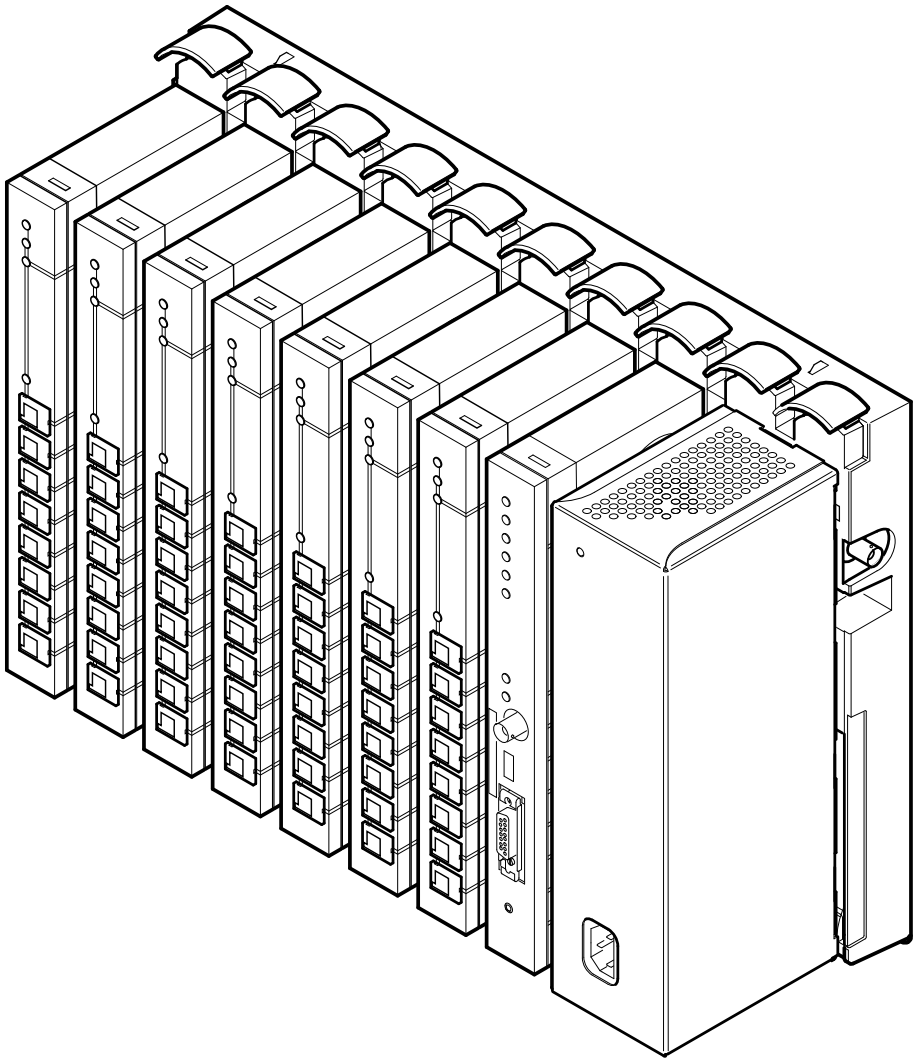

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Figure 1–1 DEChub 90 Backplane with Units Installed

Description

The DEChub 90 backplane and the Digital Work Group family of products provide a network hub for a work group of up to 64 people.

Digital Work Group Products	
Bridges	DECbridge 90 Work Group Bridge (DEWGB)
Repeaters	DECrepeater 90C ThinWire Multiport Repeater (DECMR)
	DECrepeater 90T Twisted-Pair Multiport Repeater (DETMR)
Servers	DECserver 90L Terminal Server (DSRVD)
Backplanes	DEChub 90 Ethernet Backplane (DEHUB)

The DEChub 90 backplane provides mounting, power, and ThinWire Ethernet connections for up to eight Work Group family units plus the power supply (Figure 1–2). Work Group units may be installed in any combination in the backplane with one exception. The exception is the DECbridge 90 or other Work Group units requiring a +12 V supply must be installed in slots 7 or 8, the slots adjacent to the power supply.

The backplane provides all the power and signals to each unit through a DIN style connector. Work Group products can be installed or swapped with the power on (hot-swap), and snap in with an audible "click" to indicate proper installation. Hot-swap allows for upgrades, modifications, or replacement of units without interruption to other users on the network.

A BNC connector on the backplane provides connection to and termination of a ThinWire Ethernet segment connected to the building network. Alternately a DECbridge 90 Work Group Bridge (DEWGB) can provide connection to an Ethernet backbone through its AUI or BNC connector.

The DEChub 90 backplane can be installed in a standard 19 inch equipment rack or on a solid wall. The optional DEHUX wall mount plate and cover allows the DEChub 90 backplane to be mounted on solid or hollow walls and office partitions. In addition, the DEHUX provides 10½ inches of mounting space for patch panels and a cover.

Figure 1–2 shows the DEChub 90 backplane and calls out its features.

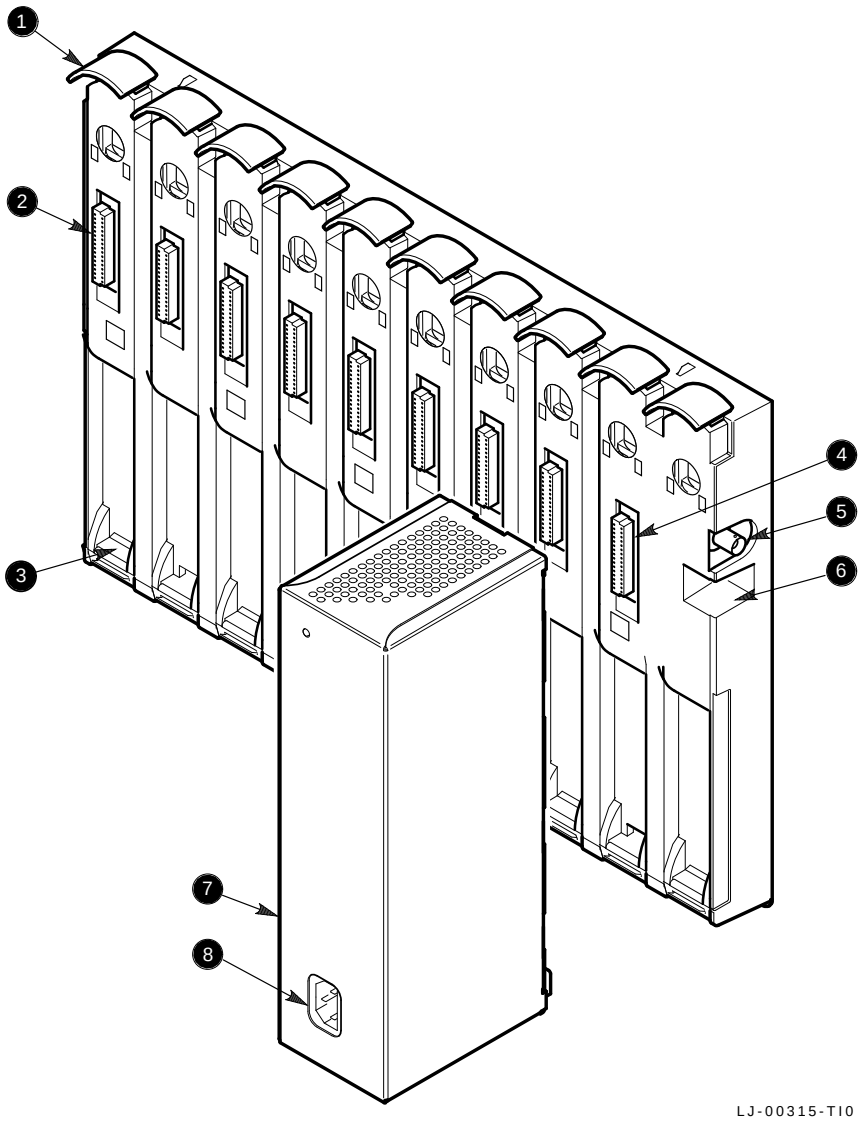

Figure 1–2 The DEChub 90 Backplane

❶ **Release Lever -** Releases the backplane latching mechanism when removing and installing Work Group units.

❷ **Backplane Connector -** Provides power, network connection, and management signals to Work Group units. Slots 1 through 6 provide +5 V power to the unit. Slot 7 and 8 (adjacent to the power supply) provide +5 V and +12 V power to the unit.

It is recommended that the DECbridge 90 Work Group Bridge be installed in slot 8.

❸ **Mounting Slot -** Secures the lower mounting tab of a Work Group unit and the power supply. The slots are numbered from left to right 1 through 8 and the power supply slot (double slot).

❹ **Power Supply Connector -** Provides +5 V and +12 V power from the power supply to the backplane.

❺ **ThinWire Ethernet BNC Connector -** Connects the backplane to a ThinWire Ethernet segment. The DEChub 90 backplane provides 50 ohm termination of a ThinWire Ethernet. The DEChub 90 backplane must be connected directly to the end of a ThinWire Ethernet segment, no T-connector or terminator.

❻ **Backplane Serial Port MMJ Connector -** Connects the backplane's serial management bus to the serial management bus of another DEChub 90 backplane in the same work group.

❼ **Power Supply -** Provides +5 V and +12 V power to the backplane.

❽ **Power Supply AC Connector -** Provides AC power to the power supply.

2
Configuration

Site Considerations

When planning to use the DEChub 90 backplane, the following considerations need to be made:

- Location of the DEChub 90 backplane and DEHUX wall mount and cover.
  - Equipment closet (rack or wall mount)
  - Equipment rack
  - Work Area (wall or partition mount)
- Network requirements
  - Standalone unit
  - Part of a ThinWire Ethernet
  - Connect to a ThickWire backbone
- Building and office cabling and interconnect requirements. The Digital DECconnect family of products can provide these needs. Refer to Appendix B for a list of available documentation.

Configuration Rules

The configuration rule for the DEChub 90 backplane and the Digital Work Group family of products fall in to two categories: network wiring; and the DEChub 90.

Basic Configurations

There are a number of rules that relate to segment length, number of repeaters, and the number and location of bridges. These rules are given in Table 2–1.

Table 2–1 Basic Configuration Rules

Subject	Rule
ThinWire Segment	Maximum length of 185 meters. Maximum of 30 stations or nodes.
ThickWire Segment	Maximum length of 500 meters. Maximum of 200 stations or nodes.
Repeaters	There can be no more than two repeaters between any stations on a network segment.
Bridges	Maximum of seven bridges between any two stations on a local area network (LAN).

DEChub 90 Configurations

The DEChub 90 backplane has a number of configuration rules and guidelines that must be followed when installing and using the unit. These rules are given in Table 2–2. In addition, normal ThinWire rules apply as they relate to cable lengths, segmentation by repeaters and bridges, and so on.

Table 2–2 DEChub 90 Configuration Rules

Subject	Rule
Standalone installation (not connected to an Ethernet segment)	A 50 ohm terminator must be connected to the BNC connector on the right-hand side of the backplane unit. A typical standalone installation of the backplane uses the DECbridge 90 Work Group Bridge for its connection to an Ethernet backbone.

Table 2–2 (Cont.) DEChub 90 Configuration Rules

Subject	Rule
DECbridge 90 backplane connected to a ThinWire Ethernet segment	The ThinWire cable must be plugged directly into the Backplane BNC connector, that is, no T-connector and terminator.
	The backplane must be at one end of the ThinWire segment.
	For cable length planning, the backplane is the equivalent of 65 meters of ThinWire cable. When the backplane is installed at one end of a ThinWire Ethernet segment, the segment is limited to a maximum of 120 meters.
	The backplane with or without Work Group family units installed is the equivalent of 15 nodes on a ThinWire segment.
	A maximum of two backplanes are allowed in a ThinWire segment.
Two backplanes in a ThinWire Ethernet segment	Each backplane must be at an end of the Ethernet segment.
	The ThinWire cable must be plugged directly into each backplane BNC connector, that is, no T-connector and terminator.
	The serial management bus (MMJ connector) for each backplane must be connected.
	For cable size planning, the two backplanes combined are the equivalent of 130 meters of ThinWire cable. The ThinWire segment between the two backplanes is limited to 55 meters.
	The two backplanes with or without work group units are the equivalent of 30 nodes on a ThinWire segment.
Work Group unit installation	Work Group units may be installed in the backplane in any combination with the exception of the DECbridge 90 Work Group Bridge.

Table 2–2 (Cont.) DEChub 90 Configuration Rules

Subject	Rule
Installing a DECbridge 90 Work Group Bridge in the backplane	Only one DECbridge 90 Work Group Bridge per backplane. Only one DECbridge 90 Work Group Bridge in a work group. It is recommended that the bridge be installed in Slot 8 of the backplane, next to the power supply. The DECbridge 90 can also be installed in slot 7. The DECbridge 90 configuration rules must be followed. The backplane and attached network segments become a "work group" network with no other bridges and there is a maximum of 200 Ethernet addresses allowed.

Building Wiring

When installing the DEChub 90 backplane and the Digital Work Group family of products, the wiring of the network must be considered and planned. Well-planned network connectivity provides tangible benefits such as:

- Improved management of connections
- Lower cost of moves, additions, and changes
- Increased life span of the cable plant and active components

A structured approach to cabling is an important component of a well-planned network. The wiring system consists of passive components that are divided into three main elements:

- Backbone—the connection between the communication closet and the equipment room within a building and the connection between buildings.
- Horizontal—the connection between, and including, the outlet and the termination in the communication closet.
- Work Area—an area containing a station and the connection between the station and outlet.

The DEChub 90 backplane provides the centralized distribution point in the *horizontal* element of a structured wiring environment. The DEChub

90 backplane can be installed in the telecommunications closet or the open office environment replacing the telecommunications closet.

The concept of structured wiring is based on the assumption that cable plants are designed to provide service for 15 to 20 years. Devices attached to the cable plant are often expected to be replaced by new technology and remain connected for a much briefer period of time. This means the cable must be reusable, identifiable, and simple to add or change.

The Electronics Industry Association (EIA) and Telecommunications Industry Association (TIA) have been working toward a standard for telecommunications wiring for commercial buildings. After it is approved, this standard will be published as EIA/TIA-568. The goal of this standard is to provide a uniform wiring system to support multi-product, multi-vendor environments.

EIA/TIA-568 defines telecommunications wiring for a building or multiple buildings in a campus environment. The standard specifies wiring system parameters, including topology, distances, media and connector pin assignments. EIA/TIA recognizes three types of wiring: horizontal, backbone, and work area. This overall structure is shown in Figure 2–1.

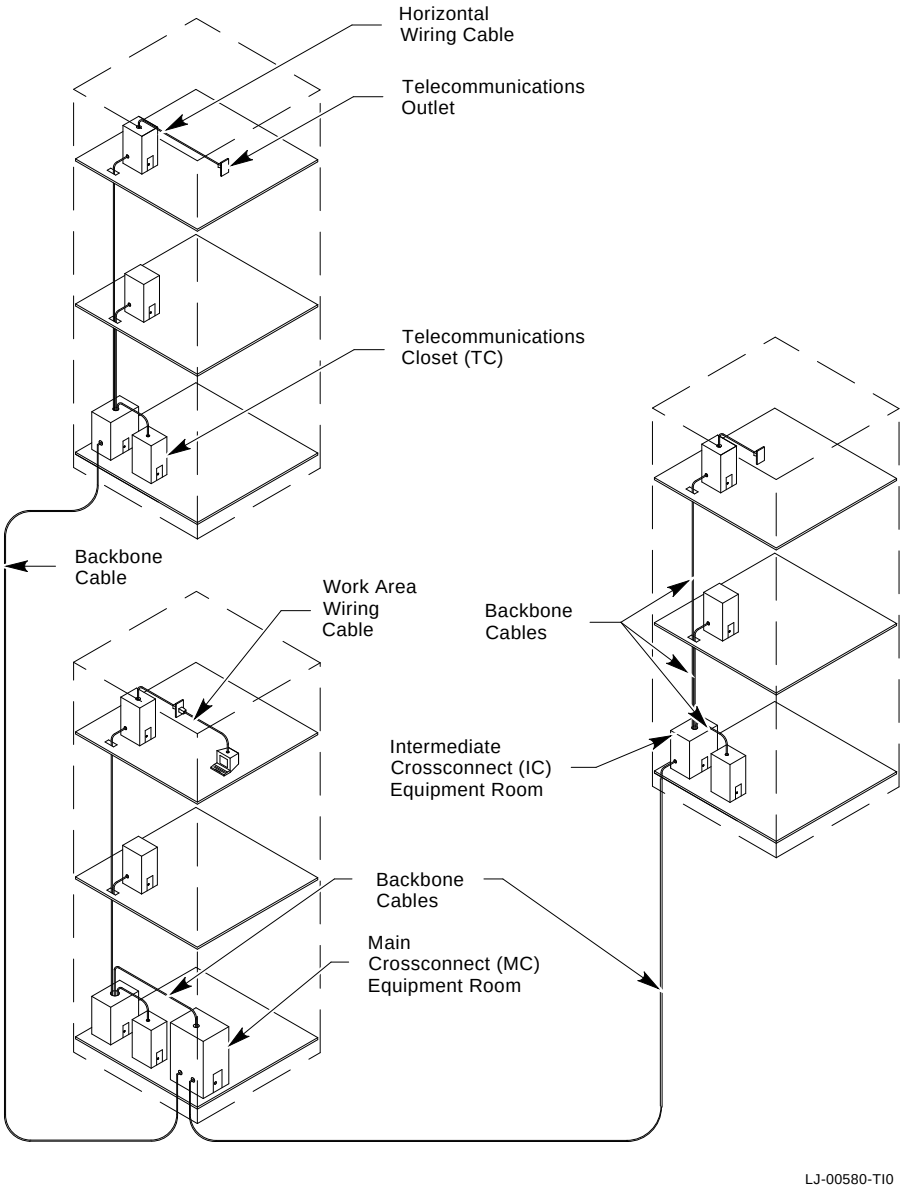

Figure 2–1 EIA/TIA-568 Standard Distribution Subsystem Architecture

Typical Configurations

This section provides examples of typical Work Group configurations using the DEChub 90 backplane. These examples show:

- A DEChub 90 backplane with eight terminal servers
- A Work Group using a Work Group Bridge and seven Ethernet repeaters
- A Work Group using a Work Group Bridge and a combination of Ethernet repeaters and terminal servers
- A Work Group using two backplanes, a Work Group Bridge, and a combination of Ethernet repeaters and terminal servers

DEChub 90 Backplane with Terminal Servers

The DEChub 90 backplane provides a clean well organized approach to supporting a group of terminal servers in an Ethernet environment. A single backplane supports up to a maximum of 64 terminals depending on the number of terminal servers installed. Figure 2–2 shows the DEChub 90 connecting eight DECserver 90Ls to a ThickWire backbone using an Ethernet repeater and H4005 transceiver.

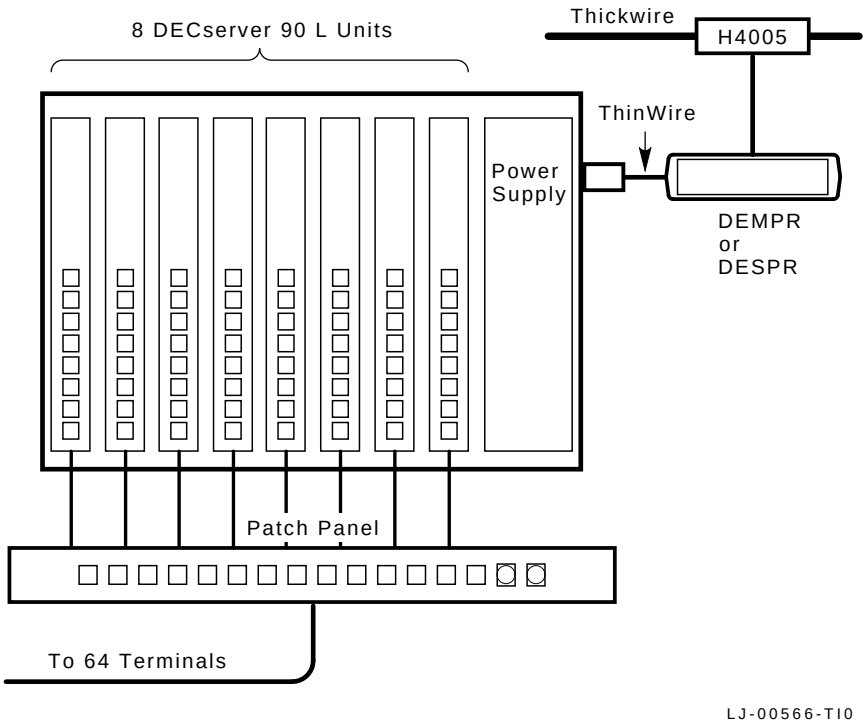

Figure 2–2 Configuration with Eight DECservers in Backplane

Work Group with Ethernet Repeaters

The DEChub 90 backplane can support a variety of work group configurations that include workstations, personal computers (PCs), and terminals. The following configuration examples show how the DEChub 90 backplane and the Digital family of Work Group products can be used to support a wide variety of work group configurations.

Figure 2–3 shows a configuration that supports a work group with a lot of terminals and a few workstations.

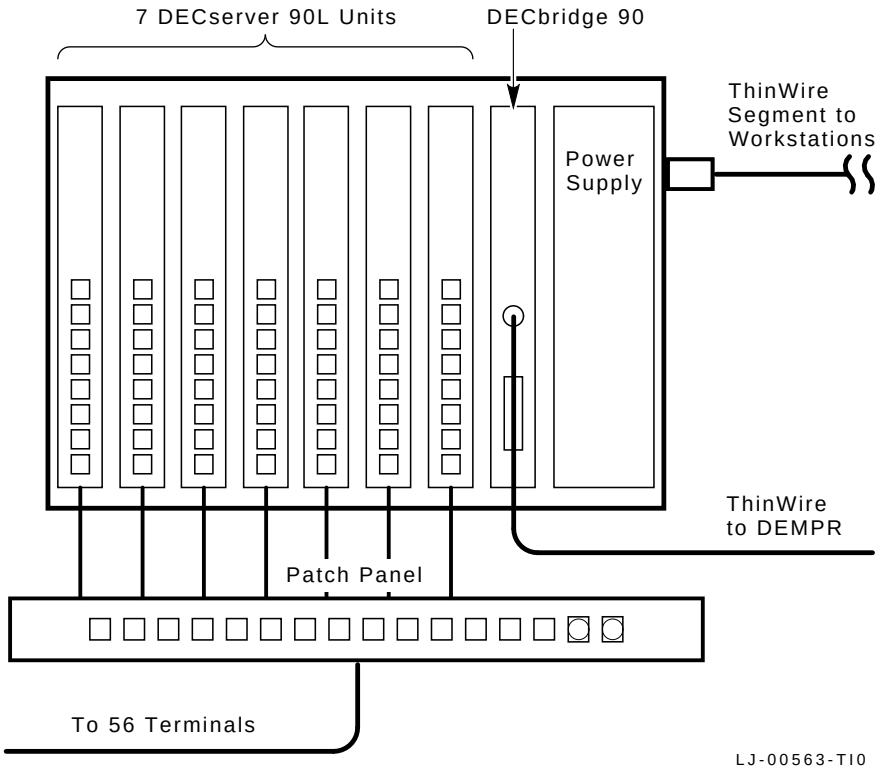

Figure 2–3 DECservers and Work Group Bridge Configuration

Figure 2–4 shows a configuration that supports a workgroup of workstations and PCs using multiple Ethernet repeaters. These repeaters can support ThinWire Ethernet, Twisted-Pair Ethernet, or a combination of both.

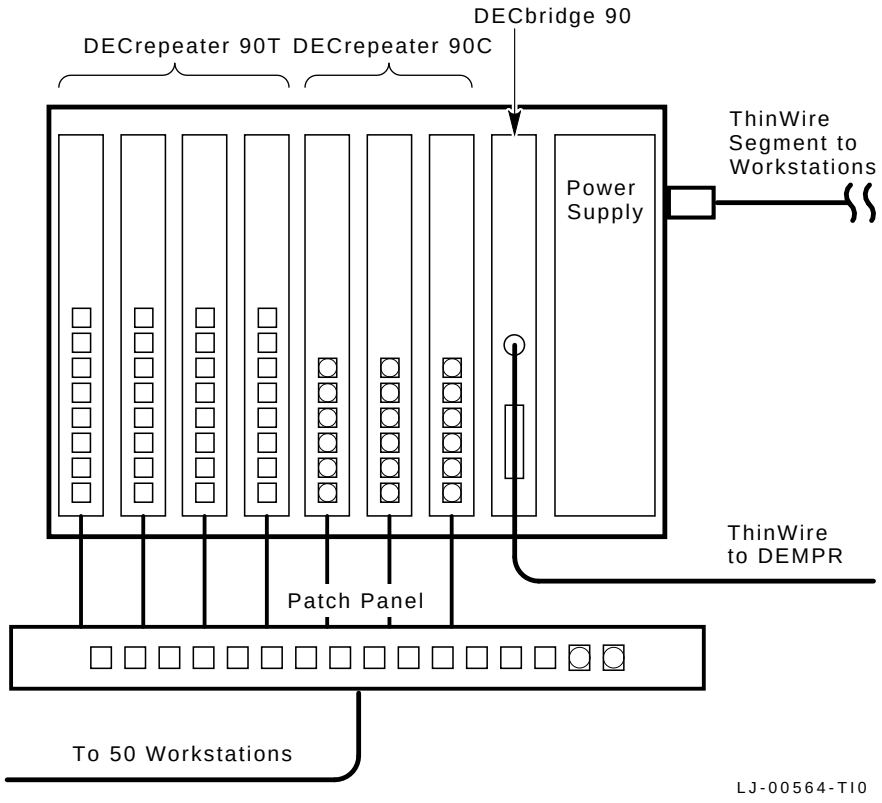

Figure 2–4 Workstations and PCs Configuration

Figure 2–5 shows a configuration that supports a combination of workstations, PCs, and terminals.

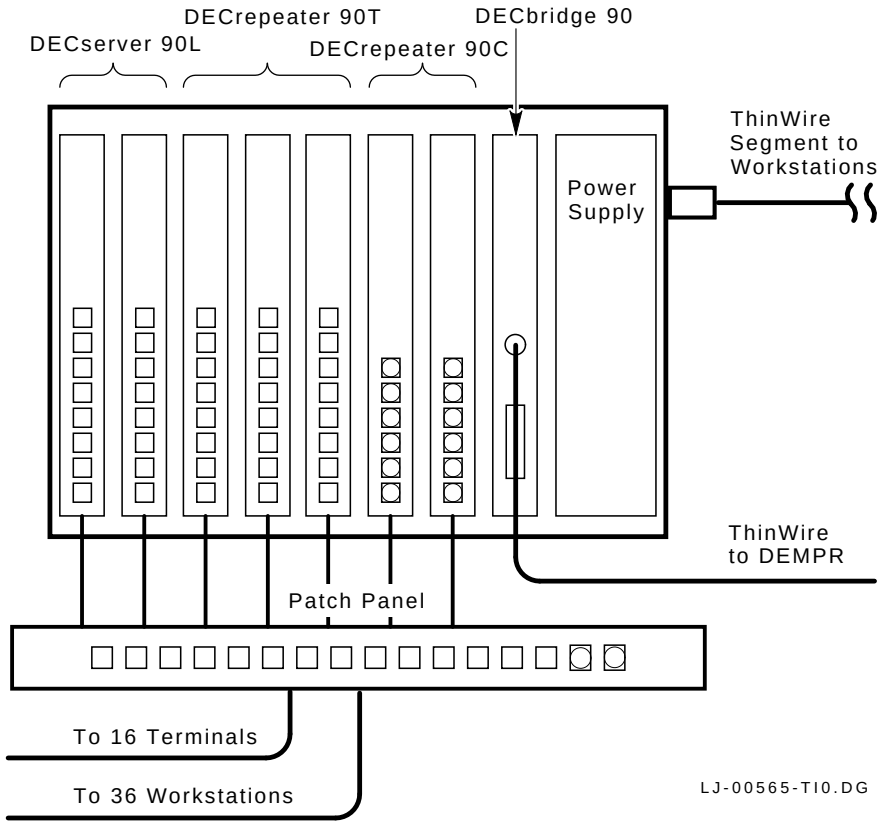

Figure 2–5 Workstations, PCs, and Terminal Servers Configuration

Figure 2–6 shows a configuration with two DEChub 90 backplanes used to support a large work group.

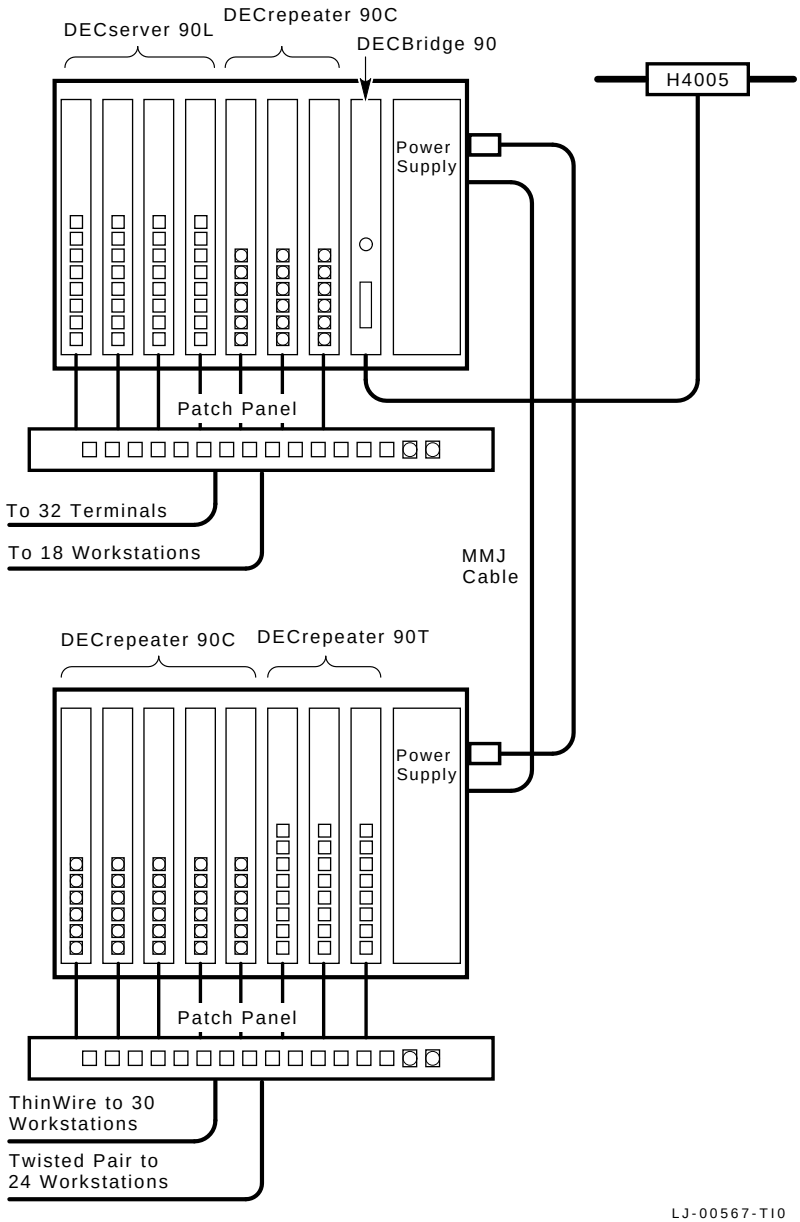

Figure 2–6 Two-Backplane Configuration

Configuration Errors

This section provides examples of various configuration errors that may occur when installing a work group using the DEChub 90 Backplane.

Termination Errors

Backplane Improperly Terminated

The DEChub 90 backplane must be properly terminated for the ThinWire segment to function properly. The DEChub 90 is the equivalent of 65 meters of ThinWire cable terminated at one end with 50 ohms. Figure 2–7 shows a backplane installed with its terminator or properly terminated ThinWire segment missing.

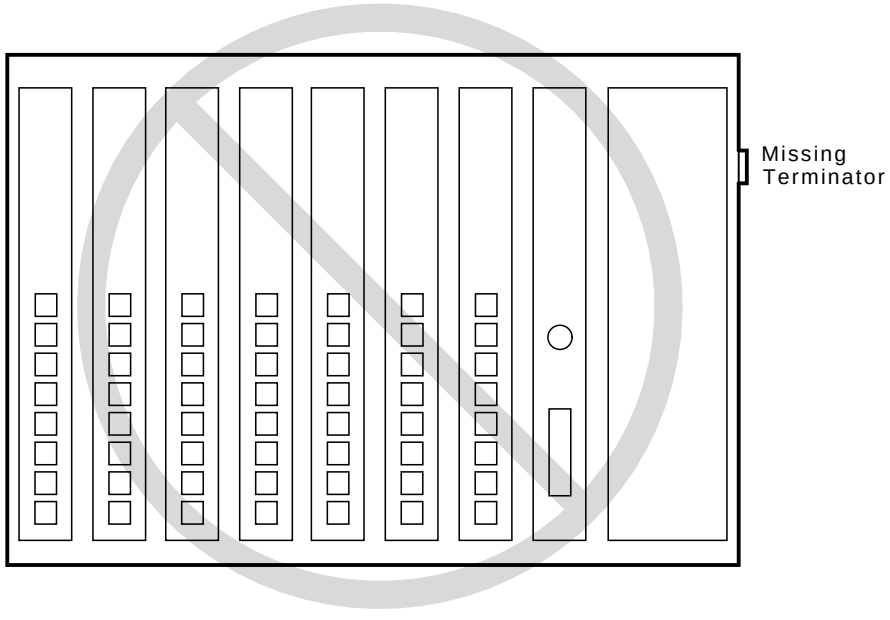

Figure 2–7 Backplane Improperly Terminated

Backplane Installed in Middle of ThinWire Segment

Because the DEChub 90 terminates one end of a ThinWire Ethernet segment, it cannot be installed in the middle of a segment. Figure 2–8 is an example of the DEChub 90 installed in the middle of a ThinWire Ethernet segment.

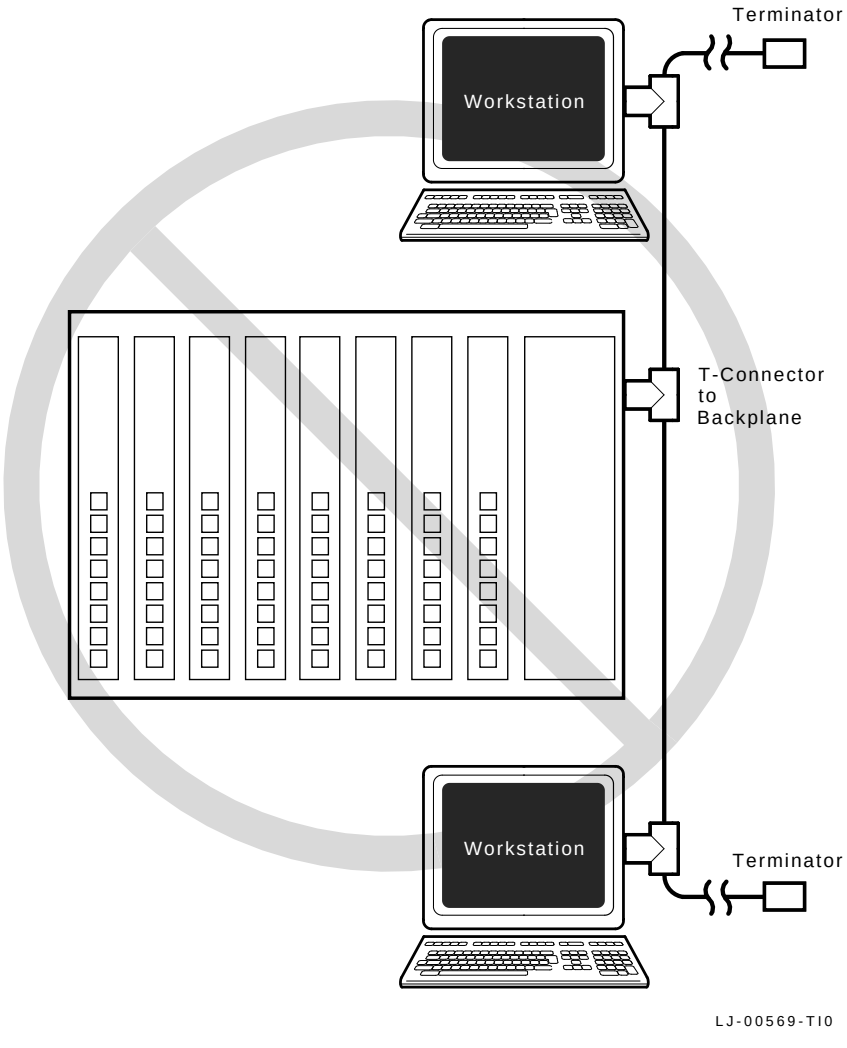

Figure 2–8 Backplane Installed in Middle of ThinWire Segment

Work Group Bridge Errors

WGB Installed in Wrong Slot

The DECbridge 90 must be installed in either slot 8 or slot 7 of the DEChub 90 backplane. If it is not installed in either one of these slots, it will not function because of missing supply voltages. The recommended slot for the DECbridge 90 is slot 8. Figure 2–9 shows the DECbridge 90 installed in the wrong slot.

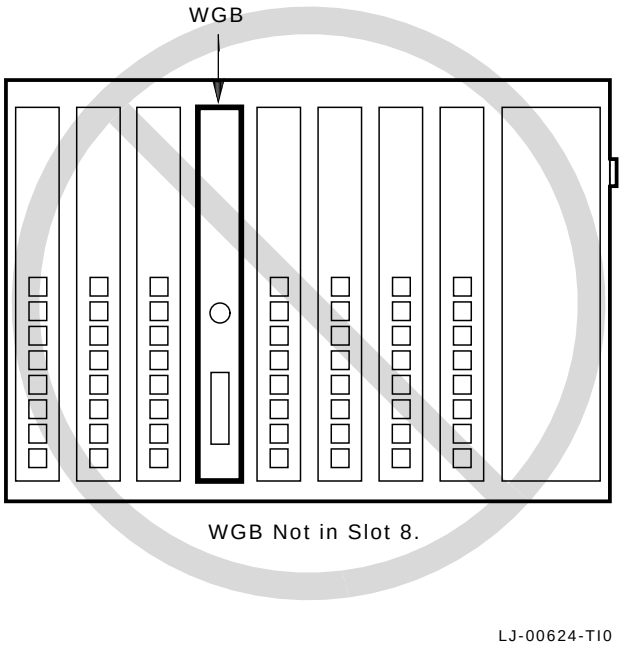

Figure 2–9 Bridge Installed in Wrong Slot

Two Bridges Installed in Single Backplane

When configuring a work group, only one DECbridge 90 Work Group Bridge can be used. The reasons for this restriction are as follows:

- The DEChub 90 backplane +12 V power supply can only support one Ethernet backbone transceiver circuit.
- When two bridges are a part of a work group, a network failure can make one of the bridges look like it is a part of the other bridge's work group. This can cause the address table of the other bridge to be overloaded.

Figure 2–10 shows a single backplane with more than one Work Group Bridge installed.

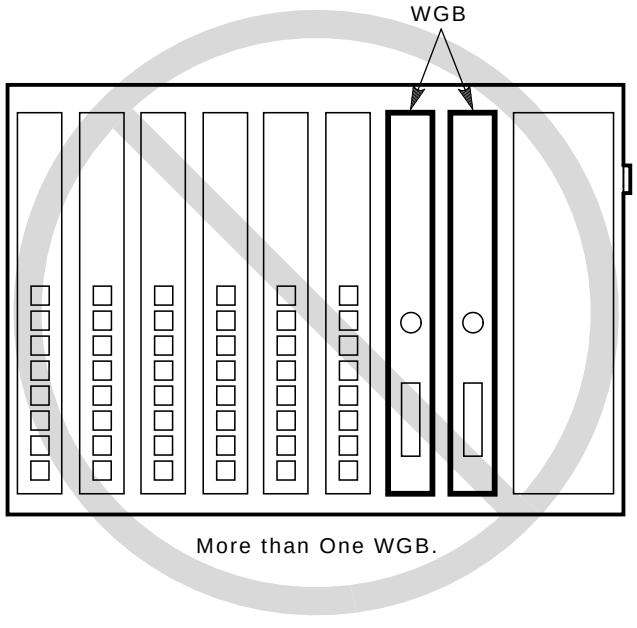

Figure 2–10 Two Work Group Bridges Installed in a Single Backplane

Two Bridges Installed in Work Group

Figure 2–11 shows a work group with more than two bridges installed.

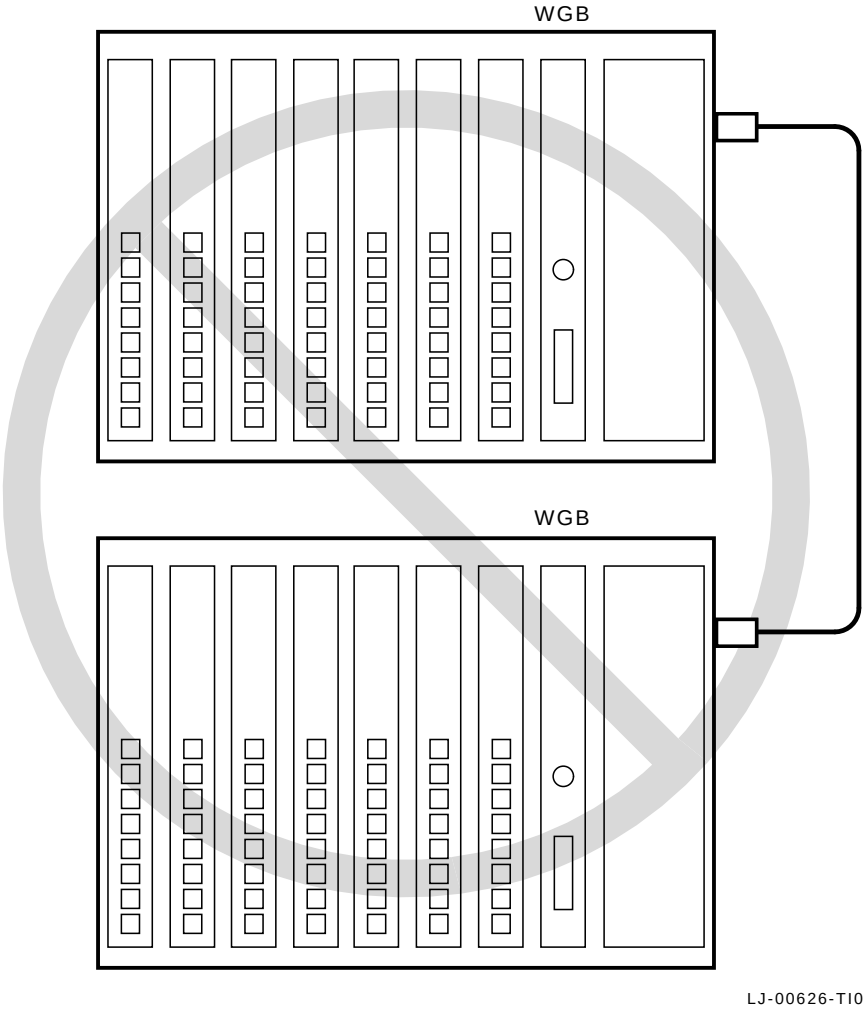

Figure 2–11 Two Work Group Bridges Installed in Work Group

Repeater Errors

More Than Two Repeaters

When installing repeaters in an Ethernet environment, there must be no more than two repeaters between any node on a segment. Figure 2–12 shows a violation of the two repeater rule.

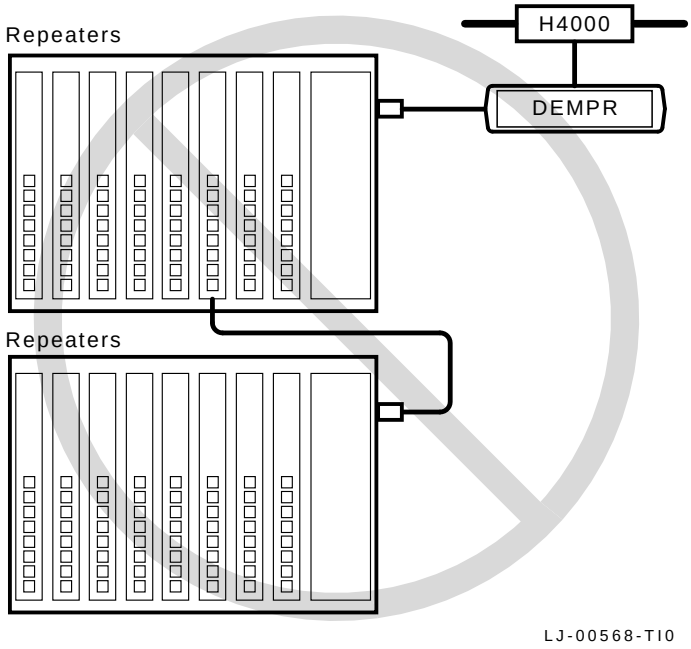

Figure 2–12 More Than Two Repeaters

3
Installation

The DEChub 90 backplane can be installed in a 19 inch equipment rack or on a wall or office partition using the DEHUX wall mount plate. The wall mount plate holds the backplane, standard 19 inch rack mount patch panels and an optional cover. This chapter covers the following:

- Installing the DEChub 90 backplane in a:
  - 19 inch equipment rack
  - Solid wall
- Installing the DEChub 90 backplane using the DEHUX wall mount plate on a/an:
  - Wall
  - Office partition
- Installing distribution panels in the DEHUX wall mount plate
- Installing the DEHUX cover
- Troubleshooting the DEChub 90 backplane

Rack Mount Installation

The DEChub 90 backplane is supplied with rack mount brackets and mounting hardware to allow the unit to be installed in a standard RETMA 19 inch equipment rack.

Mount backplane.

1. Locate the rack mount brackets and four #6 screws that are supplied with your backplane.

2. Attach the rack mount brackets, using the #6 screws, to the backplane as shown in Figure 3–1.

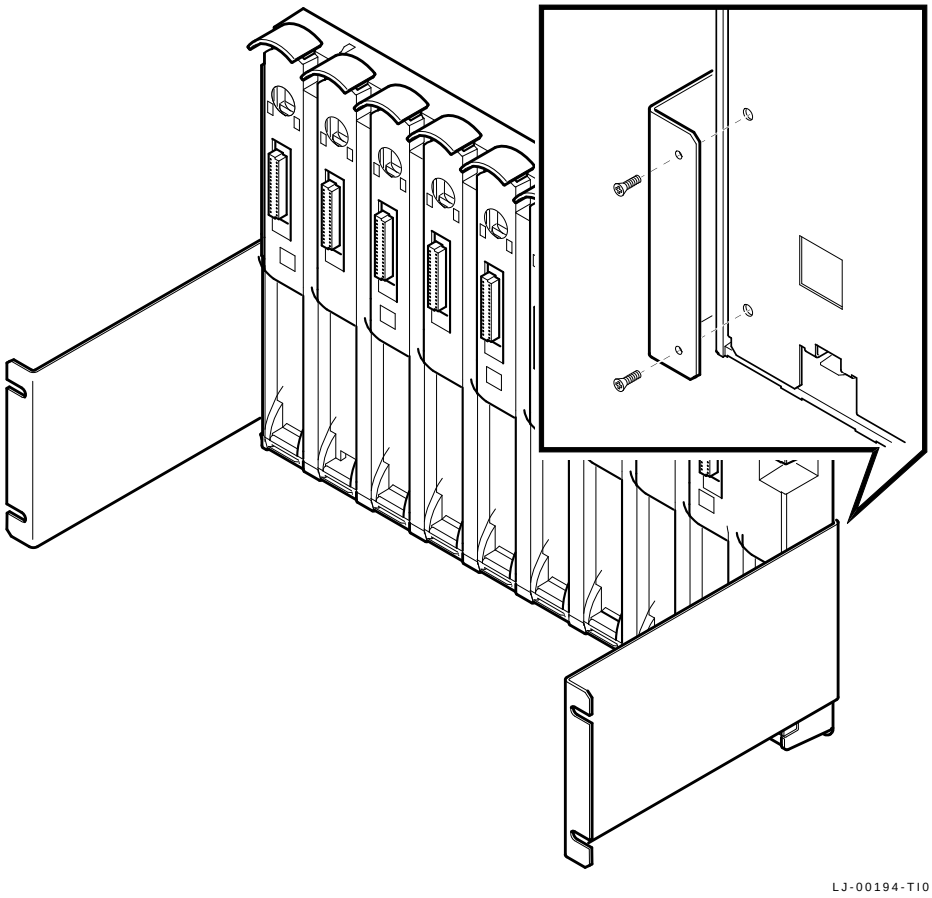

Figure 3–1 Installing Rack Mount Brackets to Backplane

Install backplane in rack.

Install the backplane in the equipment rack using the four 10-32 screws and U-nuts (if necessary) supplied with the backplane.

Install backplane power supply.

Install the backplane power supply as shown in Figure 3–2.

a. Place the mounting tabs on the bottom of the power supply in the mounting slots of the backplane.

b. Raise the two release levers for the power supply slot.

c. Rock the power supply into place. Verify the alignment of the power supply connector and backplane connector as the power supply is rocked into place.

d. Lower the two release levers to lock the power supply in place.

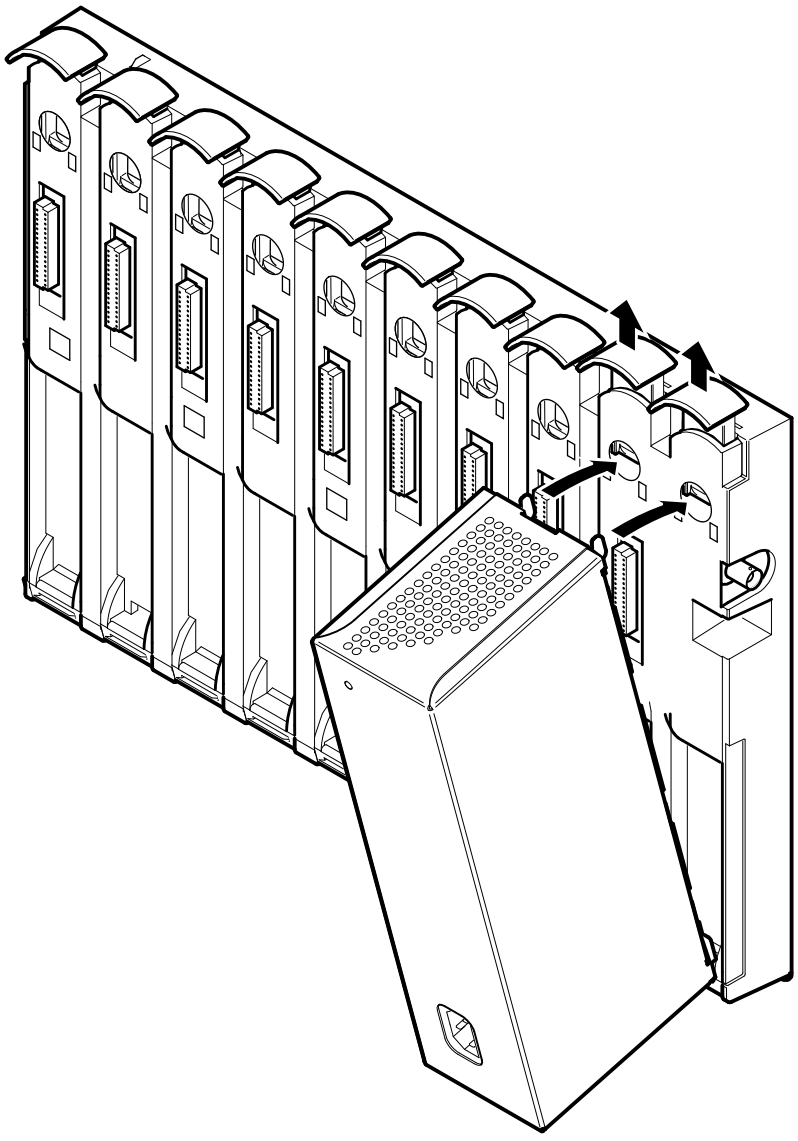

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Figure 3–2 Installing the Backplane Power Supply

Make Connections.

Attach the power cord to the power supply and to a working AC outlet. Verify that the green LED on the power supply turns on.

You are ready to make the necessary network connections and install Work Group units in the backplane. Refer to Chapter 2 for configuration rules and guidelines for the backplane. When installing Work Group units in the backplane, refer to the related documentation for installation and verification procedures and additional configuration requirements.

Solid Wall Installation

The DEChub 90 backplane can be mounted directly to a solid wall (wood that is a minimum of 3/8 inch thick) through the two slotted mounting holes on the back of the unit.

NOTE

The total weight of the DEChub 90 backplane and eight modules is approximately 23 pounds. The weight and stress provided by the cables must be considered when choosing a location for the DEChub 90 backplane.

Mount backplane.

1. Mark the location for the two #10 mounting screws.
   a. The screws should be 16 inches on center.
   b. To place the LED indicators of the Work Group units at eye level it is recommended that the mounting screws be approximately 58 inches from the floor.
2. Using a 7/64 inch bit, drill pilot holes at the locations marked on the wall.
3. Screw the wood screws into the pilot hole until each screw head is 1/8 inch from the surface of the wall.

4. Set the slotted holes on the back of the backplane over the heads of the screws and slide the rack mount down until the screws contact the top of the slots (Figure 3–3).

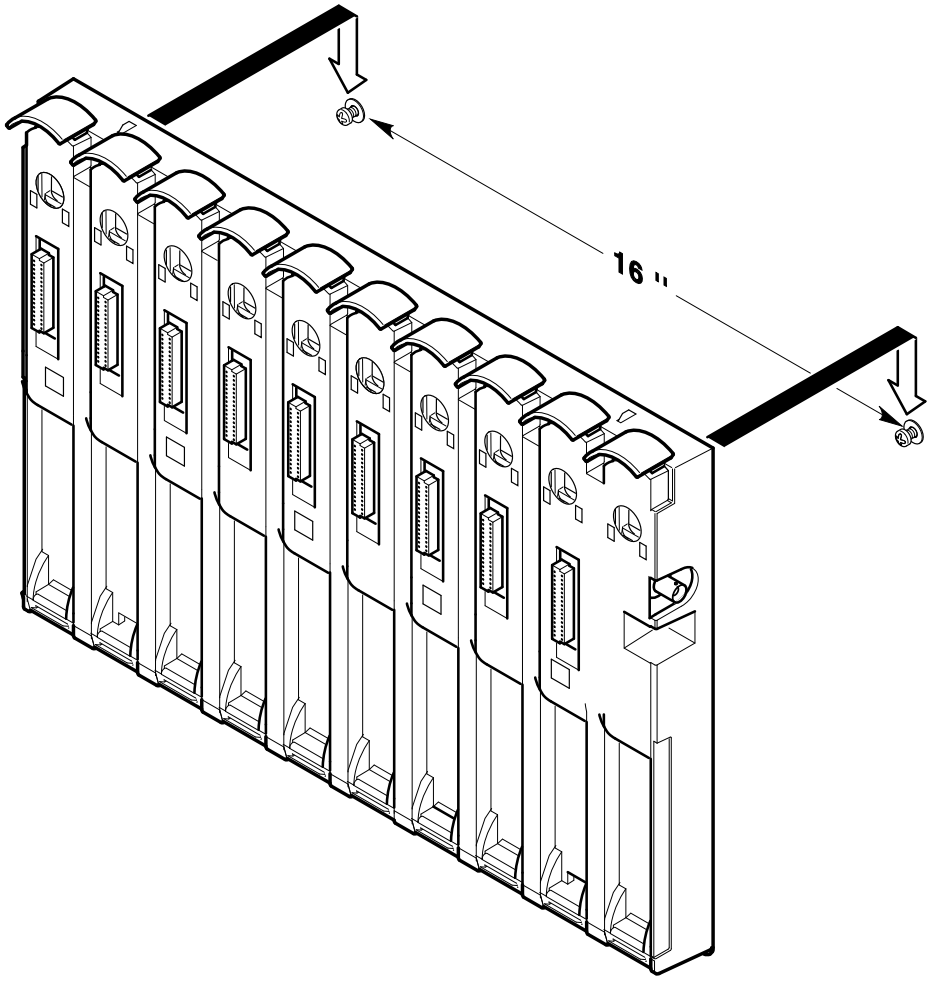

Figure 3–3 Mounting DEChub 90 Backplane on a Solid Wall

Install backplane power supply.

Install the backplane power supply as shown in Figure 3–2.

a. Place the mounting tabs on the bottom of the power supply in the mounting slots of the backplane.

b. With one hand raise the two release levers for the power supply slot.

c. With your other hand, rock the power supply into place. Verify the alignment of the power supply connector and backplane connector as the power supply is rocked into place.

d. Lower the two release levers to lock the power supply in place.

Make connections.

Attach the power cord to the power supply and to a working AC outlet. Verify that the green LED on the power supply turns on.

You are ready to make the necessary network connections and install Work Group units in the backplane. Refer to Chapter 2 for configuration rules and guidelines for the backplane. When installing Work Group units in the backplane, refer to the related documentation for installation and verification procedures and additional configuration requirements.

Installation Using DEHUX Wall Mount Plate

The DEChub 90 backplane can be mounted on a wall or office partition using the the DEHUX wall mount plate and cover. In addition, the DEHUX wall mount plate accommodates a variety of industry-standard patch panel sizes for up to 64 connections.

The wall mount plate comes with the hardware to mount the unit on a solid wall, hollow wall, or office partition.

NOTE
The total weight of the DEChub 90 backplane, DEHUX wall mount and cover, and eight modules is approximately 45 pounds. The weight must be considered when choosing a location for the wall mount plate and backplane.

Wall Mount Installation

Mount backplane.

1. Locate the wall mount plate and have someone hold it in place against the wall (Figure 3–4). To place the LED indicators of the Work Group units at eye level, it is recommended that the top of the wall plate be approximately 63 inches from the floor.

   NOTE
   There are eight slotted mounting holes in the wall mounting plate, use the four nearest the corners for stability. The other four holes are to be used if the unit cannot be securely fastened to the mounting surface using the four corner holes.

2. Mark the four slotted mounting hole locations on the wall, and set the wall mounting plate aside.

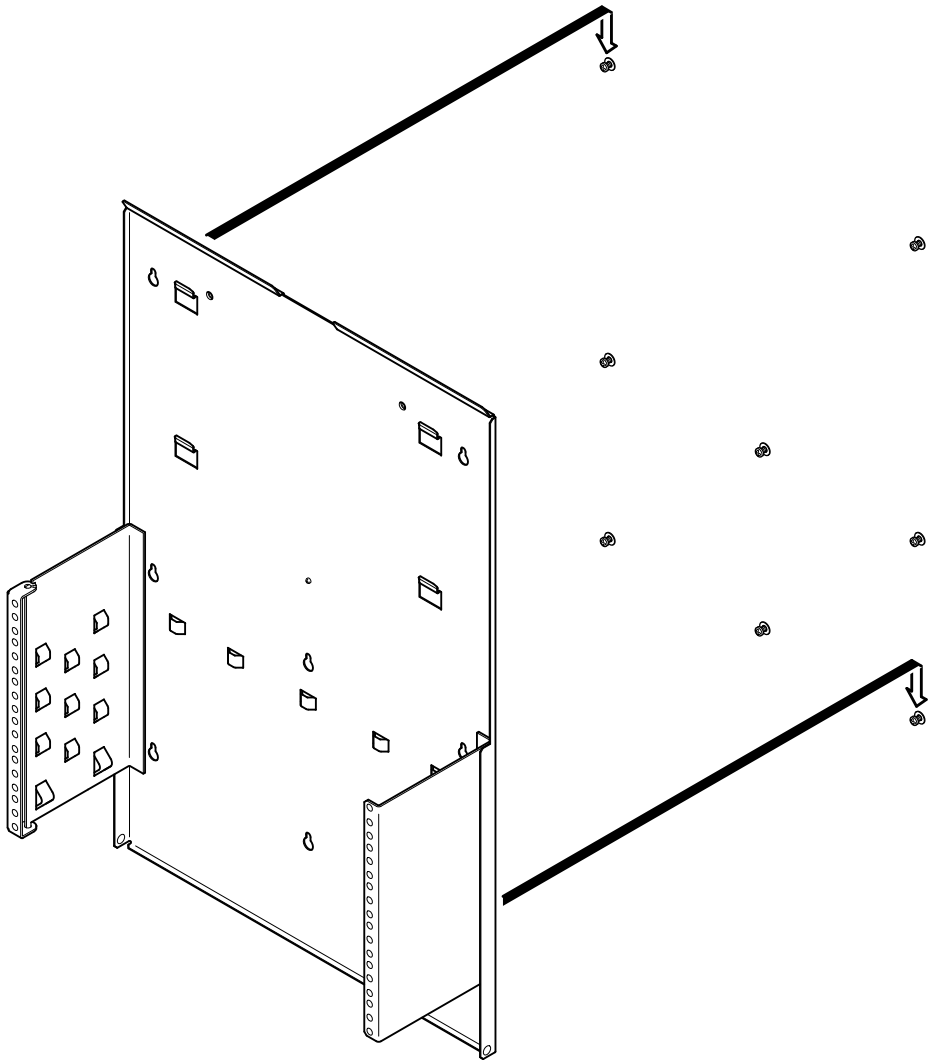

Figure 3–4 Wall Mount Plate

3. Select the appropriate fastener for the mounting surface.

   The supplied wood screws can be used when the mounting surface is a wood surface that is a minimum of 3/8 inch thick.

   The supplied hollow wall fasteners can be used when the mounting surface is a hollow wall that is a maximum of 5/8 inch thick.

4. Using the selected fastener, prepare to hang the wall mounting plate.

   Wood Screws:

   a. Using a 7/64 inch bit, drill pilot holes at the locations marked on the wall.

   b. Screw the wood screws into the pilot hole until the screw head is 1/4 inch from the surface of the wall.

   Hollow Wall Fasteners:

   a. Using a 7/16 inch bit, drill pilot holes at the locations marked on the wall.

   b. Insert the hollow wall fasteners in the pilot holes and set them in place by tightening the screws.

   c. Unscrew each mounting screw until the screw head is 1/4 inch from the wall.

5. Set the slotted holes of the wall mount plate over the heads of the screws, and slide the wall mount plate down until the screws contact the top of the slots.

6. Tighten the mounting screws.

7. Place the backplane over the four hooks on the wall mount plate, and press down until the backplane locks into place as shown in Figure 3–5.

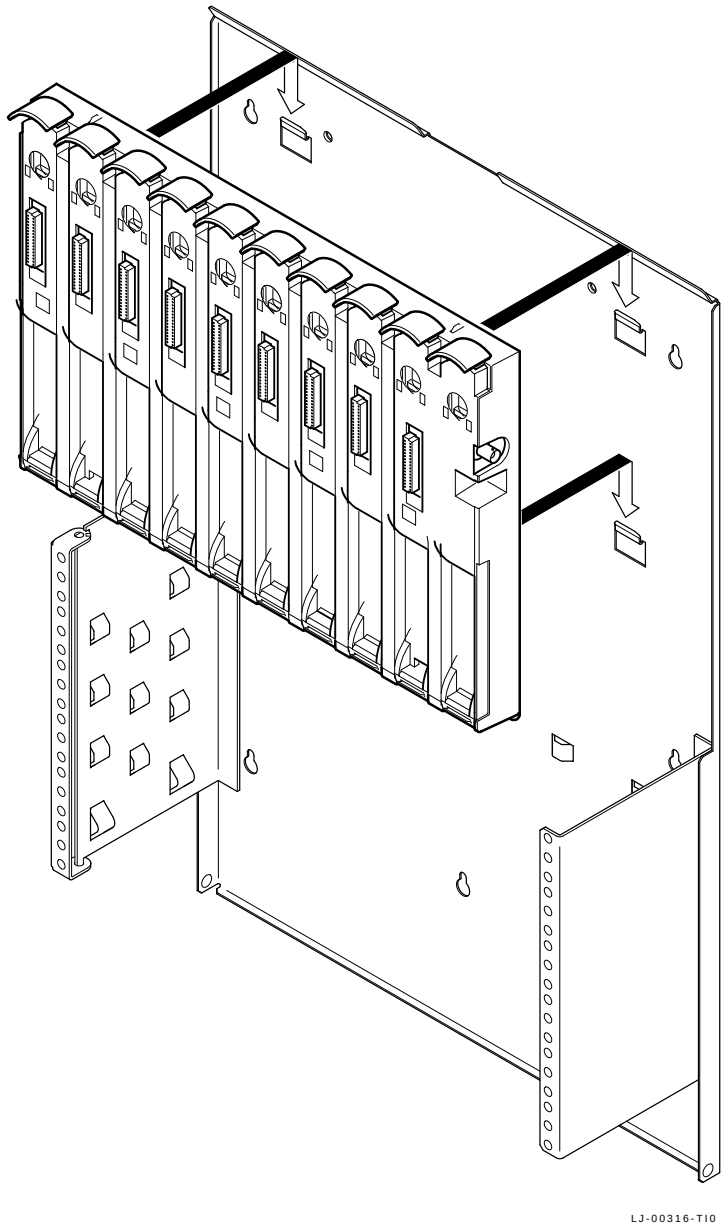

Figure 3–5 Installing the Backplane on the Wall Mount Plate

Install backplane power supply.

Install the backplane power supply as shown in Figure 3–2.

a. Place the mounting tabs on the bottom of the power supply in the mounting slots of the backplane.

b. Raise the two release levers for the power supply slot.

c. Rock the power supply into place. Verify the alignment of the power supply connector and backplane connector as the power supply is rocked into place.

d. Lower the two release levers to lock the power supply in place.

Make connections.

Attach the power cord to the power supply and to a working AC outlet. Verify that the green LED on the power supply turns on.

You are ready to make the necessary network connections and install Work Group units in the backplane. Refer to Chapter 2 for configuration rules and guidelines for the backplane. When installing Work Group units in the backplane, refer to the related documentation for installation and verification procedures and additional configuration requirements.

Office Partition Mounting

Mount backplane.

1. Locate the office partition brackets and the four #6 screws that are supplied with the wall mount plate.

2. Attach the office partition brackets, using the #6 screws, to the wall mount plate.

3. Hang the wall mount plate on the office partition.

4. Attach the backplane to the wall mount plate as shown in Figure 3–5.

Install backplane power supply.

Install the backplane power supply as shown in Figure 3–2.

a. Place the mounting tabs on the bottom of the power supply in the mounting slots of the backplane.

b. Raise the two release levers for the power supply slot.

c. Rock the power supply into place. Verify the alignment of the power supply connector and backplane connector as the power supply is rocked into place.

d. Lower the two release levers to lock the power supply in place.

Make connections.

Attach the power cord to the power supply and to a working AC outlet. Verify that the green LED on the power supply turns on.

You are ready to make the necessary network connections and install Work Group units in the backplane. Refer to Chapter 2 for configuration rules and guidelines for the backplane. When installing Work Group units in the backplane, refer to the related documentation for installation and verification procedures and additional configuration requirements.

Patch Panel

The patch panel may be supplied by Digital Equipment Corporation or the customer. The DEHUX rack mounts accept a variety of standard 19 inch panels with a maximum height of 10½ inches. This provides space for two standard 5¼ inch or 3½ inch high patch panels. Each panel is secured to the mounting brackets using four screws. The left hand mounting bracket pivots to allow access to the back of the installed patch panels without fully removing the patch panel(s). Cables are dressed down the left rack mount using cable-ties and the loops stamped in the hinged mounting bracket.

Installing the Cover

The DEHUX cover is an attractive enclosure providing protection and security for the backplane and installed components. After you are finished installing and cabling the Work Group units, you can install the cover as shown in Figure 3–6. For security purposes, the cover has two holes in its lower left- and right-hand corners that align with two holes in the wall mount plate. You can use a lock or some other device to lock the cover in place.

To install the DEHUX cover:

1. Place the cover over the wall mount plate, backplane, and distribution panels.

2. Slide the cover down until the top back edge of the cover catches on the top lip of the wall mount plate.

The cover can be locked to the wall plate through the holes located at the lower left- and right-hand corner of the cover.

3. Mark the location label and slide it in to the slots on the top of the cover.

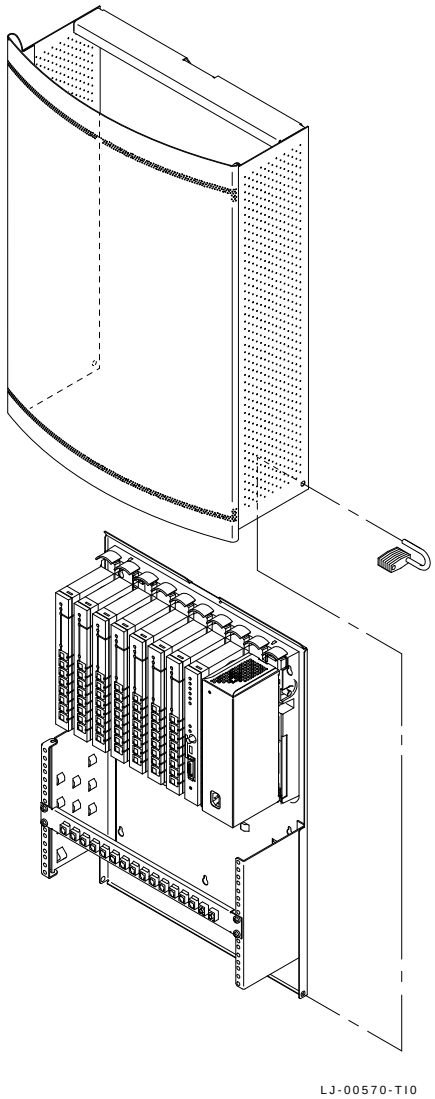

Figure 3–6 Installing the Cover

Installing Work Group Units in the Backplane

When installing Work Group units in the backplane, refer to the related documentation for complete installation and verification procedures.

To install Work Group units in the backplane:

1. If the Work Group unit to be installed in the backplane has a cover on the back of the unit, remove the cover (Figure 3–7).

   To remove the back cover on a Work Group unit:

   a. Insert a small screwdriver into the top mounting hole in the cover.

   b. Lift up on the latch.

   c. While lifting up on the latch, pull the top of the cover away from the unit and down.

2. Place the lower mounting tab, located on the back of the unit, in the appropriate mounting slot on the backplane (Figure 3–8).

3. Rock the unit into place. An audible “click” is heard when the unit is securely latched in place.

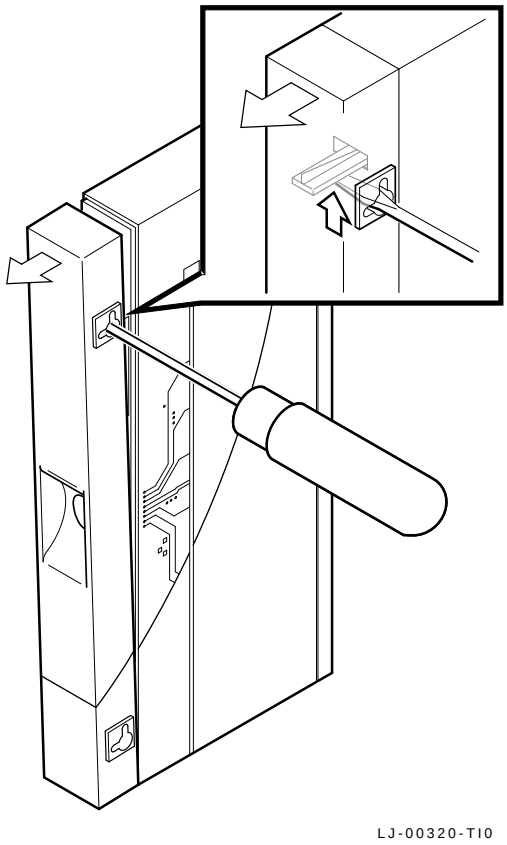

Figure 3–7 Removing the Back Cover of a Work Group Unit

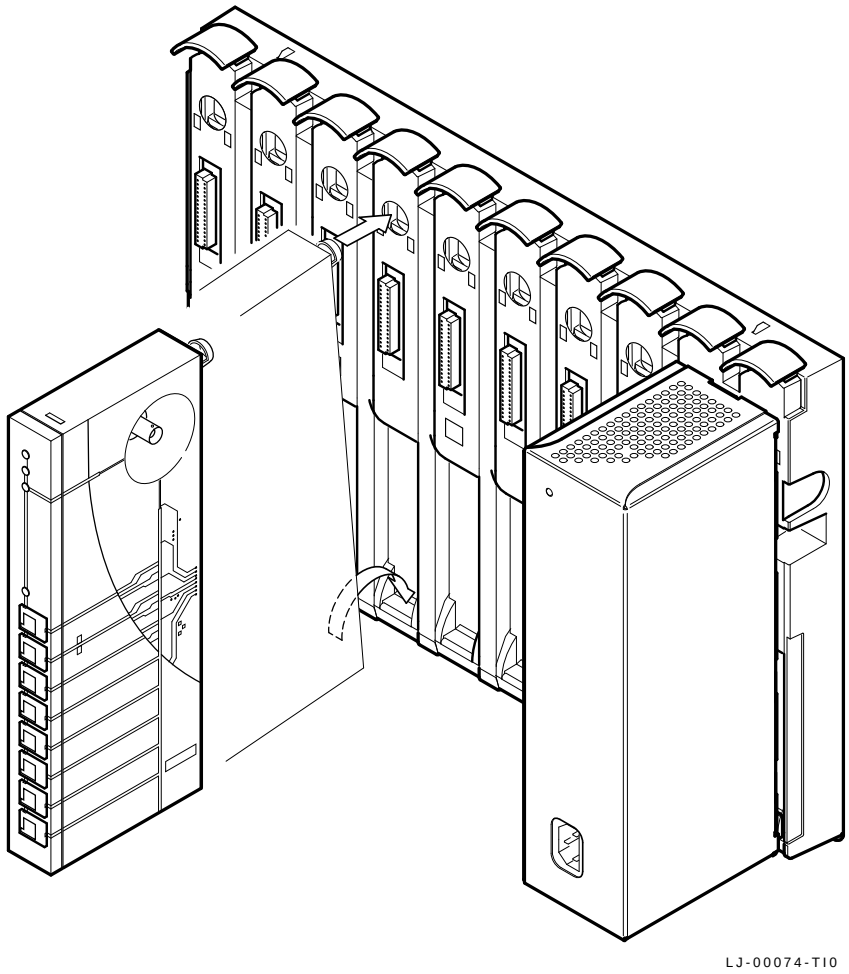

Figure 3–8 Installing a Work Group Unit in the DEChub 90 Backplane

4
Troubleshooting

This chapter provides information on troubleshooting the DEChub 90 backplane and power supply. Before you begin, you should:

1. Verify the installation of the unit.
   - Ensure that the installation of the unit meets the configuration rules given in Chapter 2.
   - Ensure that the Work Group units are working properly. Refer to the related documentation for each unit.
2. Note the fault condition.
3. Isolate the problem. Use Table 4–1 as a guide to determine the probable cause and the suggested solution.

Table 4–1 DEChub 90 Backplane Troubleshooting

If...	Then...	Do this...
The LED on power supply is "blinking"	The short or overload is caused by a Work Group unit.	Remove all units from the backplane. Verify each unit by installing units one at a time. Replace the unit causing the problem. If the problem occurs with every unit tested in the backplane, it could be a possible bad power supply or backplane,then replace the power supply. If the problem still exists, then replace the backplane.
The LED on the power supply is not "on"	The power supply is not receiving AC power.	Check that the AC power cord is connected to an AC outlet and that it is properly seated in the power supply connector. Verify that the AC outlet is working. If the problem still exists, then replace the power supply.
DECbridge 90 Work Group Bridge does not work	The unit is not receiving +12 V.	The unit is not installed in slot 7 or 8 of the backplane. Install the unit in slot 7 or 8. Slot 8 is recommended.
	The two DECbridge 90s is installed in slot 7 and 8.	Remove one of the units.

A
Specifications and Parts List

This appendix describes the specifications for the DEChub 90 and the DEHUX wall mount option. This appendix also provides a parts list for the DEChub 90 backplane and the DEHUX wall mount option.

Specifications

This section describes the mechanical, electrical, and environmental specifications for the DEChub 90 and the DEHUX wall mount option.

Mechanical

The following are the mechanical specifications for the DEChub 90 and the DEHUX wall mount option:

Component Weights

Part	Specification
DEChub 90 backplane	2.27 kg (5 lb)
DEChub 90 power supply	1.82 kg (4 lb)
DEHUX wall mount panel	5.45 kg (12 lb)
DEHUX cover	4.55 kg (10 lb)
Work Group Unit	.68 kg (1.5 lb) typical

Wall Mount Option (DEHUX)

	Part	Specification
Mounting Area:	Height	73.66 cm (29 in)
	Width	54.61 cm (21½ in)
Required Clearances:	Top and Bottom	30.48 cm (12 in)
	Sides	2.54 cm (1 in)
	Front (outward from wall)	62.23 cm (24½ in)

Rack Mount Option (DEChub 90)

	Part	Specification
Mounting Area:	Height	30.48 cm (12 in)
	Width	44.45 cm (17½ in)
	Depth (excluding cables)	16.51 cm (6½ in)
Required Clearances:	Top and Bottom	30.48 cm (12 in)
	Sides (beyond Rack)	2.54 cm (1 in)
	Rear (behind rack)	15.24 cm (6 in)
	Front (in front of rack)	30.48 cm (12 in)

Electrical

The following table lists the electrical specifications for the DEChub 90:

Part	Specification
Input Voltage:	120 Vac nominal, single phase or 240 Vac nominal, single phase. Power supply will auto select correct voltage range.
Line Frequency:	47 to 63 Hz
Input Current:	3.8 amps at 120 Vac 1.9 amps at 240 Vac
Power:	90 watts maximum

Environmental

The following are the environmental specifications for the DEChub 90 backplane:

Cooling: Convection and fan.

Operating Temperature: +5°C to +50°C

Operating Humidity: 10% to 95%, noncondensing

Parts List

The following table contains a parts list for the DEChub 90 backplane:

DEChub 90 Backplane

Quantity	Description
1	DEChub 90 Backplane, 8 slots
1	Power supply
1	AC power cord
1	BC-16M-06 ThinWire office cable
2	Rack mount brackets
4	8-32 x 1/2 inch machine screws
4	10-32 x 1/2 inch machine screws
4	10-32 U-nuts
2	10 x 1 inch wood screws

DEHUX Wall Mount and Cover

The following table contains a parts list for the DEHUX wall mount and cover:

Quantity	Description
1	DEHUX wall mount plate
1	DEHUX cover
1	Location label
2	Partition hangers
2	8-32 x 5/16 inch machine screws
6	10 x 1 inch wood screws
6	3/16 x 2 inch hollow wall fasteners
8	10-32 x 1/2 inch machine screws
8	10-32 U-nuts

B
Related Documentation

Document Title	Order Number
Network Wiring and Applications Guide	EB-K2411-42
OPEN DECconnect System Guide	EC-H0631-42
DECconnect System Requirements Workbook	EK-DECSY-EG
DECconnect System Fiber Optic Installation Guide	EK-DECSY-FI
DECconnect System Fiber Optic Planning and Configuration Guide	EK-DECSY-FP
OPEN DECconnect Components and Applications Catalog	EB-K2407-42

Ordering Information

Customers may order documents by phone or mail.

Continental USA and Puerto Rico

Call 800-258-1710 or mail to:

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Peripherals and Supplies Group
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Nashua, NH 03061

New Hampshire, Alaska, and Hawaii

Call 1-603-884-6660.

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Order Processing Section